Department of Energy

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DEC 0 1 2015

PPPO-03-3175756-16

Dr. David Snyder
Archaeology Reviews Manager
Ohio History Connection
State Historic Preservation Office
800 East 17th Avenue
Columbus, Ohio 43211

Dear Dr. Snyder:

TRANSMITTAL OF THE COMPREHENSIVE SUMMARY REPORT OF CULTURAL RESOURCE SURVEYS AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

Enclosed for your information is the report "*Comprehensive Summary Report of Cultural Resource Investigations Conducted at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio*". This report fulfills a commitment made by the Department of Energy (DOE) in the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) Record of Decision for the Site-Wide Waste Disposition Evaluation Project and the Record of Decision for the Process Buildings and Complex Facilities Decontamination and Decommissioning Evaluation Project.

The purpose of the Comprehensive Summary Report is to summarize all of the National Historic Preservation Act-related studies conducted at PORTS to enable a better understanding of the breadth of history at PORTS. DOE began conducting cultural resource surveys at PORTS in 1996 for purposes of identifying historic properties (both architectural and archaeological resources) and since that time has prepared numerous reports. The reports covered prehistoric, historic-era, and DOE-era resources. The surveys have assisted and will continue to assist DOE in considering historic properties in carrying out our site mission.

The individual survey reports have been submitted to your office over the years and can also be found at http://www.energy.gov/pppo/downloads/national-historic-preservation-act-documents-portsmouth. The enclosed *Comprehensive Summary Report of Cultural Resource Investigations Conducted at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio* summarizes the results of those many reports. It is important to DOE that this Comprehensive Report enables the public to have a useful resource in understanding and interpreting the overall history of the PORTS site.

A copy of the report is enclosed and can also be obtained at the Environmental Information Center by contacting 740-289-8898 or at eic@wems-llc.com. Additionally, an electronic copy can be found at http://www.energy.gov/pppo/downloads/national-historic-preservation-act-documents-portsmouth.

If you have any questions, please contact Amy Lawson of my staff at 740-897-2112.

Sincerely,

Dr. Vincent Adams
Portsmouth Site Director
Portsmouth/Paducah Project Office

Enclosure:
Comprehensive Summary Report of Cultural Resource Investigations Conducted at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.

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Comprehensive Summary Report of Cultural Resource Investigations Conducted at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio

FBP-ER-GEN-BG-RPT-0055 Revision 4

GRAY & PAPE, INC.
ARCHAEOLOGY • HISTORY • HISTORIC PRESERVATION

MAY 22, 2014

LEAD AGENCY:
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FBP-ER-GEN-BG-RPT-0055

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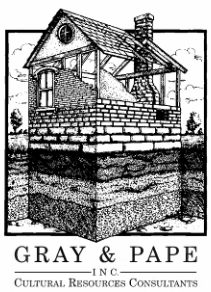

Project No. 12-63201.002

Comprehensive Summary Report of Cultural Resource Investigations Conducted at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio

Lead Agency:
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May 22, 2014

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EXECUTIVE SUMMARY

At the request of Fluor-B&W Portsmouth LLC, Piketon, Ohio, on behalf of the United States Department of Energy (DOE), Gray & Pape, Inc., Cincinnati, Ohio, prepared this comprehensive summary report to document and review the cultural resources surveys conducted at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio. This report was written as part of DOE efforts to comply with Section 110 of the National Historic Preservation Act. Surveys have been conducted over a period of nearly 20 years resulting in multiple documents and reports containing survey results. One objective of this report is to consolidate that information into one summary level report. The intent of the document is to discuss the three major phases of occupation at PORTS (prehistoric, historic era, and DOE era) and to describe DOE efforts to identify cultural resources from each period.

Between 1993 and 2013, the DOE completed numerous projects aimed at fulfilling their responsibilities under Sections 110 and 106 of the National Historic Preservation Act (NHPA). During this period, the DOE actively engaged in correspondence with the Ohio Historic Preservation Office (OHPO) regarding the eligibility and status of a host of buildings at PORTS. These projects and correspondence sought to identify and assess cultural resources (archaeological and architectural) located within the facility. The vast majority of this work was conducted under Section 110 of the NHPA, but several more recent projects were completed as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) characterization effort associated with the environmental remediation at PORTS.

Cultural resources studies have resulted in the production of numerous technical reports. These studies have documented project findings, assessed the National Register of Historic Places (NRHP) eligibility of identified cultural resources, and provided recommendations for further work. Cultural resources identified include an array of prehistoric and historic-era archaeological sites, as well as many historic-era and DOE-era structures. Specifically, the resources identified include 99 archaeological sites assigned formal trinomial state site numbers and 196 architectural buildings or structures. Of the 99 archaeological sites, six (33PK189, 33PK214, 33PK347, 33PK348, 33PK371, and 33PK372) have been determined eligible for inclusion in the NRHP. The architectural resources at PORTS have been thoroughly inventoried and the eligibility of these resources is under assessment.

1.0 INTRODUCTION

At the request of Fluor-B&W Portsmouth LLC, Piketon, Ohio, on behalf of the United States Department of Energy (DOE), Gray & Pape, Inc. (Gray & Pape), Cincinnati, Ohio, prepared this comprehensive summary report to discuss cultural resources associated with the three broad periods of occupation on the property within the current boundaries of the Portsmouth Gaseous Diffusion Plant (PORTS), Scioto and Seal Townships, Pike County, Ohio. These periods include: prehistoric, historic era, and modern or DOE era, as described in Table 1 below. The table also includes information regarding the types of surveys completed for each period of occupation.

Table 1. Periods of Occupation at the Portsmouth Gaseous Diffusion Plant Assessed for Cultural Resources (Under Section 110 of the NHPA)

Period Name	Time Frame	Cultural Resources And Survey Type
Prehistoric	• 10,000 B.C. to A.D. 1650	• Archaeological Sites • Historical document review, Phase I survey, Phase II testing
Historic Era	• A.D. 1650 to 1952	• Archaeological farmsteads, structural, and other cultural resources • Historical document review, preliminary field assessment, Phase I survey, Phase II testing
DOE Era	• 1952 to present	• Buildings and structures • Phase I architectural survey

2.0 CULTURAL RESOURCES AND THE FEDERAL COMPLIANCE PROCESSES

In 1996, the DOE initiated a large-scale survey at PORTS. At that time, PORTS was managed by the DOE Oak Ridge Operations Office in Tennessee. The impetus for the survey was the 1992 issuance of amendments to the National Historic Preservation Act (NHPA) (Section 110), as well as the coincident 50-year mark for the Manhattan Project. Surveys began in Oak Ridge in 1992, since the facilities there were Manhattan Project/1942-vintage. PORTS, as a Cold War-era facility, was not constructed until 1953 and thus was considered to have a later potential period of significance.

This report was written as part of DOE efforts to comply with Section 110 of the NHPA. The NHPA represents the primary cultural resource preservation law in the United States. Section 110 of the NHPA dictates that federal agencies need to consider the preservation of resources that they own or manage, which are determined to be historic properties (i.e., properties eligible for inclusion in the National Register of Historic Places [NRHP]), even if these resources will not be immediately impacted by a current undertaking. An undertaking can be a range of any projects or activities that will result in some disturbance or alteration to a property. Section 110 activities typically include creating inventories of all known cultural resources on a property and assessing resources to determine if they are eligible for the NRHP.

Cultural resources refer to "those parts of the physical environment - natural and built - that have cultural value of some kind to some socio-cultural group" (King 1998:9; cf Lynch 1972; Rapoport 1982). In the case of PORTS, cultural resources primarily refer to archaeological and architectural resources considered historic properties according to the NHPA. In this statute, a historic property is defined as:

> *...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion on the National Register (of Historic Places), including artifacts, records, and material remains related to such a property…* (National Historic Preservation Act: Sec. 301[5]).

The NRHP is an inventory of districts, sites, buildings, structures, and objects that hold importance on a national, state, or local level in American history. At PORTS, NRHP-eligible resources refer to archaeological and architectural sites, and potentially, items salvaged from those sites (National Park Service 1997).

The compliance process refers to the legislatively required steps that federal agencies take to identify, document, assess, and manage their historic properties. For the PORTS facility, the DOE is the federal agency of record and they are responsible for implementing the federal compliance process. Compliance encompasses a wide range of statutes that deal with cultural resources (in addition to natural, or environmental, resources). The most important statutes involved are the National Environmental Policy Act (NEPA) and the NHPA. Two of the key

provisions of the NHPA are Sections 106 and 110. Section 110 was defined above; Section 106 specifically requires that every federal agency take into account how a proposed undertaking could impact historic properties (either ones listed on the NRHP or ones determined eligible for listing).

The majority of clean-up work conducted at PORTS is being performed under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Enacted in 1980 CERCLA legislation provides federal agencies the ability to respond to "releases or threatened releases of hazardous substances that may endanger public health or the environment" (EPA Superfund 2012). Most of the Decontamination and Decommission (D&D) and waste disposition efforts currently underway at PORTS are conducted under CERCLA. The evaluation of potential impacts on historic properties and any steps to avoid, minimize or mitigate impacts will be addressed and performed via the CERCLA process.

A Consent Decree, signed in 1989 by DOE and Ohio EPA, and an Administrative Consent Order (amended in 1997) with the U.S. Environmental Protection Agency (EPA) and DOE require the investigation and cleanup of soils and groundwater at PORTS in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) Corrective Action Program under Ohio hazardous waste laws. Investigation and cleanup efforts for any affected soils and groundwater are addressed under the RCRA Corrective Action Program.

A significant portion of the cultural resources work conducted at PORTS falls under the purview of Section 110 of the NHPA. Most of this work has been conducted as a means to generate an inventory of historic properties owned by DOE (federal agency) at PORTS. Locally, the Ohio Historic Preservation Office (OHPO) plays a key role in the implementation of the NHPA.

The federal compliance process is complex. Additional resources are available to explain the nuances of these laws.

3.0 ARCHAEOLOGICAL RESOURCES AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

Beginning in 1996 to 1997, numerous archaeological investigations have been conducted at PORTS. This research has included various levels of effort, ranging from archival map, aerial photograph, and historical document reviews to field investigations to determine the integrity of archaeological resources and their potential for inclusion to the NRHP. Table 2 provides a list of all documented archaeological sites recorded since 1996 to 1997; an inventory of all corresponding cultural resource studies and reports is provided in Appendix A. Table 2 includes all (n=117) archaeological resources identified within the PORTS Facility, including those assigned formal site trinomials by OHPO (n=99), as well as those that, due to a lack of archaeological integrity, were not (n=18). The 117 archaeological resources, which will all be addressed in this document, consist of 54 prehistoric sites, 61 historic-era sites, four DOE-era sites, and 40 historical map building locations (HMBL). These counts do not total 117 because 20 of the sites have both prehistoric and historic-era components and 22 of the 40 HMBLs are listed under their assigned site numbers (prehistoric, historic era, or DOE era), while the remaining 18 HMBLs have no site numbers because investigation revealed no cultural material at the locations or because they lacked archaeological integrity. Although the non-site HMBLs are listed as historic-era in nature, given their non-site status, their temporal affiliation is not included in the historic-era tally of 61 sites. In Table 2, prehistoric sites are color-coded red, historic-era sites are coded blue, and DOE-era sites are coded aqua. The 20 sites that have both prehistoric and historic-era components are classified according to their dominant component. Other table columns provide information regarding the level of effort of work undertaken at each site/HMBL, recommendations regarding eligibility for inclusion in the NRHP, and the survey report reference.

For this survey summary document, all archaeological projects conducted at PORTS were classified according to level of effort - from historical document reviews to Phase II archaeological investigations. The following categories define each level of effort:

1. *Historical Document Review:* This level of effort describes any project that included a review of historical maps, aerial photographs, or other documents (newspapers, published books, etc.) in search of evidence for the locations of archaeological sites. This included both historic-era sites (e.g., farmsteads) and prehistoric sites (e.g., Native American burial mounds). The types of documents inspected varied, but included topographic maps (including recent LiDAR [Light Detection and Ranging] files), aerial photographs, property maps, newspaper articles, published books on archaeology (e.g., Mills 1914), etc. Results of this work were plotted on maps and potential sites were further investigated.

2. *Preliminary Field Assessment:* This category involved a preliminary level of field investigation. These assessments were conducted to determine if potential archaeological sites (as revealed through historical document reviews): (1) were still intact; (2) retained archaeological integrity; and (3) were potentially significant.

3. Importantly, this level of effort does not meet the standards of archaeological documentation put forth by the OHPO (1994). Preliminary field assessments were conducted to determine if more formal Phase I surveys were required.

4. *Phase I:* This category includes archaeological surveys that meet the guidelines of a Phase I Survey as outlined by the OHPO (1994). Generally, Phase I investigations are intended to provide a description of all archaeological resources within PORTS. A Phase I survey must, therefore, be conducted in such a manner as to make it highly probable that any extant sites will be detected (OHPO 1994:18).

5. *Phase II:* Phase II testing is called evaluative testing by the OHPO and "is designed to sample the archaeological resources identified during the Phase I survey and allow a decision to be made about significance, defined as eligibility of the site for listing in the National Register of Historic Places and/or the State Registries" (OHPO 1994:19). Again, guidelines outlined by the OHPO (1994) must be met for archaeological work to be considered a formal Phase II level of effort.

6. *Phase III:* Phase III investigations represent the last level of archaeological investigations conducted within the federal compliance process. In contrast to Phase I or II, Phase III work is only conducted for archaeological sites that will be disturbed or destroyed by an undertaking and have been determined eligible for inclusion for the NRHP. Phase III archaeology is designed to "mitigate the adverse effects to significant sites through data recovery. Data recovery investigations generally involve large-scale excavation of archaeological material from a site" (OHPO 1994:20). Phase III work represents the terminal level of effort for archaeological work.

Cultural resource investigations at PORTS comply with guidelines established by the OHPO. These reports follow standard formats and provide information regarding the identification, evaluation and mitigation of cultural resources, including archaeological sites and historic structures.

Table 2. Inventory of Archaeological Sites and Potential Site Locations Identified within the PORTS Facility

Site No.	HMBL No.*	Site Type (primary component)	Historical Document Review	Preliminary Field Assessment	Phase I	Phase II	Phase III	Terminal Recommendation	Reference
33PK184	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge and Mustain 2011
33PK185	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora and Burks 2012b
33PK186	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK187	--	Historic-era, farmstead	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK188	--	DOE-era, industrial	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK189	24	Historic-era cemetery, Prehistoric isolated find	X	X	X			Avoidance and Preservation (NRHP-eligible)	Schweikart et al. 1997; Pecora 2013
33PK190	--	DOE-era, industrial	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK191	--	Historic-era, artifact scatters	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK192	--	Historic-era, artifact scatters	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK193	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge and Mustain 2011
33PK194	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge and Mustain 2011
33PK195	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge and Mustain 2011
33PK196	--	DOE-era, industrial	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK197	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge and Mustain 2011
33PK198	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK199	--	Historic-era, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK200	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK201	--	Historic-era, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK202	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK203	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora and Burks 2012b
33PK204	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK205	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK206	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora and Burks 2012b
33PK207	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997

Key:	
	Prehistoric site location
	Historic-era site location
	DOE-era site location

*** HMBL = Historical Map Building Location**

Table 2. Inventory of Archaeological Sites and Potential Site Locations Identified within the PORTS Facility

Site No.	HMBL No.*	Site Type (primary component)	Historical Document Review	Preliminary Field Assessment	Phase I	Phase II	Phase III	Terminal Recommendation	Reference
33PK208	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK209	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK210	--	Prehistoric, lithic scatter	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Hazel 2003
33PK211	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora and Burks 2012b
33PK212	--	Historic-era, farmstead	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge 2010
33PK213	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Klinge 2010; Pecora 2012a
33PK214	--	Historic-era, cemetery (Holt Cemetery)	X	X	X			Avoidance and preservation (NRHP-eligible)	Schweikart et al. 1997; Ohio Valley Archaeology Inc. 2011; Pecora 2012a
33PK215	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK216	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK217	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora and Burks 2012b
33PK218	--	Historic-era, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Schweikart et al. 1997; Pecora 2012a; Pecora and Burks 2012b
33PK219	--	DOE-era, industrial	X		X			No further work (not eligible)	Schweikart et al. 1997
33PK311	13	Historic-era, farmstead with Prehistoric component	X	X	X			No further work (not eligible)	Pecora 2013; Pecora and Burks 2012a; Pecora 2012a
33PK312	14	Historic-era, farmstead	X	X	X			No further work (not eligible)	Pecora 2013; Pecora and Burks 2012a
33PK313	16	Historic-era, farmstead	X	X				No further work (not eligible)	Pecora 2013
33PK314	17	Historic-era, church	X	X				No further work (not eligible)	Pecora 2013
33PK315	19	Historic-era, farmstead	X	X				No further work (not eligible)	Pecora 2013
33PK316	20	Historic-era, farmstead	X	X				No further work (not eligible)	Pecora 2013
33PK317	21	Historic-era, farmstead with Prehistoric component	X	X	X			No further work (not eligible)	Pecora 2013; Pecora and Burks 2012a
33PK318	22	Historic-era, farmstead with Prehistoric component	X	X	X			No further work (not eligible)	Pecora 2013; Pecora and Burks 2012a
33PK319	43	Historic-era, church	X	X				No further work (not eligible)	Pecora 2013
33PK320	2	Historic-era, buildings	X	X				No further work (not eligible)	Mustain and Klinge 2011
33PK321	3	Historic-era, homestead	X	X				No further work (not eligible)	Mustain and Klinge 2011

Key:	
	Prehistoric site location
	Historic-era site location
	DOE-era site location

*** HMBL = Historical Map Building Location**

Table 2. Inventory of Archaeological Sites and Potential Site Locations Identified within the PORTS Facility

Site No.	HMBL No.*	Site Type (primary component)	Historical Document Review	Preliminary Field Assessment	Phase I	Phase II	Phase III	Terminal Recommendation	Reference
33PK322	4	Historic-era, farmstead	X	X	X			No further work (not eligible)	Mustain and Klinge 2011, 2012; Klinge 2012; Jagel 2012
33PK323	5	Historic-era, schoolhouse with Prehistoric component	X	X	X			No further work (not eligible)	Mustain and Klinge 2011, 2012
33PK324	50	Historic-era, farmstead with Prehistoric component	X	X	X			No further work (not eligible)	Mustain and Klinge 2011, 2012
33PK325	25	Historic-era, farmstead	X	X				No further work (not eligible)	Trader 2011
33PK326	27	Historic-era, farmstead	X	X	X			No further work (not eligible)	Trader 2011; Vehling et al. 2011
33PK327	28	Historic-era, church	X	X	X			No further work (not eligible)	Trader 2011; Vehling et al. 2011
33PK328	36	Historic-era, farmstead	X	X				No further work (not eligible)	Trader 2011
33PK329	37	Historic-era, farmstead	X	X				No further work (not eligible)	Trader 2011
33PK330	52	Historic-era, church	X	X	X			No further work (not eligible)	Trader 2011; Vehling et al. 2011
33PK331	53	Historic-era, barn	X	X				No further work (not eligible)	Trader 2011
33PK339	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain 2012b
33PK340	--	Historic-era scatter	X		X			No further work (not eligible)	Mustain 2012b
33PK341	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain 2012b
33PK342	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain 2012b
33PK343	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain 2012b
33PK344	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Pecora 2012a
33PK345	--	Historic-era, cabin	X		X			No further work (not eligible)	Pecora 2012a
33PK346	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Pecora 2012a
33PK347	--	Prehistoric, lithic scatter	X		X	X		Avoidance or mitigation (NRHP-eligible)	Pecora 2012a; Pecora and Burks 2013a
33PK348	--	Prehistoric, lithic scatter	X		X	X		Avoidance or mitigation (NRHP-eligible)	Pecora 2012a; Pecora and Burks 2013a
33PK349	--	Historic, farmstead with Prehistoric component	X		X	X		No further work (not eligible)	Pecora 2012a; Pecora and Burks 2013a
33PK350	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Pecora 2012a
33PK351	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Pecora 2012a
33PK352	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Pecora 2012a

Key:	
	Prehistoric site location
	Historic-era site location
	DOE-era site location

*** HMBL = Historical Map Building Location**

Table 2. Inventory of Archaeological Sites and Potential Site Locations Identified within the PORTS Facility

Site No.	HMBL No.*	Site Type (primary component)	Historical Document Review	Preliminary Field Assessment	Phase I	Phase II	Phase III	Terminal Recommendation	Reference
33PK353	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Pecora 2012a
33PK354	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK355	--	Historic-era, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK356	--	Historic-era, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK357	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK358	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK359	--	Historic-era, artifact scatter with Prehistoric component	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK360	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK361	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK362	--	Historic-era, dump	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK363	--	Historic-era, bridge	X		X			No further work (not eligible)	Garrard and Burden 2012
33PK364	--	Historic-era, homestead	X		X			No further work (not eligible)	Norr 2012
33PK365	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Norr 2012
33PK366	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Norr 2012
33PK367	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Norr 2012
33PK368	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Norr 2012
33PK369	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Norr 2012
33PK370	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Pecora 2012b
33PK371	--	Prehistoric, lithic scatter	X		X	X		Avoidance or mitigation (NRHP-eligible)	Pecora 2012a; Pecora and Burks 2013a
33PK372	--	Prehistoric, lithic scatter	X		X	X		Avoidance or mitigation (NRHP-eligible)	Pecora 2012a; Pecora and Burks 2013a
33PK373	--	Prehistoric, isolated find	X		X			No further work(not eligible)	Mustain and Lamp 2012
33PK374	--	Historic-era, artifact scatter	X		X			No further work (not eligible)	Mustain and Lamp 2012
33PK375	--	Historic-era, dump	X		X			No further work (not eligible)	Mustain and Lamp 2012
33PK376	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Mustain and Lamp 2012

Key:	
	Prehistoric site location
	Historic-era site location
	DOE-era site location

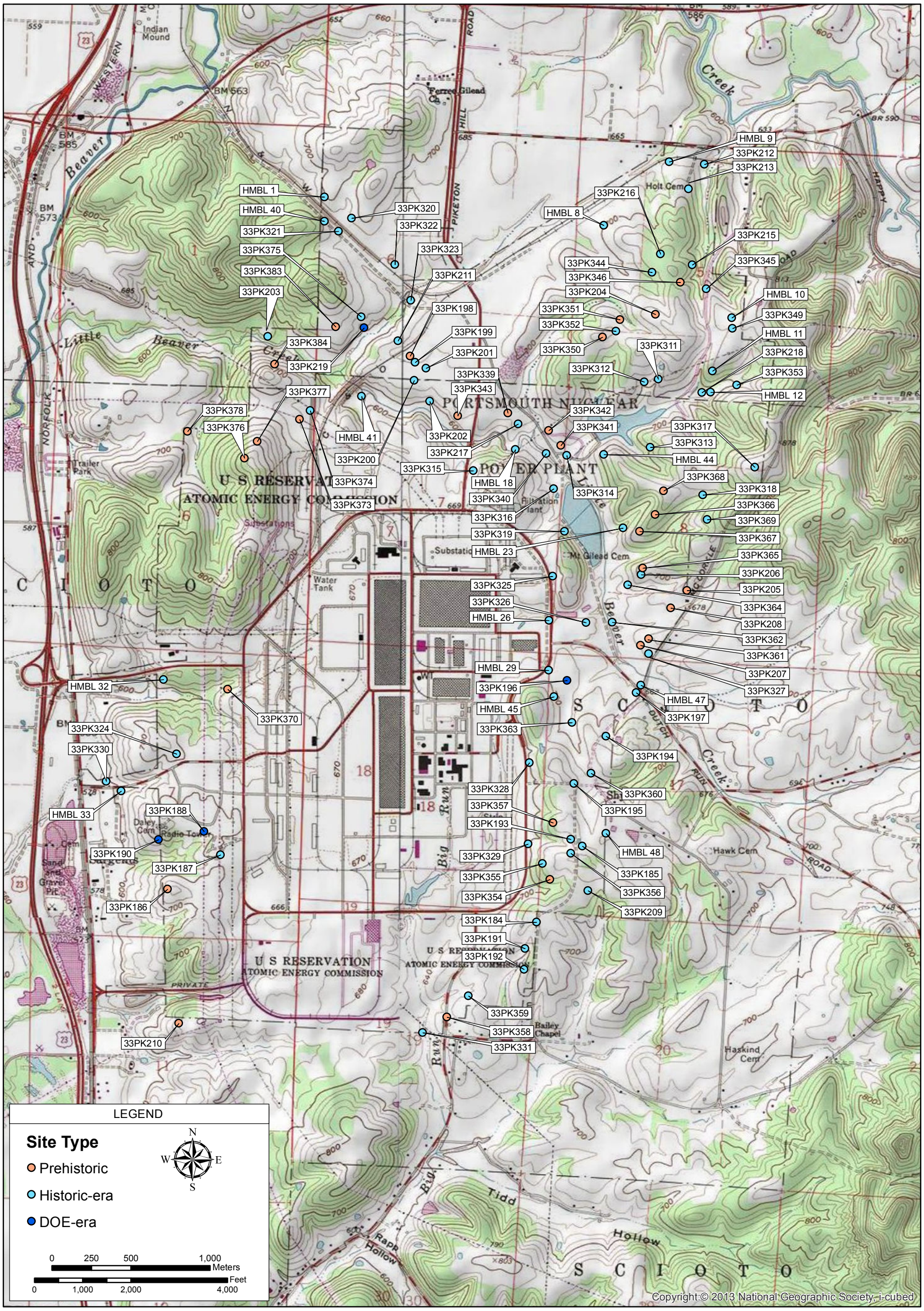
*** HMBL = Historical Map Building Location**

Table 2. Inventory of Archaeological Sites and Potential Site Locations Identified within the PORTS Facility

Site No.	HMBL No.*	Site Type (primary component)	Historical Document Review	Preliminary Field Assessment	Phase I	Phase II	Phase III	Terminal Recommendation	Reference
33PK377	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain and Lamp 2012
33PK378	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain and Lamp 2012
33PK383	--	Prehistoric, lithic scatter	X		X			No further work (not eligible)	Mustain and Lamp 2012
33PK384	--	Prehistoric, isolated find	X		X			No further work (not eligible)	Mustain and Lamp 2012
--	1	Historic-era, homestead?	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	8	Historic-era, unidentified	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	9	Historic-era, building	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	10	Historic-era, unidentified	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	11	Historic-era, unidentified	X	X				No further work (not eligible)	Pecora 2013
--	12	Historic-era, unidentified	X	X				No further work (not eligible)	Pecora 2013
--	18	Historic-era, unidentified	X	X				No further work (not eligible)	Pecora 2013
--	23	Historic-era, unidentified	X	X				No further work (not eligible)	Pecora 2013
--	26	Historic-era, farmstead	X	X				No further work (not eligible)	Trader 2011
--	29	Historic-era, farmstead	X	X				No further work (not eligible)	Trader 2011
--	32	Historic-era, farmstead?	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	33	Historic-era, schoolhouse	X	X				No further work (not eligible)	Trader 2011
--	40	Historic-era, building?	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	41	Historic-era, farmstead	X	X				No further work (not eligible)	Mustain and Klinge 2011
--	44	Historic-era, unidentified	X	X				No further work (not eligible)	Pecora 2013
--	45	Historic-era, homestead	X	X	X			No further work (not eligible)	Trader 2011; Vehling et al. 2011
--	47	Historic-era, barn/house	X	X				No further work (not eligible)	Trader 2011
--	48	Historic-era, outbuildings	X	X				No further work (not eligible)	Trader 2011

Key:	
	Prehistoric site location
	Historic-era site location
	DOE-era site location

*** HMBL = Historical Map Building Location**



Archaeological Sites at the PORTS Facility
Not Eligible for Inclusion in the National Register of Historic Places

4.0 PREHISTORIC ARCHAEOLOGICAL RESOURCES AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

The area surrounding the PORTS facility is known to have a rich history of occupancy that extends back in time some 12,000 years. The prehistoric occupation of Pike County and of southern Ohio as a whole suggests a long and productive use of the land in this region. An extensive prehistoric context statement for PORTS and the region as a whole has been written by Burks (2011b). Burks' *Earthwork and Mound Sites* study provides a detailed summary of all prehistoric archaeological sites in the immediate vicinity of PORTS by discussing the sites within the broad context of the Scioto River Valley and its environs. The reader is referred to this source for a detailed account of the prehistory of the region as the summary reported within the pages of this current document is intended as simply a brief overview that precedes a discussion of DOE efforts to identify and document prehistoric resources at PORTS.

4.1 Prehistoric Native American Occupation in Pike County

The Scioto River Valley has long been recognized to contain some of the richest, and most spectacular, archaeological deposits within Ohio. These resources were first documented formally by Caleb Atwater (1820), who recorded several sites within the Scioto Valley including the Piketon Earthworks (33PK1) located on the southern banks of the Scioto River near present-day Piketon. More intensive investigations were undertaken by Squire and Davis during the mid-nineteenth century (1848).

During the late nineteenth and early twentieth century, a number of archaeological investigations were undertaken within the greater Scioto River Valley. These included excavations by the Ohio Archaeological and Historical Society and the Peabody Museum, as well as many by amateur organizations (e.g., Fowke 1901; Mills 1902, 1907, 1922; Moorehead 1897). Investigations continued to focus on earthwork sites and large villages.

Between approximately 1930 and 1963, professional investigations of the middle Scioto Valley were few. Beginning in the late 1970s with the advent of federal and state preservation legislation, numerous survey-level archaeological investigations were undertaken within the county. More recently, surveys and investigations have been undertaken on a variety of projects within the general area (e.g., Bush 1989; Konicki et al. 2003; Shaffer 1998). Most of these projects were limited in scope, identifying small historic-era and prehistoric resources in the areas of Waverly and Piketon.

Archaeological investigations have identified a persistent Native American presence in the Scioto Valley through time. Based on over 150 years of research in the Midwest, archaeologists have divided this extensive block of time into a series of periods that are based on similarities in subsistence strategies and settlement patterns (Table 3). Investigations have revealed some evidence of Native American occupation in the region for every major archaeological period (Paleoindian to Fort Ancient), a span of some 12,000 years.

Table 3. Prehistoric Timeline for Central Ohio and Archaeological Divisions			
Archaeological Period		**Taxonomic Units**	**Lifestyle and Major Developments**
Protohistoric A.D. 1650 to 1800		--	Much of Ohio was depopulated due to the "Beaver Wars" and was used only for hunting. The area was eventually repopulated by remnants of displaced tribes (Shawnee, Miami, Delaware, Mingo, etc.).
Mississippian, Late Prehistoric A.D. 1000 to 1650		Fort Ancient	Corn-beans-squash agriculture was practiced by populations living in year-round villages.
Woodland	Late A.D. 500 to 1000	Intrusive Mound	Populations were living in dispersed camps. The bow and arrow was invented and crop agriculture (corn, beans, squash) grew in importance.
	Middle 100 B.C. to A.D. 500	Hopewell	People began to build many more burial mounds and other ceremonial earthworks. Groups were living in dispersed hamlets relying on incipient agriculture and hunting/gathering.
	Early 700 to 100 B.C.	Adena	Small dispersed populations were common. Fired-clay pottery use became widespread. Elaborate ceremonialism and mortuary behavior were initiated, including mound construction.
Archaic	Late 4000 to 700 B.C.	--	Large population aggregation in seasonal base camps was observed. There was a hunting and gathering lifestyle, but some experimental horticulture did occur. A focus on bulk-food resource processing (e.g., nuts) was evident.
	Middle 6500 to 4000 B.C.	--	An unpredictable environment lead to low populations across the state. Hunting and gathering was practiced.
	Early 8000 to 6500 B.C.	--	Small, nomadic populations relying on hunting and gathering were observed.
Paleoindian 10,000 to 8000 B.C.		--	Small, nomadic hunting/gathering groups began to populate the area.

The earliest clear evidence for Native American utilization of the Midwest is represented in the Paleoindian Period (about 10,000 to 8000 B.C.). This period was marked by the retreat of the last glaciers and was characterized by a warming climate and the development of hardwood forests. During this time, small groups lived on the landscape in a highly mobile fashion; it is estimated that the entire State of Ohio likely housed less than 700 people at this

time (Seeman 1994). Although most of Ohio's studied Paleoindian Period sites are located in the state's northeast quadrant, the Sandy Springs site is situated on the Ohio River near the confluence of the Scioto River. Sandy Springs is a large site whose occupants crafted the time period's distinctive lanceolate and fluted lanceolate shaped projectile points during repeated visits over a time span of approximately 1500 years (Cunningham 1973; Seeman et al. 1994).

The Early Archaic Period (8000 to 6500 B.C.) was marked by continued warming and a transition to hunting woodland animals such as deer, wild turkey, etc. Early Archaic groups still lived in smaller groups and were highly mobile, but population densities appear to rise dramatically by the end of the period (Purtill 2009).

The succeeding Middle Archaic Period (6500 to 4000 B.C.) is poorly understood. Based on a review of existing material, and radiocarbon dates, scholars suggest that this period witnessed significant population reduction, perhaps by as much as 80 percent (Purtill 2009). The reason for this depopulation is unclear, but environmental evidence suggests that considerable variation in climatic conditions could have resulted in unpredictable resources from year-to-year, making the Ohio region unattractive for habitation during this time (e.g., Shane et al. 2001).

By around 4000 B.C., or the start of the Late Archaic Period (4000 to 700 B.C.), environmental conditions stabilized and the climate assumed modern conditions. Woodland game thrived and forests of nut-bearing trees such as hickories, black walnuts, and oaks rapidly expanded throughout central and southeastern Ohio (Shane et al. 2001). Archaeological investigations at the Madeira Brown site, situated on a terrace of the Scioto River just north of PORTS, provide extensive evidence of nut and squash utilization by Late Archaic groups (Church 1995). These conditions were very favorable for hunter/gatherer societies and archaeological evidence suggests substantial population increases first in the southern part of the state and somewhat later in the north (Purtill 2009). The Late Archaic witnessed intensification of subsistence strategies engaged in during earlier times, especially the collection of wild plant foods and the practice of incipient horticulture. In southern Ohio, some evidence of year-round occupation of sites is found, indicating increased sedentism and greater population across the state (e.g., Purtill 2009; Vickery 2008).

Some of the most dramatic Native American building projects in the Midwest occurred in the Early Woodland Period (700 to 100 B.C.) and the succeeding Middle Woodland Period (100 B.C. to A.D. 500). These periods witnessed the height of the "Moundbuilders Culture," which was characterized by the construction of earthen burial mounds and geometric earthworks. The density of mounds and earthworks in the Scioto Valley attracted the attention of early professional archaeologists.

The Adena Culture of the Early Woodland Period is the best known Early Woodland complex in the area. The burial mounds associated with this cultural manifestation are typically small, and are usually located on either high terraces or bluffs or within the valley bottoms (e.g., Abrams 1992). Because of their distinct appearance on the landscape, Adena

mounds have long been the subject of archaeological investigations. In Pike County, the largest mounds are Adena mounds and many of them are located near the PORTS facility. These well-documented, though mostly non-extant, resources include Graded Way Mounds, Van Meter Mound, Vulgamore Mound, and Barnes Mound, to name a few (Burks 2011b). Adena habitation sites, on the other hand, are usually small villages or hamlets located along low terraces and in the floodplains of stream valleys. Prufer (1967:315–316) noted little Early Woodland material during his Scioto Valley survey, which was especially interesting given the valley's abundance of Adena burial mounds.

During the Middle Woodland Period, Native Americans continued to be involved in mound and earthwork construction. In Ohio, the Middle Woodland Period is often called Hopewell. This period was characterized by elaborate geometric earthworks, enclosures, and mounds that are often associated with multiple burials and a wide array of exotic ceremonial goods. Some of the more notable Middle Woodland complexes are located in the Scioto Valley, near Chillicothe, and they include Hopewell Mound Group, Mound City Group, High Bank Works, Seip, and Harness (Lepper 2005). Near PORTS, the Seal Township Works and the Piketon Graded Way are two of the most prominent earthwork complexes in Pike County (Burks 2011b). Materials used in the manufacture of these ceremonial items were acquired from various regions of North America, including the Atlantic and Florida Gulf coasts (shell, shark and alligator remains); North Carolina (mica); the southern Appalachians (chlorite); and Lake Superior (native copper); meteoric iron was also recovered from several sources. Ceramic assemblages are characterized by a range of domestic and ceremonial types, including plain, cordmarked, and decorated types, many of which appear to have been influenced from outside sources (to the south).

Over the past 30 years, archaeological research has shifted away from excavating the mounds and earthworks and towards understanding the daily life of the people that built these edifices. Current scholarship (Dancey and Pacheco 1997), argues for dispersed farmsteads that shared a central ceremonial center within each watershed. Prufer's (1967:316) survey of the Scioto Valley "proved to be remarkably rich in Hopewellian surface remains." Prufer notes that Hopewell materials tend to be located in close proximity to large earthwork sites such as Harness, High Banks, Hopeton, and East Bank, among others.

During the Late Woodland Period (A.D. 500 to 1000), earthen mound building largely ceased, mortuary practices became less elaborate, and the long-range trade networks collapsed. Stone-lined mounds, however, still were built and often are found in upland settings overlooking larger settlements. Early in this period (circa A.D. 500 to 700), large, nucleated settlements are found in floodplain and terrace settings. These represent some of the first true 'villages' found in the Midwest. Native Americans continued to rely on hunting and collecting of wild food resources as well as small-scale cultivation of native seed crops, but agriculture began increasing in importance.

Ditches or earthen embankments have been documented encircling several larger sites such as the Zencor and Water Plant Sites in Franklin County. These features, along with the concomitant rise in lethal projectile wounds, are thought to represent a rise in regional

hostilities not witnessed in earlier times. By the later stages of the Late Woodland Period (A.D. 700 to 1000), large settlements are no longer established; local populations again concentrate in smaller, dispersed groups (Seeman 1992).

Within the Scioto Valley area proper, abundant Late Woodland materials were recorded during Prufer's Scioto Valley survey (1967:316–317), from which he stated that "nearly every site investigated yielded materials attributable [to this period]." Just east of Piketon, investigations in the late 1970s identified a Late Woodland component at Site 33PK35, which is located on a high bluff overlooking the Scioto Valley to the west (White 1978). Limited excavations suggested that the site represented a habitation camp of sorts.

The rise of large permanent villages, increased population, and wholesale adoption of agriculture are seen as hallmarks of the Late Prehistoric Period (A.D. 1000 to 1650), or the Fort Ancient Culture (e.g., Drooker 1997; Griffin 1943). Current research suggests that Fort Ancient developed out of the local Late Woodland cultures, although varying degrees of Mississippian influence and inter-regional migration have been suggested. Fort Ancient is characterized by large permanent villages located along major drainages on terrace and bluff-top locales. Villages vary in size but can be quite large.

Beginning around A.D. 1400, Fort Ancient sites demonstrate dramatic village and societal life reorganizations. Archaeologists have termed this the Madisonville Horizon and it is characterized by increased regional interactions reflected in artifact styles, including ceramic and lithic tools (Drooker 1997; Henderson 1992). Increased interaction likely represents increased mobility of resident populations between neighboring sites and valleys. The nearest well-documented Fort Ancient village is the Feurt Village site, located south of Piketon and the PORTS facility, in Clay Township, Scioto County. An abundance of materials was recovered during the excavation of this site, including tools and jewelry made of animal bone, as well as local stream mussel shell. Jewelry included such items as beads, hairpins, and pendants, while tools included awls, punches, fishhooks, bone needles, garden hoes, and hide scrapers (Griffin 1943).

There also is evidence that some Fort Ancient sites were occupied into the Protohistoric Period (A.D. 1650 to 1800). The Madisonville Site (33HA14), in Hamilton County, and the Morrison Village Site, in Ross County, have yielded European trade goods, suggesting occupation well into the seventeenth century (Drooker 1997). However, beginning in the mid-seventeenth century, aboriginal occupation of Ohio was disrupted when groups involved with the European fur trade in the Northeast began to expand the geographical range of their activity (including such events as the Beaver Wars) and European diseases decimated native populations. Many Shawnee villages are known from the Portsmouth area and around Chillicothe, but none have been recorded near the PORTS facility.

4.2 Documentation of Prehistoric Cultural Resources at the Portsmouth Gaseous Diffusion Plant

The DOE has completed numerous surveys to identify and document the prehistoric occupation at PORTS. These efforts have included Phase I surveys directly on the grounds of PORTS as well as more wide-reaching efforts to place the PORTS Facility cultural resources into an overall regional context. Table 4 summarizes all work conducted at PORTS to identify prehistoric archaeological sites; the results of the investigations are described in more detail in the text below. Reports summarizing Phase I surveys at PORTS are color-coded blue in Table 4. Reports documenting previously identified sites are color-coded purple; these investigations relied on historical document review rather than fieldwork. The section concludes with a discussion of Phase II investigations conducted on prehistoric sites at PORTS (color-coded red in Table 4). Note that, for the sake of brevity, a summarized version of the project scope is provided rather than the report titles, which can be found under the report reference in Appendix A.

Table 4. Inventory of Prehistoric Cultural Resources Studies and Reports

Project	Phase of Work	Report Reference	Report Date
Initial 1996 to 1997 Archaeological Survey	Phase I	Schweikart et al.	1997
Phase II Testing at Sites 33PK203 and 33PK217	Phase II	Pecora and Burks	2013
2012 Summary of Archaeological Resources	Historical Document Review	Mustain	2012
Prehistoric Settlement Survey of Area 1	Phase I	Mustain	2012
Prehistoric Settlement Survey of Area 2	Phase I	Pecora	2012
Prehistoric Settlement Survey of Area 3	Phase I	Garrard and Burden	2012
Prehistoric Settlement Survey of Areas 4A and 4B	Phase I	Norr	2012
Prehistoric Settlement Survey of Areas 5A, 5B, 6A	Phase I	Mustain and Lamp	2012
Prehistoric Settlement Survey of Area 6B	Phase I	Pecora	2012
Geomorphological Deep-Testing Survey of Areas 1 and 5B	Phase I	McClain	2013
Earthwork and Mound Survey	Historical Document Review	Burks	2011
Survey of Mound-like Topographic Features	Other	Burks	2011
Phase II Testing at Site 33PK210	Phase II	Hazel	2003
Phase II Testing at Sites 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372	Phase II	Pecora and Burks	2013

Key:

	Phase I Projects
	Historical Document Review or Other
	Phase II Projects

4.2.1 Initial 1996 to 1997 Archaeological Survey

Schweikart, John F., Kevin Coleman, and Flora Church
1997 *Phase I Archaeological Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

Between 1996 and 1997, ASC Group, Inc. (ASC), conducted the first professional archaeological investigation commissioned by the DOE (Schweikart et al. 1997). This preliminary survey covered approximately 2066 acres of the 3777-acre PORTS property; the remaining 1711 acres consisted of developed areas, including the main plant as well as other buildings and roads. Based on a historical document review, ASC determined that no cultural resources had been formally recorded for the PORTS Facility, although several were known to exist nearby.

As part of their work, ASC formulated a predictive model to recognize the potential for prehistoric sites in areas not subject to direct inspection. This approach is used in archaeological investigations as a means to reduce the level of effort required to identify new archaeological resources in a given environment. The model was based on a consideration of several environmental factors (e.g., local topography, soil productivity, elevation, distance to river confluence, etc.) recorded at known archaeological sites. Through statistical analysis (multivariate discriminant analysis), factors determined to have the greatest efficacy in the prediction of known sites were used to help forecast where undiscovered sites may be located. Model results were used to identify favorable (and unfavorable) environmental settings/areas within the PORTS Facility. Favorable areas were mapped as containing a 'high' probability for prehistoric sites and unfavorable areas were mapped as 'low' probability. For historic-era site predictions, ASC used a more informal method of inspection of aerial photographs for direct (structures) and indirect (successional botanical groupings that indicate recent disturbance) evidence of occupation, which also were added to the predictive model map.

The PORTS property was divided into four quadrants (Quadrants I, II, III, and IV), which were further subdivided into areas, for Phase I archaeological field testing. The survey was conducted using field methods that included general surface inspection, controlled surface inspection in areas of good (>50%) surface visibility, and shallow (<12 inches) shovel testing in 50-foot intervals in areas of poor surface visibility (<50%). In addition, deep shovel testing (20 inches) was used to search for deeply buried archaeological materials (i.e., evidence of prehistoric occupations) on landforms characterized by the accumulation of alluvial sediments. Application of the predictive model resulted in varying levels of survey effort across the entire 2066-acre survey area. For example, the report indicates that only limited shovel testing (or no shovel testing) was conducted in several survey areas (e.g., Quadrant I, Areas 3 and 5). Survey investigations identified 36 previously undocumented archaeological sites.

Table 5, below, lists the 36 sites identified during the survey, including seven prehistoric sites (color-coded red), two sites that contained both prehistoric and historic-era components

(in which the historic-era component was more prominent and, therefore, color-coded blue), 23 historic-era sites (color-coded blue), and four DOE-era sites (color-coded aqua).

Table 5. Inventory of Archaeological Sites Identified During the Initial 1996 to 1997 Phase I Survey

Site Type	Temporal Component	Site OAI Numbers (all prefixed with '33PK')	Count
Isolated Find	Prehistoric	198, 204, 205, 207, 208	5
Lithic Scatter	Prehistoric	186, 210	2
Isolated Find/ Cemetery	Prehistoric/ Historic-era	189	1
Lithic Scatter/ Farmstead	Prehistoric/ Historic-era	206	1
Isolated Find	Historic-era	199, 201	2
Farmstead	Historic-era	184, 185, 187, 193, 194, 195, 197, 203, 211, 212, 213, 217, 218	13
Artifact Scatters/ Dumps	Historic-era	191, 192, 200, 202, 209, 215, 216	7
Cemetery	Historic-era	214	1
Industrial Structural Remains	DOE-era	188, 190, 196, 219	4
Total			**36**

Key:

	Prehistoric sites
	Historic-era sites
	DOE-era sites

Archaeological investigations revealed a diverse assemblage of site types and temporal periods. The most prominent were historic-era farmsteads (n=14), which were occupied between the early-nineteenth through mid-twentieth century, although most appear to have been constructed sometime after the turn of the twentieth century. Most farmsteads initially were identified during inspection of aerial photographs and, as such, were visited directly during the archaeological survey. These farmsteads were classified into one of three main categories: (1) single family, single building (**33PK193, 195, 197, 213**); (2) single family, multiple buildings (**33PK184, 185, 206, 212, 217, 218**); and (3) multi-family, multiple buildings (**33PK194, 203, 211**). All of these sites have various architectural remnants of residences/houses, farm-related outbuildings, and sub-ground features such as cisterns and wells. All artifact inventories report typical domestic deposits and architectural debris, such as nails, glass, ceramic plate/bowl/cup fragments, etc. Site **33PK187**, identified as a farmstead, consisted of just one outbuilding and four fence posts and, therefore, did not fit into any of the three main categories.

Given that occupation of the PORTS sites came to an abrupt end in 1952 with the acquisition by the Atomic Energy Commission (AEC), Schweikart et al. (1997) suggested that the sites had the potential to yield significant information regarding early historical patterns and life-ways of this small, upland community. As such, all but one (**33PK187**) of the historic-era farmsteads were recommended for Phase II investigation to determine if the sites were eligible for the NRHP (see Section 5.0, below for the results of the Phase II investigations).

Besides the farmsteads, additional historic-era and DOE-era archaeological sites were identified during this survey. These included various artifact scatters that appear to be ephemeral trash dumps and industrial, DOE-related sites, none of which were recommended as potentially eligible for inclusion to the NRHP. Four historic-era cemeteries also were identified, although only two (**33PK189 [PIK-206-9]** and **33PK214 [PIK-207-12**]) are located within the PORTS Facility and survey area. The other two cemeteries (not assigned site numbers since they were not within the survey area) are located outside of the PORTS Facility boundary but are immediately adjacent to it. Although the two nineteenth through twentieth century cemetery sites within the survey area were not recommended as eligible for inclusion in the NRHP, ASC recommended that they be preserved and avoided during any potential construction projects. In addition, ASC suggested that DOE should avoid construction projects near the boundaries of the cemeteries located outside the main plant area fence. Schweikart and Coleman (2003) went on to publish a summary of their historic-era findings from this survey, as they related to preservation and rural upland communities.

A few prehistoric sites/components also were identified. All represented either isolated finds (a single artifact) or low-density artifact scatters. Only one site was recommended as potentially eligible for inclusion to the NRHP (**33PK210**). This site produced a small number of flakes but no diagnostic tools or projectile points. The site was recommended primarily because it occupied a minimally disturbed ridgetop setting, which could have been a desirable camp location for Native American hunters and gatherers. A summary of the Phase II investigation of Site **33PK210** is described in greater detail in Section 4.2.5, below (Hazel 2003).

During Phase II investigations of the 13 farmsteads (listed above), prehistoric components at two of the farmstead sites (**33PK203** and **33PK217**) were newly identified (Pecora and Burks 2012b). Based on artifact distribution and site location, the sites were recommended as potentially eligible for inclusion in the NRHP.

Pecora, Albert M. and Jarrod Burks
2013b *Prehistoric Archaeological Components Identified at Six Historic-Era Farmstead Sites (33PK185, 33PK203, 33PK211, 33PK217, & 33PK218) Within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio*. Report prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

The prehistoric components of sites **33PK203** and **33PK217** were selected for additional investigation because they are concentrated near the outer margins of the historic-era cultural resources and away from the major impacts of the farmstead activities. Phase II investigations included geophysical survey, additional shovel tests, and 1- by 1-m unit excavations. Despite the recovery of large quantities of fire-cracked rock (FCR), a by-product of prehistoric thermal feature use, no subsurface archaeological features were identified at Site **33PK203** or **33PK217**. It is possible that the features used to create the FCR have been completely obscured or destroyed by historic-era activity. As such, sites **33PK203** and **33PK217** were not recommended eligible for listing in the NRHP and no further work was recommended.

4.2.2 The 2012 Summary of Archaeological Resources

Mustain, Chuck
2012a *Summary of Archaeological Resources in the Vicinity of the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

In 2012, ASC was contracted to conduct a literature review for the purposes of updating the data set regarding all known archeological investigations/surveys and sites located within a 4.5-mile radius of the PORTS Facility. This effort was an expansion of the original background research conducted by ASC in 1997 (Schweikart et al. 1997). The project included creating an inventory of: (1) archaeological sites listed in the Ohio Archaeological Inventory (OAI) and in the *Archaeological Atlas of Ohio* (Mills 1914); (2) archaeological surveys listed in the National Archaeological Database; and (3) cemeteries listed in the Ohio Genealogical Society Inventory Database. Mustain (2012a) noted some discrepancies in the various databases regarding site sizes and locations.

4.2.3 The 2011 to 2012 Prehistoric Settlement Surveys

Beginning in late 2011, the DOE commissioned a property-wide Phase I archaeological survey in an effort to identify all prehistoric sites located within the PORTS property. This research was intended to augment the original 1997 archaeological evaluation completed by ASC (Schweikart et al. 1997) and satisfy §110.

Investigations were conducted within nine defined areas (Areas 1, 2, 3, 4A, 4B, 5A, 5B, 6A, or 6B). These areas supersede the original quadrant approach (Quadrants I to IV) used in the 1997 archaeological and architectural investigations by ASC. Three companies (ASC, Gray & Pape, and Ohio Valley Archaeology, Inc. [OVAI]) were contracted to do the surveys. Survey methods included visual surface inspection along with systematic shovel testing, and although the primary focus of this survey was the identification and documentation of prehistoric archaeological sites, all archaeological sites regardless of age (i.e., including historic-era sites) were documented when encountered. Collectively, this work revealed 42 new archaeological sites (**33PK330–33PK378, 33PK383,** and **33PK384**) and re-identified several of the sites initially documented by Schweikart et al. in 1997. Phase II investigations were recommended for five of these sites (**33PK347–33PK349, 33PK371** and **33PK372**). Each report generated for this stage of work is summarized below.

Mustain, Chuck
2012b *Phase I Archaeological Survey of Area 1 at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Middleburg Heights, Ohio.

In 2012, ASC conducted a Phase I archaeological survey of 320 acres in **Area 1** along the northern periphery of the PORTS property. The survey revealed five new sites (**33PK339–33PK343**) in Area 1, all of which were located on elevated landforms along Little Beaver Creek. The bulldozed remnants of the previously documented Ferree Church (HMBL 17) (Burks 2011a) also were noted within the project area. Four of the five newly documented

sites (**33PK339**, **33PK341**, **33PK342**, and **33PK343**) were prehistoric isolated finds, each consisting of only one non-diagnostic lithic artifact that could not be assigned to any specific time period or cultural group. The fifth site (**33PK340**) was a historic-era resource, characterized by a low density scatter of mid- to late-nineteenth century artifacts and the presence of ornamental plants (daffodils). However, given the absence of structural remains or documentary evidence of buildings or structures at this location (see Burks 2011a), it was not possible to determine when these items were deposited.

This site was interpreted as an artifact scatter from an unassigned historic period. Since none of these newly identified sites could be placed within a specific historical context, none were recommended as potentially eligible for inclusion in the NRHP. A geomorphological survey was completed for the Little Beaver Creek floodplain and an unnamed tributary within Area 1 to determine if deeply buried prehistoric deposits were present. No deeply buried ground surfaces or archaeological deposits were identified; a summary of the report can be found below. No further archaeological work was recommended in Area 1.

Pecora, Albert M.
2012a *Phase I Archaeological Survey of Area 2 Located Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2012, OVAI conducted a Phase I archaeological survey of Area 2. Survey Area 2 is bound by developed and undeveloped land in the northeast corner of PORTS. Previous surveys documented eight archaeological sites (**33PK204, 33PK212, 33PK213, 33PK215, 33PK216, 33PK218, 33PK311,** and **33PK312**) and one cemetery (**33PK214 [Holt Cemetery**]) within Area 2, and the 2012 survey identified 10 additional archaeological sites (**33PK344–33PK353**).

Of the previously recorded sites, seven were documented during the original 1997 survey (Schweikart et al. 1997) and two were identified in 2012 during archaeological testing based on historical document research (Pecora and Burks 2012a). Five of the previously recorded sites in Area 2 are historic-era farmsteads (**33PK212, 33PK213, 33PK218, 33PK311,** and **33PK312**); two are historic-era trash dumps (**33PK215** and **33PK216**); one is the historic Holt Cemetery (**33PK214**); and one is a prehistoric isolated find (**33PK204**). Additionally, the prehistoric components of the previously documented historic-era farmstead sites (**33PK213, 33PK218,** and **33PK311**) were included in this analysis. The 10 newly recorded archaeological sites consist of five prehistoric lithic artifact scatters (**33PK346**, **33PK347, 33PK348, 33PK351**, and **33PK353**); a prehistoric isolated find (**33PK350**); two historic-era artifact scatters (**33PK344** and **33PK352**); a historic-era cabin site (**33PK345**); and one historic-era farmstead site (**33PK349**).

Newly identified sites **33PK347, 33PK348,** and **33PK349** were considered potentially eligible for listing in the NRHP at the time and were recommended for further Phase II

archaeological testing. The remaining archaeological sites within Area 2 were deemed ineligible for listing in the NRHP and no further work was recommended.

Sites **33PK347** and **33PK348** contained significant concentrations of prehistoric artifacts and, although located in close proximity to each other, produced very different assemblages. These sites were determined to have the potential to contain intact subsurface features and artifact assemblages. Site **33PK349**, designated the Emma Farmer Farmstead, was not identified during the 1997 Phase I testing, although it appears on historical maps as late as 1906. Unlike most of the other documented farmsteads that were in operation until the early 1950s, the Emma Farmer Farmstead fell out of operation as early as 1922 when property records show that it was purchased as part of Site **33PK311**. The structures were removed by 1938 when the land was reclaimed for cultivation; however, it is likely that intact shaft features and foundations may still remain. All three sites were deemed potentially eligible for inclusion in the NRHP and recommended for Phase II archaeological testing (see Phase II results for **33PK347** and **33PK348** in Section 4.2.5, and results for **33PK349** in Section 5.2.1).

Garrard, Karen Niemel, and Jennifer Burden
2012 *Phase I Archaeological Investigations for 361 Acres at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

In 2012, Gray & Pape conducted a Phase I survey of 361 acres in **Area 3**, east of the Perimeter Road and the PORTS building complex. Area 3 includes portions of previously unsurveyed land, as well as areas that were part of the ASC Phase I survey in 1997. Previous work in Area 3 identified 15 archaeological sites (**33PK184, 33PK185, 33PK191, 33PK192, 33PK193, 33PK194, 33PK195, 33PK196, 33PK197, 33PK207, 33PK209, 33PK326, 33PK327, 33PK328, 33PK329** [Schweikart et al. 1997]) and four historical map building locations (HMBLs 26, 45, 47, and 48 [Burks 2011a], summarized in Section 5.0).

The 2012 Phase I investigations identified 10 new archaeological sites (Sites **33PK354–363**). Six of the sites were prehistoric isolated finds (**33PK354**–**358** and **33PK361**). Site **33PK359** is a mid-to-late-nineteenth century artifact scatter with an associated well. Several prehistoric artifacts also were recovered, but were thought to represent ephemeral activity. Site **33PK360** is a low-density, late nineteenth to early-twentieth century artifact scatter with a stone well. Site **33PK362** is a low-density artifact scatter near a bridge abutment remnant that most likely represents a mid-twentieth century trash dumping event. Site **33PK363** consists of the remains of a bridge that dates to the late nineteenth or early twentieth century.

No evidence of additional cultural features was identified at any of these sites and no structures are depicted at their locations on available historical maps and aerial photographs of the area. Based on the lack of intact cultural contexts, none of these sites were recommended as potentially eligible for inclusion in the NRHP. Additionally, five cattle tank/livestock ponds were identified that also were not considered eligible for the NRHP.

Based on the results of the Phase I survey, no further work was recommended within Area 3 of the PORTS facility.

Norr, Jeremy
2012 *Phase I Archaeological Investigations for 384 Acres (Areas 4A and 4B) at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

In 2012, Gray & Pape conducted a Phase I survey of 384 acres in **Areas 4A** and **4B**, north and east of the Perimeter Road and the PORTS building complex. Much of these areas had not been subject to formal Phase I survey during previous investigations with the exception of the southeastern-most corner of the area (e.g., Schweikart et al. 1997). The 1997 investigation identified 11 archaeological sites (**33PK189, 33PK205, 33PK206, 33PK208, 33PK218, 33PK313, 33PK316, 33PK317, 33PK318, 33PK319, 33PK325**). Previous review of historical documents by Burks (2011a) also found one historic-era building location (HMBL 23, summarized in Section 5.0); it was not recommended for Phase I work by Pecora (2013).

The 2012 Phase I investigations located six new archaeological sites (**33PK364–33PK369**), of which three (**33PK365**, **33PK366**, and **33PK368**) were isolated finds that consisted of a single prehistoric artifact each. Sites **33PK364** and **33PK369** are both historic-era sites. Site **33PK364** consists of the remnants of a late nineteenth through early twentieth-century farmstead that is characterized by a low-density artifact scatter associated with structural remains. Site **33PK367** is a low-density prehistoric artifact scatter that could not be attributed to a specific cultural period. Additionally, this survey identified three isolated historic-era features, including a stone wall and two cattle tank/livestock ponds. Site **33PK369** is a low density artifact scatter that dates to the mid-nineteenth to early twentieth-century. Based on the low artifact densities and lack of intact cultural features, as well as the absence of diagnostic artifacts associated with the prehistoric sites, none of these sites were recommended eligible for listing in the NRHP. No further work was recommended for any of the sites in Areas 4A and 4B.

Mustain, Chuck, and David Lamp
2012 *Phase I Archaeological Survey of Areas 5A, 5B, and 6A at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Middleburg Heights, Ohio.

In 2012, ASC conducted a Phase I archaeological survey of 944 acres in **Areas 5A, 5B, and 6A**, along the western and northern periphery of the PORTS property. Eight new archaeological sites (**33PK373–33PK378, 33PK383, and 33PK384**) were identified in Areas 5A and 5B. This includes four prehistoric isolated finds (**33PK373**, **33PK377**, **33PK378,** and **33PK384**), two prehistoric lithic artifact scatters (**33PK376** and **33PK383**), one historic-era trash dump (**33PK375**), and one historic-era artifact scatter (**33PK374**).

Additional components of a previously recorded historic-era site (**33PK322** [HMBL 4]) were documented in Area 5B; the results are presented in a separate report (Klinge 2012), summarized in Section 5.0. No new sites or cultural resources were identified in Area 6A; however, concrete foundation remnants of a DOE-era radio tower (**33PK190**), a historic-era farmstead (**33PK187**), and the southern half of a DOE-era worker's barracks (**33PK188**) that were previously identified by Schweikart et al. (1997) were observed.

Based on low artifact densities and lack of intact cultural features, as well as the absence of diagnostic artifacts associated with the prehistoric sites, none of these sites were recommended eligible for listing in the NRHP. A geomorphological survey was completed for the Little Beaver Creek floodplain and an unnamed tributary within Area 5B to determine if deeply buried prehistoric deposits are present. No deeply buried ground surfaces or archaeological deposits were identified; a summary of the report can be found below. No further archaeological work was recommended for sites in Areas 5A, 5B, or 6A.

Pecora, Albert M.
2012b *Phase I Archaeological Survey of Area 6B Located Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2012, OVAI conducted a Phase I archaeological survey of **Area 6B.** Survey **Area 6B** is located on the west side of PORTS. Much of the survey area had been previously disturbed by historic-era farmstead occupations, land development, and road construction. Archaeological resources identified in Area 6B consist of a previously documented site (**33PK324**), and three newly identified sites (**33PK370, 33PK371,** and **33PK372**). Site **33PK324** is an early-twentieth century farmstead previously documented by ASC (Mustain and Klinge 2011, 2012) and summarized in Section 5.0.

The 2012 survey conducted by OVAI documented Sites **33PK370, 33PK371,** and **33PK372**, all of which are prehistoric archaeological sites characterized by lithic artifacts and FCR. Site **33PK370** was not considered to be a significant archaeological site eligible for listing in the NRHP and no further work was recommended. However, Sites **33PK371** and **33PK372** are larger sites that contain lithic artifacts, FCR, and intact cultural features. Additionally, two Early Archaic Period (8000 to 6000 B.C.) projectile points were recovered at **33PK371**. Both **33PK371** and **33PK372** were deemed potentially eligible for listing in the NRHP and were recommended for Phase II archaeological testing. The results of Phase II investigations at Sites **33PK371** and **33PK372** are presented in Section 4.2.5.

McClain, Mark S.
2013 *Geomorphological Investigation of the Little Beaver Creek and Associated Drainages Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

In January, 2013, ASC conducted a geomorphological investigation along Little Beaver Creek and two associated unnamed drainages within **Areas 1** and **5B**. The analysis was done in an effort to identify any buried ground surfaces (paleosols) and, if present, to determine if the buried surfaces had the potential to contain archaeological resources. The investigation included a visual inspection of landforms and soils across the study area and followed up with the extraction of soil auger borings (3.5-inch diameter) that were examined and photographed at the point of extraction.

The study area is a deeply dissected part of the Appalachian Plateau containing abandoned preglacial stream valleys, formed during the period when the Teays River was active. Nearly the entire county is drained by the Scioto River and its tributaries, including the Little Beaver Creek. Colluvium (when present) and alluvium are predominantly derived from weathered shale, siltstone, and sandstone.

The geomorphological investigation included the examination of all stratigraphic levels visible in two cut banks, as well as the soil profiles of two auger borings spaced along Little Beaver Creek. Soil Profile 1 (cut bank) was located in Area 1, while Soil Profile 2 (auger), Soil Profile 3 (cut bank), and Soil Profile 4 (auger) were all located in Area 5B. Detailed descriptions of landforms, stratigraphic depths, soil characteristics, and parent rock for each soil profile can be found in a separate report. Results of the investigation did not identify any paleosols that might contain deeply buried ground surfaces or archaeological sites within Areas 1 and 5B. No further archaeological investigations were recommended.

4.2.4 The 2011 Earthwork and Mound Research and Literature Review

In 2011, in response to comments and information received from public sources about the possible presence of prehistoric earthworks or mounds on the PORTS facility, OVAI conducted a thorough prehistoric earthwork and mound literature and map review of the DOE property and areas surrounding the facility. The southern Scioto River Valley is a resource-rich area with numerous prehistoric mounds and earthworks that stretch from northern Kentucky up through “Mound City” in Chillicothe, Ohio (e.g., Hopewell National Historic Park). Results found no evidence of earthworks or mounds within the PORTS facility boundary. A detailed review of each technical report is provided below.

Burks, Jarrod
2011b *Prehistoric Native American Earthwork and Mound Sites in the Area of the Department of Energy Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

The purpose of this research effort was to determine and document if any prehistoric earthen mounds or earthworks were known to be present within PORTS. Work included a comprehensive historical document review of many years of state site files (Ohio Historic Preservation Office), review of aerial photographs, and review of William Mills’ 1914 *Archaeological Atlas of Ohio* and numerous other reference sources. Although no mounds or

earthworks were identified within the PORTS property proper, three major earthworks and 10 earthen mounds were found to be in close proximity to the facility.

Earthworks in the vicinity of PORTS include Site **33PK1** (The Graded Way), **33PK6** (Earthwork "N"), and **33PK22** (the Seal Township Works). Of these, The Graded Way is Pike County's most famous site and it included a series of large parallel embankments. This earthwork site is now largely destroyed, but Burks (2011b:11) notes that several associated earthwork sections are still visible on current maps/aerials and appear partially intact. Individual mound sites are more common in the area with up to 10 located within 1.5 miles of PORTS. Although most of these mounds are now destroyed or severely impacted due to a range of activities, several have escaped destruction and appear intact today. Burks concluded his report by stating that many of the mound and earthwork sites have been destroyed or severely impacted; however, for those that remain, many may still retain archaeological integrity and their potential eligibility should be considered if future undertakings could cause adverse effects. No evidence of earthworks or mounds has been located within the PORTS facility boundary.

Burks, Jarrod
2011c *Report of a Survey for Mound-like Topographic Features at the Portsmouth Gaseous Diffusion Plant in Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2011, OVAI conducted a research project that attempted to locate any previously undocumented prehistoric burial mounds that may be contained within the PORTS Facility. Resources utilized included inspection of historical and modern topographic data (Burks 2011c). This work was a follow up to Burks' initial research (2011b) and primarily employed review of the 1952 pre-construction topographic maps commissioned by the AEC, computer inspection/manipulation of 2006 LiDAR data, and field inspection of potential sites.

The purpose of this research was to identify any 'mound-like' topographic features that may represent previously unknown mounds in an effort to identify historic properties.

The LiDAR data collected at PORTS in 2006 provide the necessary data density for this task. Larger mound-like features are quite evident in the LiDAR data, and even small mound-like features just 30-60 cm high can be identified. The ability of the LiDAR data to detect small topographic features was proven on several occasions when slight rises (about 30 cm tall) associated with known features at historic-era farmsteads (e.g., at 33Pk217) were field verified…LiDAR data have also been used at other Ohio sites to identify equally as subtle topographic features, including documented mounds and embankments that have been flattened by agricultural plowing…Thus, scanning LiDAR-based imagery is a proven technique for locating mound sites (Burks 2011c:4).

The 1952 topographic maps were inspected visually for mound-like configurations in the topographic contours. For the LiDAR data, Surfer® computer software was utilized to

inspect for mound-like features at various resolutions (between 1 and 2 feet) and exaggerations.

This research resulted in the identification of 28 potential mounds within the PORTS Facility. Each was visited by Burks to ascertain if they represented mounds or, conversely, if they could be positively identified as non-archaeological. No subsurface testing was conducted. Field inspection determined that none of the 28 topographic features represented prehistoric mounds. In most cases, irregular mounded piles of earth were found, but these represented modern (DOE-era) constructs or historic-era farmstead constructs with many related to activities associated with PORTS construction. Some features turned out not to be mounded features at all, but instead appear to reflect 'false positives' artificially generated by too much vertical exaggeration in the computer software. Burks concluded that no intact prehistoric Native American mounds measuring 1 foot or more (vertically) remain at the PORTS site. Moreover, Burks posited that the presence of any mound prior to the 1950s is unlikely, given the attention paid by researchers to numerous mounds around the PORTS site, making it unlikely that mounds at this site would have gone unnoticed.

4.2.5 Phase II Investigations of Prehistoric Sites at the Portsmouth Gaseous Diffusion Plant

Phase II testing of prehistoric sites at PORTS, recommended from Phase I surveys, has been completed on six sites. Tested sites include one site from a survey conducted in 2003, and two more recent investigations, testing six sites identified from 2011 field surveys, completed in 2012.

Hazel, Christopher M.
2003 *Phase II Archaeological Testing at Site 33PK210, Scioto Township, Pike County, Ohio*. Report prepared by Duvall and Associates, Franklin, Tennessee.

During June 2003, DuVall and Associates conducted Phase II archaeological testing at Site **33PK210**. Site **33PK210** is a diffuse prehistoric artifact scatter of indeterminate extent and time period. The site is located on a wooded bluff overlooking the Scioto River Valley in the southwestern corner of the PORTS facility. Site **33PK210** boundaries were determined to extend over a large area encompassing a total site area of 73,410 feet^2. Field investigations included the excavation of 121 shovel tests; 26, 3.28-feet^2 test units; six 6.56-feet^2 test units; and surface collections at 16.4-foot intervals. Additionally, five auger tests excavated to 3.28 feet were placed across the project area for geomorphological analysis.

Phase II investigations revealed the cultural materials to be confined to the disturbed plowzone horizon and within scattered taproots across the project area. Recovered artifact types consisted of fire-cracked rock, chert bifacial tools, and chert debitage primarily associated with the initial stages of tool production. No culturally diagnostic artifacts, intact prehistoric features or other cultural stratigraphy were encountered. Based on low artifact densities and lack of intact cultural features, as well as the absence of diagnostic artifacts

associated with the site, Site **33PK210** was not recommended eligible for listing in the NRHP and no further work was recommended.

Pecora, Albert M. and Jarrod Burks
2013a *Phase II Archaeological Investigations of 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372 Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Report prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2012, OVAI conducted Phase II archaeological field work on four prehistoric sites (33PK347, 33PK348, 33PK371, and 33PK372) and one historic-era farmstead site (33PK349); the historic-era site assessment will be summarized in Section 5.2.4, below. The goal of the prehistoric testing was to determine if these four sites had the potential to yield information that is important to understanding prehistoric lifeways and settlement practices in the uplands of the Scioto River Valley.

Site **33PK347** field methods included geophysical survey over almost the entire site area (designed to identify sub-surface archaeological features such as hearths and earth ovens), shovel test excavation (197 shovel tests produced 56 artifacts) on a 16.4-foot grid (for the purpose of procuring a representative artifact sample and to define the site boundaries), and test unit excavation (30.5 units each measuring 3 feet^2) for assessment of archaeological feature characteristics. The geophysical data identified 27 anomalies; ten were chosen for further investigation and two of those ten were identified as prehistoric shallow thermal basins and subsequently excavated. Based on the lithic artifact assemblage (including dense FCR concentrations), radiocarbon dates, and paleoethnobotanical analysis, Site **33PK347** is believed to have been repeatedly occupied for short durations during the Middle-Late Archaic Period and then again much later, in the Late Prehistoric Period—perhaps to extract seasonally available resources. Good preservation of Late Prehistoric/Fort Ancient features in this locale makes this site a significant cultural resource for understanding how the floodplain maize farmers of the Lower Scioto River Valley used their upland surroundings. Site **33PK347** was recommended as eligible for inclusion in the NRHP.

Site **33PK348** field methods included geophysical survey, shovel test excavation (380 shovel tests produced 220 artifacts), and test unit excavation (33 units each measuring 3 feet^2). Based on the geophysical survey results, a total of 68 anomalies were selected as potential archaeological features. Investigations of these anomalies yielded a range of cultural features, and four thermal and midden features were chosen for excavation. The site is characterized by numerous thermal features and a refuse midden, full of, and surrounded by, heavy FCR concentrations. In an area away from the thermal features (perhaps where dwellings or shelters once stood), an abundance of lithic artifacts were recovered and include all stages of lithic manufacture. Although a fragment of a nutting stone was recovered, paleoethnobotanical analysis found very little evidence of nut harvesting or processing. Radiocarbon dates place occupation of the site to the Late Archaic to Early Woodland. Good preservation of features makes this site a significant cultural resource for gathering

information on these rare, undisturbed, discrete, and tightly defined artifact concentrations. Site **33PK348** was recommended as eligible for inclusion in the NRHP.

Site **33PK371** field methods included geophysical survey, the excavation of 309 shovel tests (these contained 272 artifacts), and the excavation of 25 units each measuring 3 feet². Based on the geophysical survey results, ten cultural features, consisting of pits, earth ovens, and a possible house floor, were identified and partially or completely excavated. Artifacts recovered from the site include relatively abundant quantities of lithic debris, formed artifacts, dense concentrations of FCR, and a small amount of Early Woodland pottery. Paleoethnobotanical analysis identified only small quantities of wood charcoal and nut remains, suggesting that if the site was occupied as a seasonal extraction camp (a foray from the permanent settlement to procure food and non-food resources, such as nuts or chert, that were distributed across the landscape), it was not likely that it was for nut harvesting. Diagnostic artifacts and radiocarbon dates indicate that there were repeated occupations of Site **33PK371** across five different temporal periods, including Early Archaic, Late Archaic, Late Archaic to Early Woodland, Early Woodland, and early Late Woodland. Site **33PK371** is significant because there is a diversity of feature types (including a possible Early Woodland house as evidenced by a house floor and associated pottery) and occupation over five temporal periods. Site **33PK371** was recommended as eligible for inclusion in the NRHP.

Site **33PK372** field methods included geophysical survey, the excavation of 253 shovel tests (these contained 139 artifacts), and the excavation of 22.5 units each measuring 3 feet². Based predominantly on the geophysical survey results, nine cultural features (identified as pits, midden, and a semi-subterranean structure) were examined. Artifacts included lithic debitage, a significant quantity of formed artifacts/tools, pottery, and dense concentrations of FCR. Of particular interest is a unique cache of micro-drills associated with radiocarbon dates to the Early Woodland Period. Although a fragment of a nutting stone was recovered, paleoethnobotanical analysis found very little evidence of nut harvesting or processing. Diagnostic artifacts and radiocarbon dates indicate that there were repeated occupations of Site **33PK372** across four different temporal periods, including Late Archaic, Late Archaic/Early Woodland, Early Woodland, and the Late Prehistoric. Site **33PK372** is significant because there is excellent site structure measured by its intact features and spatially discreet artifact deposits (including a unique micro-drill assemblage) that have never been plowed. Site **33PK372** was recommended as eligible for inclusion in the NRHP.

Although site function could not be determined, the limited Phase II investigations revealed that all four prehistoric sites have excellent site structure measured by evidence of intact archaeological features and spatially discreet artifact deposits. It is also evident that sites **33PK347, 33PK348, and 33PK372** have never been cultivated and, as such, have the potential to contain features that may be rare in Ohio. This unusual site preservation combined with significant artifact assemblages and a variety of feature types, demonstrates that each site has yielded and has the potential to yield additional information that is important to our understanding of prehistory. Sites **33PK347, 33PK348, 33PK371, and 33PK372** are considered eligible for inclusion in the NRHP under Criterion D.

Prehistoric Native Americans have occupied the Scioto River Valley for approximately 12,000 years. While no prehistoric mounds or earthworks have been identified within the PORTS boundary, the area immediately surrounding the facility is rich in prehistoric sites and earthworks. Ongoing cultural resources investigations at PORTS have identified a total of 54 prehistoric archaeological sites. Four of these sites have been determined eligible for inclusion on the NRHP. Fourteen separate cultural resources investigations have been completed by the DOE to identify and document prehistoric resources at PORTS.

5.0 HISTORIC-ERA ARCHAEOLOGICAL SITES AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

The historic-era occupation of Pike County and the area surrounding PORTS has been well documented by historical sources; a brief overview is provided below. In addition, this section will outline the historic-era cultural resource investigations conducted to date at the PORTS Facility, followed by brief summaries of each report. Significantly, these reports include four Phase II investigations that detail the historic-era settlement and use of the land occupied by the facility (Klinge 2010; Klinge and Mustain 2011; Pecora and Burks 2012b; 2013a).

5.1 The Historic-era Occupation of Pike County

By the late 1500s, European goods began to appear in Ohio's prehistoric Fort Ancient villages, despite the fact that direct European contact with Ohio Native American groups had not yet occurred. However, this was the first evidence of much change to come as disease and territorial/trade wars would soon ravage and displace populations. Between circa 1650 and the 1790s, central Ohio was inhabited by a wide range of previously displaced Native American groups; the most common were the Shawnee. Euroamerican use of the area was restricted to a small number of traders/hunters and early settlers. McCormick (1958:1) discusses the location of a French Trading Post near present-day Piketon around 1775. The first documented trip into what is today Pike County was made by the Reverend David Jones in 1773 (Kalfs 1976:13). Jones, who had traveled from Fort Pitt via the Ohio and Scioto Rivers, traversed through present-day Waverly on his way to Chillicothe on what turned out to be an unsuccessful mission trip (Kalfs 1976:13).

By the late 1790s, following the Treaty of Greenville that opened up Ohio for Euroamerican settlement, land claims were registered on holdings in what would become Pike County (Howe 1902). The first permanent Euroamerican settlement was established near present-day Piketon in 1796 when the three Chenoweth brothers and John Noland settled in the area with their families (Anonymous 1999:689). Some other family names of early settlers included Kenton, Miller, and Merritt. Settlement of the area was slowed during the tensions of the War of 1812, but soon expanded dramatically following its conclusion. Pike County was established in 1815 out of portions of Ross, Highland, Adams, Scioto, and Jackson counties. By 1820, Pike County's population was over 4200 people that came to the area for the rich bottomlands that were suited for agriculture (Anonymous 1999). West of the Scioto River, the county is part of the original Virginia Military District and to the east lies the Congress Lands subdivision (Peacefull 1996; Wilhelm and Noble 1996). Early settlers in the Virginia Military District primarily came from Virginia, West Virginia, and Kentucky; whereas the Congress Lands section was heavily populated by families from Pennsylvania.

Early subsistence pursuits were geared towards corn agriculture, especially in level river bottoms, and raising livestock, such as hogs and cattle, on the sloping hillsides and rolling ridge tops (Jones 1983). In the second quarter of the nineteenth century, construction of the Ohio & Erie Canal increased the export potential of farm goods as it connected central Ohio

with national markets (Jones 1983). Later in the nineteenth century, the railroads replaced the canal system, further opening up the region to national markets. Spurred by these developments, Pike County experienced persistent growth throughout the nineteenth century (e.g., Anonymous 1999; Howe 1902; McCormick 1958).

For much of the period from the county's inception through the Civil War, transport in the area was not easy. Roads of any type were limited in number and, in general, east-to-west access in the county was difficult. The canal, angling northeast to southeast, and the Scioto River, moving effectively north-to-south, were the primary arteries. Most of these early roads were based on Native American trails including the "Scioto Trail" or "Warrior's Path," which later was used to lay out part of US 23 (as cited in Schweikart et al. 1997). Zane's Trace also reflected one of the early trails-turned-path/road in the early nineteenth century. By 1804, Zane's Trace was a 20-foot wide road with bridges spanning waterways and wooden corduroy roads in swampy areas (Ohio History Central 2012). Although the so-called Columbus & Portsmouth Turnpike, which eventually became part of US 23, was in place around the late 1830s, it too was a north-to-south route. The 1862 Waverly & Beaver toll road, which, despite its name ran from Waverly to Piketon, also was a north-to-south route.

Poor roads continued to plague the county into the twentieth century as the road system included many that were unpaved. In 1910, Ohio began planning for major road improvements/construction to support the growing popularity of the automobile and produced a road atlas for the state (State of Ohio Highway Department 1910) that showed a county by county assessment of road conditions. In Pike County, major improvements did not occur until later in the twentieth century. For example, improvements to US 23 were not completed until 1939.

Following the Civil War and up until purchase of the PORTS property by the AEC in the 1950s, little is available on the county's history. Subsistence practices appear to have changed little from the earlier agricultural and livestock methods as population densities remained relatively constant in areas outside of Waverly into the twentieth century. The introduction of new railroad lines, such as the C. & O. Railroad in 1927 and upgrading of the road system (e.g., US 23), continued to provide access to broader markets for area farmers. Construction of the PORTS facility near Piketon in the 1950s presented a substantial economic boom to the area and provided work for many area residents.

5.2 Documentation of Historic-era Archaeological Sites at the Portsmouth Gaseous Diffusion Plant

As noted above in Section 3.0, the Phase I surveys conducted at PORTS identified both historic-era and prehistoric archaeological resources. Between 2009 and 2011, a series of archaeological investigations were conducted to document historic-era farmsteads at PORTS. This included Phase II testing of the 13 farmsteads recommended as potentially eligible for the NRHP following the initial ASC survey in 1997 (Schweikart et al. 1997). This Phase II work was conducted by two separate companies, ASC and OVAI.

Each site was investigated utilizing a similar research design. Field methods included surface reconnaissance, close-interval shovel testing, geomorphological bucket auger testing, and test unit excavation. In-depth property and family research, including complete property deed research, also was conducted to determine the potential significance of these archaeological sites. The Phase II testing resulted in the determination that none of the 13 farmsteads were recommended as eligible for inclusion to the NRHP and no further work was recommended at these sites. Figure 2 maps all 13 historic-era farmstead sites subject to the Phase II investigations.

In 2012, an additional Phase II historic-era farmstead investigation was conducted at site **33PK349**, which resulted in the determination that it was not eligible for inclusion in the NRHP and no further work was recommended (Pecora and Burks 2013a). This site was initially identified as a historic-era farmstead potentially eligible for listing in the NRHP during the Phase I prehistoric settlement survey of Area 2 (Pecora 2012a), commissioned by the DOE in 2011 and described in Section 4.2.3 above.

Prior to the Phase II historic-era farmstead investigations, Jarrod Burks of OVAI carefully reviewed historical aerial photographs and maps as a means to identify additional locations where historic-era archaeological resources (e.g., structures, features, etc.) may be located (Burks 2011a). Burks identified 54 locations within the PORTS property where historic-era farmsteads or houses once existed (this total does not include the 14 farmstead sites previously identified by Schweikart et al. (1997), of which 13 were slated for Phase II investigations, as discussed above). Of these 54 locations, three were associated with previously identified sites and 11 locations had been severely disturbed or destroyed by modern PORTS development and were considered by Burks to have no archaeological potential. These 11 locations were not surveyed. It was recommended that the integrity and potential for archaeological remains be assessed at the remaining 40 locations. The DOE wished to determine the status of these potential resources and contracted with three cultural resources management firms (ASC, Gray & Pape, and OVAI) to do preliminary field assessments on the 40 locations and, when necessary, Phase I surveys.

Preliminary field assessments revealed that 11 of the 40 locations retained intact archaeological resources, and subsequent “enhanced” Phase I surveys were completed on these 11 locations (Jagel 2012; Klinge 2012; Mustain and Klinge 2012; Pecora and Burks 2012a; Vehling et al. 2011). The “enhanced” Phase I surveys were designed to document visible architectural remains (e.g., foundations, wells, cisterns, etc.) and to extensively sample the sites’ artifacts with close-interval (16-feet) shovel testing. Although one site (**33PK349**) underwent a Phase II assessment, research revealed that none of these 11 resources have the potential to be eligible for the NRHP and no further work was recommended. The investigations are described in greater detail in Section 5.2.2, below.

Finally, in addition to the brief summaries of these reports provided below, a comprehensive summary report for all work on historic-era sites at PORTS has been prepared by OVAI (Pecora et al. 2013). A summary of that report is included in Section 5.2.1, below.

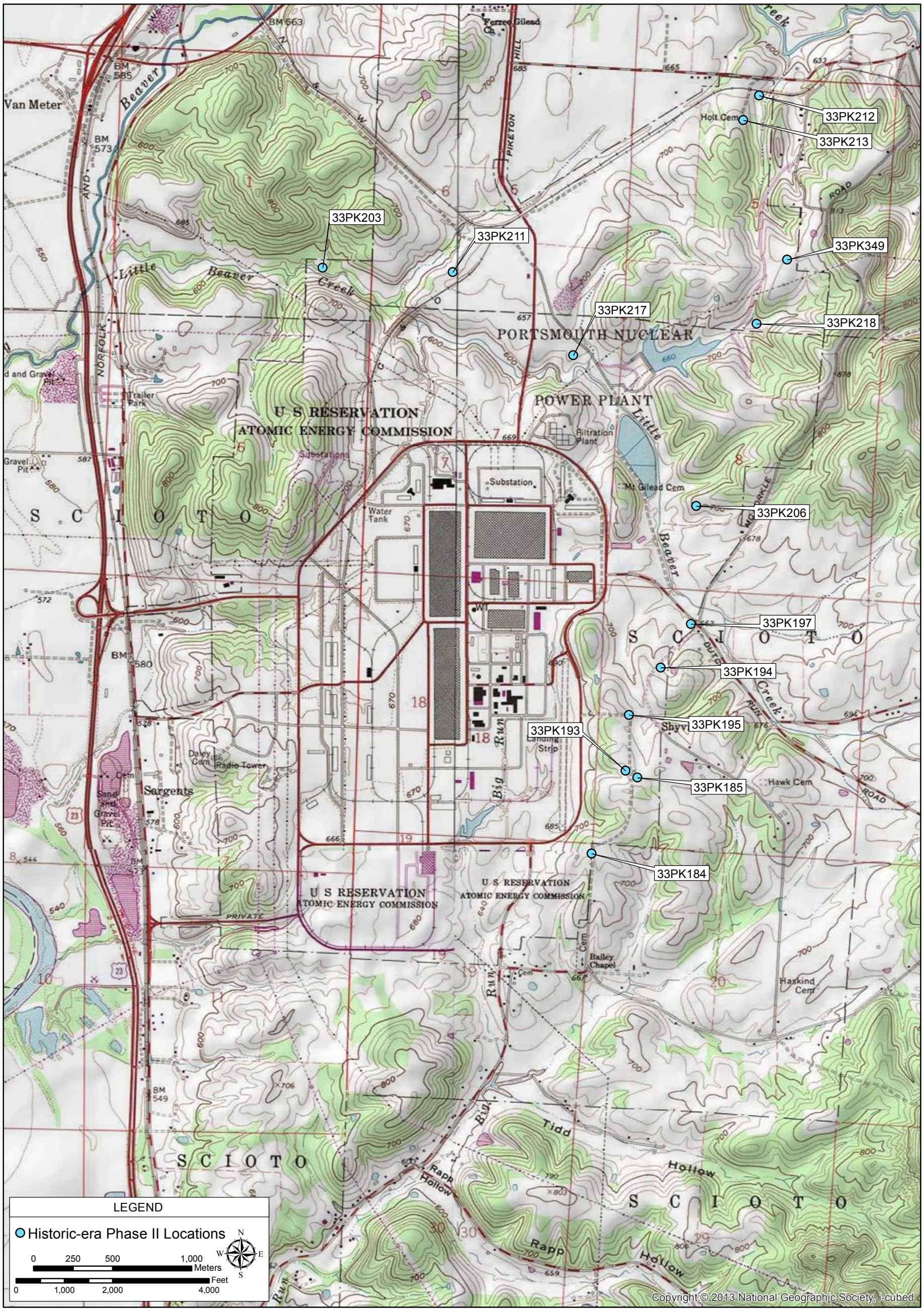
All work aimed at documenting historic-era sites at PORTS is listed by project name in Table 6, below, and a summary of each report follows in the order that it is listed. All Phase II projects are color-coded red, document reviews (i.e., no fieldwork was performed) are color-coded purple, preliminary field assessments are coded aqua, and Phase I surveys are color-coded blue.

Table 6. Inventory of Historic-era Cultural Resource Studies and Reports

Project	Phase of Work	Report Reference	Report Date
Historic-era Farmstead Investigations at 33PK184, 33PK193, 33PK194, 33PK195, and 33PK197	Phase II	Klinge and Mustain	2011
Historic-era Farmstead Investigations at 33PK212 and 33PK213	Phase II	Klinge	2010
Historic-era Farmstead Investigations at 33PK185, 33PK203, 33PK206, 33PK211, 33PK217, 22PK218	Phase II	Pecora and Burks	2012
Historic-era Farmstead Investigation at 33PK349	Phase II	Pecora and Burks	2013
Identification of 54 Possible Farmstead/ House Locations Not Documented during 1996-1997 Phase I Survey	Historical Document Review	Burks	2011
Preliminary Reconnaissance of 15 Historic-era Building Locations	Preliminary Field Assessment	Pecora	2013
Phase I Survey of Historic-era Sites 33PK311, 33PK312, 33PK317, and 33PK318	Phase I	Pecora and Burks	2012
Preliminary Reconnaissance of 12 Historic-era Structure Locations	Preliminary Field Assessment	Mustain and Klinge	2011
Phase I Survey of Historic-era Sites 33PK322, 33PK323, 33PK324	Phase I	Mustain and Klinge	2012
Geophysical Survey at Historic-era Site 33PK322	Phase I	Jagel	2012
Additional Phase I Testing at Site 33PK322	Phase I	Klinge	2012
Preliminary Reconnaissance of 13 Historic-era Structure Locations	Preliminary Field Assessment	Trader	2011
Phase I Survey of Historic-era Sites 33PK326, 33PK327, HMBL 45, and 33PK330	Phase I	Vehling et al.	2011
Geophysical Survey at Historic Holt Cemetery	Preliminary Field Assessment	Ohio Valley Archaeology, Inc.	2011
Summary of Historic-era Archaeological Resources	Summary of All Historic-era Sites	Pecora et al.	2013

Key:

	Phase II project summaries
	Projects documenting historic-era locations
	Preliminary field assessment summaries
	Phase I project summaries



Historic-era Sites at PORTS Subject to Phase II Testing

5.2.1 The 2009 to 2012 Phase II Historic-era Farmstead Investigations

Klinge, David F., and Chuck Mustain
2011 *Phase II Archaeological Site Evaluations of 33PK184, 33PK193, 33PK194, 33PK195, and 33PK197, Portsmouth Gaseous Diffusion Plant (PORTS), Piketon, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

In 2010, ASC conducted Phase II surveys of five historic-era farmstead sites, including the Davis Farmstead (**33PK184**), the Iron Wheel Farmstead (**33PK193**), the North Shyville Farmstead (**33PK194**), the Beaver Road Farmstead (**33PK195**), and the Dutch Run Road Farmstead (**33PK197**). The historic-era components of each site were the main focus of the 2010 research, but investigations also documented a small number of prehistoric artifacts, most notably an Adena Stemmed projectile point at **33PK194** and a drill at **33PK197**.

Investigations revealed that three of the five sites (**33PK193**, **33PK195**, and **33PK197**) were not independent farmsteads as suggested in the Phase I report, but instead reflect segments of larger farmsteads partially located outside of the PORTS property. Sites **33PK193** and **33PK195** appear to be associated with the large farmstead **33PK185**, which is located just outside of the survey area. These three sites contained various outbuildings (e.g., barns, garages), shaft features (e.g., wells, cisterns), and ephemeral artifact scatters dominated by a single artifact type (e.g., wire). Importantly, none appear to represent the location of residences, nor did any yield diverse artifact assemblages that might typically include domestic ceramic or glass pieces. All of these three sites were heavily disturbed.

The remaining two sites, **33PK184** and **33PK194**, were found to reflect true multi-building farmsteads that dated to the twentieth century (approximately 1920 to 1952). Phase II excavation proved that neither had nineteenth century components, contrary to the earlier findings of Schweikart et al. (1997). Site **33PK184** was a hill-top farmstead complete with a house foundation, several associated outbuildings (e.g., barn), shaft features (cisterns and privies), and a modest artifact assemblage that was predominantly domestic. The farmstead was in operation between 1930 and 1952. Site **33PK194** also reflects a hill-top farmstead with a house foundation and several outbuildings. Investigations revealed several shaft features, including two cisterns, and a modest artifact assemblage reflecting domestic activities. This farmstead was occupied between 1934 and 1952 and there is some evidence to suggest multiple building episodes (remodeling/expansion). Both of these farmsteads were identified as heavily disturbed, primarily due to razing associated with PORTS construction.

Klinge and Mustain employed the conceptual framework of Modernization Theory (Cabak et al. 1999) in determining the sites' potential eligibility for the NRHP. Modernization Theory seeks to document the timing (and nature) of societal change in America as a result of increasing industrialization and technological innovation that took place during the late nineteenth through early twentieth century. Specifically, it seeks to identify the processes responsible for the shift in American life from a regionally distinct culture to that of a national, multi-regional character. Consideration of how 'modern' a site is can provide insight into societal shifts for a given region (e.g., Pike County). For these sites, Klinge and

Mustain identified the occurrence of mass-produced items (e.g., Barq's Root Beer, Owens bottles, etc.), and the presence of technological innovations (e.g., poured concrete), as a way of judging how modern a specific site was during occupation. For these examples, they found that all of these sites were quite modern and were well integrated into broader regional markets and trends.

Ultimately, the heavy impact on these resources due to post-abandonment razing, lack of substantial intact deposits, limited artifact inventories, and lack of important associative events, all indicated that none of the five sites subject to Phase II investigations were eligible for inclusion to the NRHP. Though insights into how modernization of Pike County was gleaned from these data, the researchers suggested that these resources would produce little additional information beyond that obtained during Phase II research. As such, no additional work was recommended for Sites **33PK184, 33PK193, 33PK194, 33PK195,** and **33PK197**.

Klinge, David F.
2010 *Phase II Site Evaluations of 33PK212 and 33PK213 for the Portsmouth Gaseous Diffusion Facility, Seal Township, Pike County, Ohio*. Prepared by ASC Group, Columbus, Ohio.

In April 2009, ASC conducted Phase II archaeological investigations of Sites **33PK212** (Railside Farmstead) and **33PK213** (Log Pen Farmstead). The Railside Farmstead (**33PK212**) is located adjacent to a mid-twentieth century railroad grade that was installed to service the PORTS facility and the Log Pen Farmstead (**33PK213**) is situated approximately 262 feet south of that rail line (Figure 2).

Site **33PK212**, the Railside Farmstead, is the remnants of a small farmstead constructed after about 1920. Originally interpreted as the remains of three separate structures (Schweikart et al. 1997), Phase II investigations revealed the foundations of two buildings (a primary residence and a small livestock barn). The remains of the residence consist of a poured concrete and cinder block foundation and stairs to a cellar, while the barn is characterized by a concrete feed and slop floor. Additional features include a limestone well and a concrete cistern. Of 66 shovel tests excavated, 18 were positive for cultural materials. Additionally, six test units were excavated. Artifacts indicated primary occupation during the second quarter of the twentieth century, a range supported by the architectural remains and property records. The combined archaeological and documentary evidence suggest a rather brief 19-year occupation of Site **33PK212** (Railside Farmstead) by the William and Mary Tackett family beginning in 1933.

Site **33PK213**, the Log Pen Farmstead, is the remnants of a small farmstead constructed after about 1919; the site also contains a low density prehistoric component (a single fragmentary projectile point) of unknown age. The historic-era farmstead is characterized by two structures that included a primary residence and a barn. Both the domestic residence and the barn were constructed on stone piers. Unlike Site **33PK212**, the house at **33PK213** did not have a full cellar or foundation. Architectural remains, including a standing seam iron roof,

modern dimensional lumber used in the framing, and wire-drawn nails used to fasten it all together, indicate a twentieth century construction date. In total, 59 shovel tests were excavated, 29 of which yielded cultural materials. An additional four test units also were excavated as a means of determining the extent of the site and related cultural materials.

Both sites exhibit similar artifact assemblages and represent families at comparable socio-economic standing. However, differences in ownership status (i.e., owner-occupied versus tenant-occupied), as well as construction materials, seemingly suggest a difference in status between the two sites. Unlike the owner-occupied Site **33PK212** (Railside Farmstead), Site **33PK213** was constructed on stone piers without benefit of a full foundation, which ostensibly reflects a lower investment in materials. For this reason, as well as documentary evidence, Site **33PK213** (Log Pen Farmstead) was most likely occupied by a tenant farmer who leased the property after Daniel Farmer acquired it in 1919.

It was determined that neither site contains sufficient evidence to suggest strong research potential. Therefore, both were recommended not eligible for inclusion to the NRHP and no further work was recommended.

Pecora, Albert M., and Jarrod Burks
2012b *Phase II Archaeological Evaluation of Six Historic Farmstead Sites 33PK185, 33PK203, 33PK206, 33PK211, 33PK217, and 33PK218, Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.

During the winter of 2010 and spring of 2011, Ohio Valley Archaeology, Inc., conducted Phase II Archaeological assessments on six historic-era farmstead sites (**33PK185, 33PK203, 33PK206, 33PK211, 33PK217,** and **33PK218**) within the PORTS Facility. Deed research and extensive archaeological excavation demonstrated that some of the farmsteads were developed and occupied no earlier than the mid-nineteenth century, while others were developed as late as the early part of the twentieth century.

At Site **33PK185** (South Shyville Farmstead), the Phase II investigation documented the remains of three foundations, including the house, milking parlor, and a root cellar. Additional farmstead resources included two wells, a well or cistern, and a pump house. The house and root cellar were probably built in the 1870s, while the milking parlor was likely added later, in the early twentieth century.

Nine structure foundations were identified at Site **33PK203** (Ruby Hollow Farmstead), including a house with an interior cellar, a barn, a milking parlor, a garage, two outbuildings, two privy shafts, and a water system composed of a well and pump house. The house and outbuildings were constructed in the late nineteenth century, but expansion of the farmstead continued into the twentieth century, as evidenced by a 1937 inscription in the milking parlor concrete foundation. Kitchen group and architectural group artifacts support these dates.

Investigations at Site **33PK206** (Terrace Farmstead) located the remains of six structure foundations, including two houses, a dairy barn, and three outbuildings. A water system consisting of a modern well and pump house was also identified. Based on deed information, property values, and ceramic data, the farmstead was developed in the mid-nineteenth century.

The locations of seven structure foundations were identified at Site **33PK211** (Bamboo Farmstead), including two houses, a large dairy barn with milking parlor, a second barn, a shed/outbuilding, a garage, and a privy. A modern cistern and septic tank were also identified. The Bamboo Farmstead was probably a stable farming enterprise that underwent a series of improvements or additions through the duration of its tenure, beginning sometime between 1843 and 1867.

The remains of seven structures were identified at Site **33PK217** (Stockdale Road Dairy Farmstead), including two houses, a large dairy barn, two garages, and two outbuildings. A well and pump house were also located. Farmstead development began sometime between 1838 and 1882.

The remnants of three structures were identified at Site **33PK218** (Cornett Farmstead), including a house, a stand-alone root cellar, and a privy. Additionally, a well, a stone-retaining wall, and sub-floor pit cellar below the house were also documented. Farmstead development began sometime between 1894 and 1905.

Phase II investigations revealed that all of the sites retained some integrity, and architectural features were identified at each location. In addition, each site was assessed as likely containing more subsurface features than were identified during excavation. All of the farmsteads yielded significant artifact assemblages that were heavy in architectural debris and kitchen refuse. The farmstead sites **(33PK185, 33PK203, 33PK206, 33PK211, 33PK217,** and **33PK218**) were individually assessed as not eligible for inclusion in the NRHP and no further work was recommended.

Pecora, Albert M. and Jarrod Burks
2013a *Phase II Archaeological Investigations of 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372 Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Report prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2012, OVAI conducted fieldwork for Phase II archaeological assessment of one historic-era farmstead site (**33PK349**) and four prehistoric sites (**33PK347, 33PK348, 33PK371,** and **33PK372**) that were identified during a prehistoric Phase I survey of Area 2 (Pecora 2012a); the prehistoric site assessments are summarized in Section 4.2.5, above. Site **33PK349** was considered potentially eligible for the NRHP because, according to historical documents, it was removed or demolished prior to 1938 and it was thought that **33PK349** might contain older and possibly intact subsurface foundations and vault features (e.g., well, privy, or cistern). Buried vault features would have the potential to contain artifacts as they were

deposited during the time of occupation and perhaps reveal different archaeological remains than those found at farmsteads purchased, and then razed, by the AEC in the 1950s. Ultimately, this was not the case; features and artifacts documented at the site were similar to the other historic-era farmstead sites at PORTS.

Site **33PK349** is a historic-era farmstead in the northeast corner of PORTS. Field methods for the investigation included geophysical survey over 75 percent of the site, the excavation of 182 shovel tests, which produced 123 artifacts, and the excavation of 14.5 units, each measuring 3 feet², over three historic-era features.

The features identified included two stone-lined wells or cisterns that were filled with kitchen and architecture debris from the farmstead (likely during demolition) and a third feature that was a pair of side-by-side rectangular trench-like basins associated with thermal activity, such as for furnaces or maple sugar processing. No evidence of house, barn, or outbuilding foundations was found. The artifact assemblage consisted of 1,744 historic-era artifacts that were dominated by architecture and kitchen-group types. The mean ceramic date was 1883.

The Phase II investigation revealed that the artifact assemblage at **33PK349** dates to the late 1800s and early 1900s and is not significantly different from assemblages at the other farmsteads investigated at the PORTS Facility, as was originally predicted. Based on these findings, Site **33PK349** is not eligible for the NRHP and no further work was recommended.

5.2.2 The 2011 Reconnaissance Investigations

During the planning for the Phase II investigations conducted by OVAI and described above. Burks examined a series of aerial photographs, maps, and other resource materials of PORTS and identified farmsteads that might warrant further evaluation (Burks 2011a). The information and recommendation was provided to DOE, who agreed, and this effort resulted in the additional Phase I level field work, which began in the summer of 2011.

Burks, Jarrod
2011a *Additional Farmsteads and Buildings at PORTS Not Documented during the Initial Phase I Archaeological Survey*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2011, OVAI conducted a review of historical maps and aerial photographs to identify the locations of structures associated with historic-era sites at PORTS. No fieldwork was conducted as part of this survey; but rather, documents were consulted consisting of: (1) oil and gas maps that were created in 1905; (2) 1908 and 1917 United States Geological Survey (USGS) topographic quadrangle maps; (3) a 1952 Army Corps of Engineers map created for the AEC that depicts the ownership and structural layout of individual land parcels that comprise the PORTS facility; and (4) aerial photographs taken in 1938/1939 and 1951. Although original land plats from approximately 1840 to 1850 and 1884 exist, no structures are indicated on them. Only those resources that depict structures were utilized.

This review resulted in the identification of 54 locations within the PORTS property where historic-era farmsteads or houses once existed. Of these, 51 sites had not been previously recorded. Three resources were associated with sites documented in the initial 1997 archaeological survey (Schweikart et al. 1997). The 54 locations were ranked based on their probable integrity or condition (i.e., the likelihood that they still exist and could contain intact archaeological deposits). Rank 1 (n=23) had the highest probability, Rank 2 (n=18) had a moderate probability of preservation, and Rank 3 (n=13) were those sites that were likely completely destroyed. It was recommended that 40 of these locations undergo a preliminary field assessment to identify potential archaeological resources. The 14 locations not recommended for additional investigations were the three previously recorded sites and 11 locations that had been severely disturbed during activity associated with PORTS construction where it was determined that there was no potential for intact archaeological materials. Preliminary field assessments were not designed to assess eligibility concerning NRHP status, but instead were meant as a basic guide as to whether a full follow-up Phase I level effort (following OHPO 1994 guidelines) should be conducted at any of the 40 locations.

The projects were divided between OVAI, ASC, and Gray & Pape and their resulting reports are summarized below. Preliminary field assessment methods included visual inspection and limited shovel testing. Any preliminary assessments that proceeded to the Phase I level included survey methods referred to as an "enhanced" Phase I effort, which included intensive mapping and artifact sampling. This increased level of effort was done in an attempt to gather a larger and more comprehensive data set for each site than a regular Phase I survey would provide, and more comparable to what had been produced during earlier Phase II investigations at historic-era farmsteads (Klinge 2010; Klinge and Mustain 2011; Pecora and Burks 2012b).

The preliminary field assessments documented historic-era archaeological sites at 22 of the 40 map locations. The remaining 18 HMBLs were found to lack sufficient archaeological remains to be given site status. Ultimately in coordination with OHPO, 11 of the 22 historic-era sites were selected for an "enhanced" Phase I-level survey. Of the 11 "enhanced" Phase I surveys completed, additional Phase I work was done on Site **33PK322**. Summaries of all of these investigations are given below.

Pecora, Albert M.
2013 *Preliminary Reconnaissance Survey of Fifteen Historic-Era Building Locations within the Portsmouth Gaseous Diffusion Plant (Ports), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In July of 2011, OVAI conducted preliminary field assessments of 15 of the 40 potential site locations identified by Burks (2011a). Specifically, OVAI inspected the following 15 locations (referred to as HMBL for the remainder of this report): 11-14; 16-24; and 43-44. Investigations identified archaeological remains at 10 of the 15 locations (HMBL 13, 14, 16,

17, 19, 20, 21, 22, 24, and 43). Nine of these locations were assigned trinomial state site numbers: (**33PK311** [HMBL 13], **33PK312** [HMBL 14]), **33PK313** [HMBL 16], **33PK314** [HMBL 17], **33PK315** [HMBL 19], **33PK316** [HMBL 20], **33PK317** [HMBL 21], **33PK318** [HMBL 22], and **33PK319** [HMBL 43]). The tenth location, HMBL 24, was identified as part of previously defined Site **33PK189** (Schweikart et al. 1997). All 10 sites contained evidence of historic-era occupation. Building foundations (including residences and outbuildings) were found at most sites, as were various shaft features such as wells or cisterns. While artifacts were infrequent due to the limited excavation of shovel tests at each site, all sites were thoroughly investigated. Several artifact types suggest nineteenth century occupation (e.g., pearlware from **33PK317** and red transferprint design from **33PK319**), but the majority have manufacturing ranges that date to the twentieth century. A few sites also produced minor prehistoric components. The remaining five locations (HMBL 11, 12, 18, 23, and 44) where no archaeological materials were recovered were not assigned trinomial state site numbers.

Of the 10 sites documented, four (**33PK311, 33PK312, 33PK317,** and **33PK318**) were recommended for "enhanced" Phase I survey to determine potential NRHP eligibility; the results of these investigations are summarized below. The remaining sites were not considered eligible for inclusion to the NRHP and no further work was recommended.

Pecora, Albert M., and Jarrod Burks
2012a *Phase I-Level Documentation of Four Historic-Era Farmstead Sites (33PK311, 33PK312, 33PK317 and 33PK318) within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2011, OVAI conducted "enhanced" Phase I archaeological surveys of four historic-era farmsteads within the northeastern portion of PORTS, including the Brodess Farmstead (**33PK311** [HMBL 13]), the Condon Farmstead (**33PK312** [HMBL 14]), the Mechling House Site (**33PK317** [HMBL 21]), and the Mechling Farmstead (**33PK318** [HMBL 22]).

All four farmsteads were visible on the 1905 oil and gas map, as well as a 1939 aerial photograph. Aerial photography also showed that the Condon Farmstead (**33PK312**) was no longer extant by 1951 and the 1952 AEC property map indicated the Mechling House Site (**33PK317**) was gone by 1952. The two remaining sites, the Brodess Farmstead (**33PK311**) and the Mechling Farmstead **(33PK318)** were likely demolished shortly after the AEC acquired the properties in the 1950s.

The Brodess Farmstead (**33PK311**) encompassed 120,000 feet^2 of land. The site consisted of at least nine structures, most of which were constructed after 1939; however, property values from early documentary evidence suggest that buildings were present as early as 1870. A total of 142 shovel tests were excavated, 51 of which contained historic-era artifacts related to the occupation of the site. The recovered artifacts are consistent with a 1870s occupation date, and most had manufacturing ranges that stretched into the 1930s and 1940s. The

structural remains of four buildings, including a house foundation, a barn foundation, an outbuilding foundation, and a privy were documented. Two stone-retaining walls, a stone sidewalk leading from the house to the privy, a well, two cisterns, and a septic system also were identified. Five additional structures depicted on aerial photographs as small outbuildings (such as sheds, workshops, or livestock shelters) were not relocated during fieldwork. It was assumed that these structures were likely constructed on pier supports, thereby leaving little to no archaeological footprint upon pier removal.

The Condon Farmstead (**33PK312**), an area of 48,000 feet^2, is comprised of house remains represented by a scatter of sandstone blocks. Additionally, a stone-lined well and the remains of an external root cellar were identified. Of 115 shovel tests excavated, 71 produced artifacts related to the occupation of the farmstead. The recovered artifacts are consistent with property records that suggest site occupation by 1882. Aerial photographs indicate that the farmstead was abandoned sometime between 1939 and 1951.

The Mechling House Site (**33PK317**) and Mechling Farmstead (**33PK318**) are contemporaneous sites located on the same property in the northeast portion of PORTS. The Mechling House Site (**33PK317**) is situated east of the farmstead and may represent a second home for a parent or adult child of the Mechling family. The Mechling House Site (**33PK317**) encompasses an area of 28,000 feet^2 and consists of the displaced remains of the house foundation, a root cellar, a possible privy depression, and a concrete cistern cap. Of 140 shovel tests excavated, 104 contained historic-era materials. Additionally, four prehistoric artifacts were recovered, including one Late Archaic projectile point.

Located west of McCorkle Road, the Mechling Farmstead (**33PK318**) consists of 54,000 feet^2 of land. This large site contains the remains of a house foundation constructed of a sandstone wall and support piers with poured concrete and cinder block additions, an outbuilding foundation, a group of two, possibly three, privy vaults, a cistern, a culvert, a well, and a water catch. The remains of another large building (possibly a barn), and three other outbuildings were depicted in aerial photographs, but could not be located during field investigation. Additionally, a large trash dump was documented in a steep gully just south of the farmstead. Of 181 shovel tests excavated, 117 produced 1,180 historic-era artifacts consistent with a construction date around 1880. The assemblage was dominated by kitchen and architecture group artifacts and some of the diagnostic material includes decorated whiteware and a Bennington ceramic marble.

This Phase I investigation revealed that each farmstead had been occupied for around 70 years (perhaps longer), beginning by 1880 and lasting up until the 1950s. Multiple families were known to occupy these farmsteads through time. Most recovered artifacts appear to represent later occupations (post 1900) and some may reflect post-abandonment activity (e.g., trash dumping). The Brodess (**33PK311**) and Mechling (**33PK318**) Farmsteads were large complexes with houses and numerous outbuildings, whereas the Condon Farmstead (**33PK312**) and Mechling House Site (**33PK317**) were small residential complexes, each with a house and a few small outbuildings. Concrete foundation material at the Brodess

Farmstead (**33PK311**), Mechling House Site (**33PK317**), and Mechling Farmstead (**33PK318**) suggest occupation well into the twentieth century.

Sites **33PK311, 33PK312, 33PK317, and 33PK318** were not considered eligible for inclusion to the NRHP and no further work was recommended.

Mustain, Chuck and David F. Klinge
2011 *Summary Report for Preliminary Assessment of 12 Historic Archaeological Sites at the PORTS Plant, Piketon, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

In 2011, ASC conducted preliminary field assessments of 12 of the 40 potential site locations identified by Burks (2011a). This includes HMBL's 1-5, 8-10, 32, 40-41, and 50. Investigations revealed sparse archaeological remains at five of the 12 sites (HMBL 2 [**33PK320**], 3, [**33PK321**], 4 [**33PK322**], 5 [**33PK323**], and 50 [**33PK324**]). Cultural resources included small numbers of historic-era artifacts (e.g., coal, glass ceramics, etc.) and some evidence of structural remains. At the remaining seven locations (HMBL 1, 8-10, 32, and 40-41), no archaeological evidence was identified and these locations appear to have been either completely destroyed or their locations were mapped incorrectly on the historic maps that were researched that identified them.

Three of the five sites (**33PK322, 33PK323,** and **33PK324**) were recommended for "enhanced" Phase I survey to determine potential NRHP eligibility; results are summarized below. Site **33PK322** consists of the remains of a homestead that was built in the nineteenth century and was occupied through the mid-twentieth century. Site **33PK323** consists of the remains of a school (Moore School), and Site **33PK324** consists of the remains of a small farmstead with several associated outbuildings. The remaining sites were not considered eligible for inclusion in the NRHP and no further work was recommended.

Mustain, Chuck and David F. Klinge
2012 *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

In 2012, ASC conducted "enhanced" Phase I archaeological investigations of three sites (**33PK322** [HMBL 4], **33PK323** [HMBL 5], and **33PK324** [HMBL 50]) at the PORTS facility.

Site **33PK322** is the remnants of a small, pier-supported house with several associated outbuildings. The site, measuring approximately 164 by 262 feet, is located on a small toe ridge in a large ravine near the northern edge of the PORTS property. The historical map review revealed one building depicted on the 1905 oil and gas map as well as the 1917 USGS topographic quadrangle map of the area. By 1952, two buildings were shown in the vicinity

on the AEC property map and at least one building is visible on 1939 and 1951 aerial photographs.

A total of 105 shovel tests were excavated, 66 of which contained 334 historic-era artifacts associated with the mid-to-late-nineteenth through the early-twentieth century occupation. Additionally, one prehistoric chert flake was recovered. All site elements identified in the preliminary assessment, including a concrete stoop, a driveway, and a small midden, were relocated, reevaluated, and mapped. Phase I investigations confirmed the interpretation of the major architectural remnants as being a house; however, the "stoop" was determined to be a pad for a cast-iron stove, and the "midden" was reinterpreted as the remains of a small outbuilding. Remnants of two previously unidentified outbuildings and a circular depression that may represent a privy location also were observed. Subsurface testing concluded that although some disturbance was evident, the site retained a relatively extensive artifact-bearing A-horizon.

No assessment regarding potential NRHP eligibility is offered for Site **33PK322**. ASC noted that the Phase I survey did not recover sufficient data to make an evaluation. ASC reported that "an analysis of the sheet midden may be compromised by the post-occupational demolition activities … [and] it remains unknown if pit or shaft features [such as privies or cellars] with sealed artifact deposits exist on site" (Mustain and Klinge 2012:38–39). Additional Phase I investigation consisting of a geophysical survey and historical research (including deeds, census records, and tax records) was recommended. The geophysical work and subsequent summary letter for additional work at Site **33PK322** are described below (Jagel 2012; Klinge 2012).

Site **33PK323** is a historic-era school house site that also contains a minor prehistoric component. The site, measuring approximately 115 by 131 feet, is located on a terrace in a small stream valley near the northern edge of the PORTS property. The historical map review identified one building labeled as 'Moore School' depicted along Shyville Road (CR 30) at this location on a 1905 oil and gas map and the 1908 USGS topographic quadrangle. No buildings, however, are shown on the 1952 AEC property map, nor is one discernible on 1939 and 1951 aerial photographs of the area.

A total of 60 shovel tests, 19 of which contained artifacts, were excavated as part of the Phase I testing at Site **33PK323**. Shovel testing recovered 119 historic-era artifacts, including a 'Carter's Ink' inkwell. The artifact assemblage and historical map data indicate the schoolhouse was constructed sometime during the early- to mid-nineteenth century and was abandoned in the early-twentieth century. No foundation walls, piers, or footers were observed. One prehistoric, non-diagnostic chert preform also was found during investigations. Because of a complete lack of integrity (and limited archaeological remains), Site **33PK323** was determined not eligible for inclusion in the NRHP and no further work was recommended.

Site **33PK324** is the remnants of a historic-era farmstead with a minor prehistoric component. The site, measuring approximately 427 by 656 feet, is located on a ridgetop

above the Scioto River Valley near the western edge of the PORTS property. The historical map review of the area revealed one building north of Beaver Road depicted on the 1917 USGS topographic quadrangle map. By 1952, three buildings are shown on the AEC property map. Aerial photographs also show several buildings and structures in the vicinity. The 1905 oil and gas map, however, fails to illustrate any structures.

Only 32 of 252 shovel tests excavated in the Phase I survey contained artifacts. Diagnostic artifacts suggest site construction during the second quarter of the twentieth century up until the 1952 AEC property acquisition. All of the site elements identified during the preliminary assessment, which included the base of a silo, a trough, a concrete pad, and a pile of concrete blocks, were relocated, reevaluated, and mapped. Several additional site elements were identified during the Phase I testing, including a circular depression that likely marks a shaft feature (such as a well or privy), a large barn foundation, and a spring with two adjacent cisterns. The site is composed of numerous building and structure remnants, including five foundations (three of which were barns) and a silo. A heavily rutted, uneven, ground surface, and some push-piles, suggest post-abandonment disturbance. Subsurface testing revealed a large portion of the site had been paved with concrete or had been graveled. The building remnant on the hilltop was tentatively identified as the remnants of a house, but it had also been significantly impacted by AEC-era site demolition. The prehistoric component of Site **33PK324** consists of a single chert flake.

Although the site retains several partially intact elements (e.g., building foundations), significant post-abandonment demolition has severely impacted its overall integrity. Disturbance is so extensive that the possible house location on the hilltop could not be confirmed and it is possible the accumulated rubble was transported and dumped there from another part of the site. Because of the extensive disturbance, the lack of sealed archaeological contexts, and the low potential for collecting additional archaeological data, Site **33PK324** was recommended not eligible for inclusion in the NRHP and no further work was recommended.

Jagel, Donald
2012 *Geophysical and Buried Utility Investigation Historic Farmstead Site 33PK322 (HMBL 4), PORTS Facility, Piketon, Ohio*. Prepared by Advanced Geological Services, Malvern, Pennsylvania.

As a way to delineate the subsurface features (e.g., privy shafts) and deposits at Site **33PK322**, a geophysical survey was conducted over the entire site area. This non-invasive technique was deemed appropriate since the initial ASC survey (Mustain and Klinge 2012) was only able to excavate shallow shovel tests (less than 12 inches). The geophysical survey documented extensive disturbance of the soils and rubble deposits, especially in the area of the house and outbuilding foundations. No shaft features (e.g., privy) were identified as part of this survey and the site was recommended as having little potential for containing intact archaeological deposits of any significance. These results were used by ASC to make their

determination of potential eligibility of Site **33PK322** for inclusion in the NRHP (see Addendum Letter Report below).

Klinge, David F.
2012 *Addendum Letter Report for Site 33PK322.* As Documented in Mustain and Klinge (2012) *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

This letter report covers additional Phase I survey conducted on a northern portion of Site **33PK322** that was not tested in the original Phase I survey (Mustain and Klinge 2012). Using geophysical survey techniques, the northern portion of the site was found to be buried below a railroad track section (Jagel 2012) and contains the partial remains of a livestock barn that was associated with the main farmstead reported previously; two artifacts were recovered. Excavation results demonstrated heavy disturbance, a result supported by previous interpretations (Jagel 2012; Mustain and Klinge 2011, 2012). As a result of these findings, Klinge suggested that the site represented a small farmstead (not a homestead) and that it was larger in area than originally proposed. Due to the heavy disturbance to the site, plus the lack of evidence for potential subsurface features such as privies, Site **33PK322** is not eligible for inclusion in the NRHP and no further archaeological work was recommended.

Trader, Patrick D.
2011 *Phase I Archaeological Reconnaissance of Selected Historical Sites at the PORTS Facility, Pike County, Ohio*. Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

In 2011, Gray & Pape conducted preliminary field assessments of 13 of the 40 potential historic-era site locations identified by Burks (2011a). This includes HMBLs 25–29, 33, 36–37, 45, 47–48, and 52–53. Seven of these locations were assigned formal trinomial state site numbers: (**33PK325** [HMBL 25], **33PK326** [HMBL 27], **33PK327** [HMBL 28], **33PK328** [HMBL 36], **33PK329** [HMBL 37], **33PK330** [HMBL 52], and **33PK331** [HMBL 53]). The remaining six locations (HMBL 26, 29, 33, 45, 47, and 48), where no archaeological materials were recovered, were not assigned trinomials. Nearly all of these six locations failed to reveal intact archaeological remains and all had experienced heavy post-occupation disturbance.

Three locations (Sites **33PK326, 33PK327,** and **33PK330**) contained some archaeological remains. Site **33PK326** was identified during map/aerial photograph review as a large farmstead that was in existence as early as 1905 and was occupied up until the AEC purchase of the property in the 1950s. Most of the area appears to have been disturbed by post-occupation earth-moving activities, but a few potentially intact site areas were identified. For example, evidence of four foundation piers was identified in the field. Site **33PK327** was reported in map/aerial photograph research as a church in 1905, but was no longer extant by 1939 (see Burks 2011a). Fieldwork at the site identified several artifacts and a portion of the

foundation. Site **33PK330** was a church illustrated on a 1905 map. Although no foundation could be relocated during surface inspection, shovel testing revealed a demolition layer below the modern A horizon complete with numerous artifacts.

All three sites were recommended for "enhanced" Phase I survey since preliminary field assessment determined a potential for intact deposits at each location. In addition, another location not assigned a state site number (HMBL 45) was recommended for Phase I survey. HMBL 45 was identified through map/aerial photograph research as containing one structure, but field investigation failed to find any evidence of this structure or associated archaeological resources. In this case, the lack of archaeological resources at a location known to have contained at least one structure was puzzling and provided the impetus to recommend Phase I survey to further evaluate the location. The remaining nine sites were not considered eligible for inclusion in the NRHP and no further work was recommended.

Vehling, Marcia, Donald Burden, and Doug Owen
2011 *Phase I Cultural Resources Investigation of Selected Historical Sites at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

In 2012, Gray & Pape conducted "enhanced" Phase I archaeological assessments of four previously reported historic-era sites assessed by Trader (2011). Investigations were carried out at **33PK326** (HMBL 27), **33PK327** (HMBL 28), **33PK330** (HMBL 52), and HMBL 45.

Site **33PK326** is the remains of a nineteenth to mid-twentieth century farmstead located on a ridgeline near the intersection of Fog and Perimeter Roads. No artifacts or structural remnants associated with the farmstead were found, likely due to the razing and grading activities from the 1950s. As such, a more accurate date for the initial construction and site occupation could not be determined. However, deed research and a historical map review indicate the site was most likely occupied by the late 1870s. Due to the absence of artifacts, the lack of site integrity, and the lack of any intact features or structures, Site **33PK326** was determined not eligible for the NRHP and no further work was recommended.

Site **33PK327** is located on a low terrace on the west side of McCorkle Road (County Road 60) north of its intersection with County Road 32. The site is identified as a church on the 1905 oil and gas map. Structural remnants consisted of 10 cut limestone footers that were documented in situ, indicating the building measured approximately 23 by 33 feet. Given that the parcel boundaries of the site are depicted on an 1884 map of Pike County, the structure was likely in place by that time. The site also appears on a 1912 oil and gas map. Artifacts recovered from six of 39 shovel tests support a mid-nineteenth to mid-twentieth century occupation. Due to the low artifact density and the relative lack of site integrity, Site **33PK327** was considered not eligible for inclusion in the NRHP and no further archaeological work was recommended.

Site **33PK330** is located on a creek terrace on the north side of Nursing Home Road at its intersection with Wakefield Mound Road. The site is depicted as a church on the 1905 oil and gas map of the area and is most likely the remains of the former Trinity Methodist Episcopal Church of Scioto Township. In total, 28 shovel tests were excavated; only three contained artifacts. The recovered material indicates a date range of 1820 to the 1900s. No structural remains or features associated with the building were found, likely due to the razing and grading activities from the 1950s. Due to the low artifact density, the lack of site integrity, and the absence of any intact features or structures, Site **33PK330** was determined not eligible for inclusion in the NRHP and no further work was recommended.

Site location **HMBL 45** is positioned on the terraced side slope of a wooded hill east of Perimeter Road, south of its intersection with Dutch Run Road. The site was identified through an examination of historical maps and aerial photographs as a possible homestead consisting of a single structure. The earliest property record that could be located dates to 1881. In total, 28 shovel tests were excavated, none of which contained artifacts. Although three distinct, man-made terraces (measuring approximately 39 by 49 feet and extending the length of the landform) were observed at this location, it is unclear if they were associated with the homestead or if they were, perhaps, associated with other community resources (e.g., roadway). Due to the absence of artifacts, the lack of site integrity, and the lack of any intact features or structures, HMBL 45 was considered not eligible for the NRHP and no further work was recommended.

5.2.3 The 2009 Historic Cemetery Documentation

Ohio Valley Archaeology, Inc.
2011 *Geophysical Survey at the Holt Cemetery at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

In 2009, OVAI conducted a geophysical survey at Holt Cemetery (33PK214) in the northeast corner of the PORTS facility. The Holt Cemetery was first documented by Schweikart et al. (1997) during the original survey of the PORTS property. Initially, the cemetery was not considered eligible for listing in the NRHP; though, preservation and avoidance were recommended. The OHPO, however, recommended the Holt Cemetery eligible for inclusion in the NRHP, and geophysical survey was suggested in an effort to locate any unmarked graves. The Holt Cemetery was established circa 1821 and remained active at least until the early-twentieth century. The non-invasive geophysical survey conducted by OVAI was performed using a magnetometer and ground-penetrating radar to locate unmarked graves and other cemetery-related features. Investigations revealed six unmarked graves and four probable (or likely) graves within the mowed area of the cemetery. In addition to known interments, this means that as many as 24 individuals may be present within the cemetery. This survey also confirmed the remnants of a perimeter fence that once surrounded the cemetery. Based on the positioning of the fence, the cemetery once enclosed an area of approximately 10,000 feet^2.

5.2.4 Summary of Historic-era Resources at PORTS

Pecora, Albert M., Jarrod Burks, and Karen L. Leone
2013 *Summary Report of Historic-era Archaeological Resources within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio. Revised May 7, 2013.

Various levels of archaeological investigation within the 3,777-acre PORTS facility resulted in the documentation of 61 archaeological sites that date to the historic-era, as reported above. A variety of archaeological site types were identified among the PORTS historic-era site assemblage, including residential sites (farmsteads and houses) (n=29), farmstead components (n=6), a recreational cabin (n=1), refuse dumps (n=5), artifact scatters (n=9), isolated finds (n=4), a bridge (n=1), cemeteries (n=2), church sites (n=3), and a school site (n=1). One of the artifact scatters is associated with a second bridge abutment. In addition to a summary of each and every site, the report includes a more in-depth look at farmstead settings and layouts, building foundation types and materials, cellar types and construction materials, outbuilding types (e.g., barns, garages, and sheds), privies, septic systems, water systems, and artifact groups.

Archaeological data, coupled with inferences made from limited deed research from the PORTS farmstead sites, suggests that the majority of the farmstead/residential sites were developed and occupied in the latter part of the nineteenth century; and a few were occupied as early as the mid-nineteenth century. Furthermore, a fairly dynamic occupation of the PORTS community is implied based on presence, and subsequent absence, of structures on area maps over time.

The Holt Cemetery (**33PK214**) and the Mount Gilead Church and Cemetery (**33PK189**) sites were the only historic-era sites, in consultation with the OHPO, determined to be eligible for inclusion in the NRHP. Further consultation with the OHPO and other consulting parties is recommended regarding the treatment and protection of these two sites. All other sites, such as refuse dumps, isolated finds, artifact scatters, and bridge abutments are considered to be ineligible for the NRHP. Likewise, the farmsteads and house sites are also considered ineligible.

Pecora et al. suggest that while the PORTS farmsteads may not be, as individual preservation units, eligible for the NRHP, as a group the sites may be regionally or locally significant. A tremendous amount of information regarding the dynamic historical landscape of this rural farming community has been gathered from investigations at sites that include farmsteads, homesteads, churches, and schools. Each archaeological site represents a *component* of a late-nineteenth to mid-twentieth century rural farming community in Pike County, Ohio. PORTS is unique because the creation of the facility encapsulated and preserved the archaeological remains of a large portion of the community within the bounds of the 3,777-acre reservation. These sites offer a unique opportunity for community-level archaeological and historical research in southern Ohio. No additional archaeological fieldwork was

recommended for the PORTS historic-era archaeological sites. As an alternative to the physical preservation of these sites, it was recommended that, using the archaeological information collected to date, additional archival research could be conducted to better understand the people who lived in this area and how they were tied together as a social and economic community. Any future research plan should be developed in consultation with the Ohio Historic Preservation Office.

The historic-era occupation at PORTS runs from 1773 to 1952. The DOE has completed 15 separate investigations to document historic-era cultural resources at PORTS. These investigations have documented a total of 61 historic-era archaeological sites located within the boundaries of the facility. Phase II investigations have been conducted at 14 of these sites but none of them have been recommended as eligible for listing on the NRHP. The only historic-era sites eligible for listing on the NRHP are a cemetery and church/cemetery. DOE will use all of the survey information on each of the sites to assist in the review and planning of future undertakings.

6.0 ARCHITECTURAL RESOURCES AND THE DEPARTMENT OF ENERGY-ERA AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

When the AEC, a precursor to the DOE, acquired the land at PORTS, an aggressive building program was launched. The Cold War-era buildings at PORTS represent a unique period in American history and inventory-level documentation of the structures at the facility has been comprehensive. The DOE also created a model for more in-depth recordation of architectural resources. Information on the model can be found in the CERCLA documentation and the Administrative Record that the DOE is preparing for its ongoing D&D mission.

6.1 Brief History of Post-1950 Construction at the Portsmouth Gaseous Diffusion Plant

Construction of the PORTS facility was underway by late 1952 and operations began in 1954. The original complex was completed in March 1956 and operated by the AEC, which later became the DOE. The DOE currently manages the PORTS facility. The original Cold War-era facility consisted of 109 permanent buildings, an extensive road and railroad network, expansive utility systems for electrical power distribution, process and sanitary water supply, treatment, and distribution systems, storm drainage system, sewer treatment facilities, and dry air supply systems (Coleman et al. 1997).

Although PORTS was initially constructed for its Cold War-era mission of producing highly enriched uranium (HEU) by the gaseous diffusion process (GDP), alterations to the modern landscape within facility grounds also was influenced by subsequent, non-Cold War-related operations. Additional construction occurred between 1979 and 1985. The dissolution of the Soviet Union in 1991 not only brought an end to the Cold War, but also to the PORTS mission. Although the production of HEU was suspended in November 1991, the PORTS facility continued to produce low-enriched uranium (LEU) for commercial nuclear power plants until 2001. In May of 2001, uranium enrichment was terminated and by the end of 2005 the plant was transitioned into cold shutdown in preparation for future decontamination and decommissioning of the facility (Cusick 2011; Hudson 2011).

The GDP at Piketon was an integral part of the United States' Cold War nuclear weapons complex. The PORTS plant was the last of three GDPs to be constructed. The first GDP was built in Oak Ridge, Tennessee, and the second GDP was built in Paducah, Kentucky. Paducah processed LEU to provide fuel for nuclear reactors. HEU was processed at only the Oak Ridge and PORTS facilities. PORTS was the largest producer of HEU by quantity enriched to the highest levels, and its production of HEU spanned the longest period. While there have been other missions at PORTS, and there are extant architectural resources associated with these other missions, it is the PORTS Cold War-era production of HEU by the gaseous diffusion process that is the most historically significant. Thus, because they physically convey this story, the architectural resources at PORTS that date to the Cold War-

era and are associated with the enrichment of HEU that are the most significant to the interpretation of the site.

6.2 Architectural Surveys

Cultural resource investigations have been conducted since 1993 at PORTS primarily in support of Section 110 and as part of the D&D actions under CERCLA; however, significant correspondence between OHPO and PORTS has supported numerous Section 106 actions at PORTS over the years. Two architectural survey reports are included in the overall history of Section 110 compliance at PORTS, as listed in Table 7, and will be summarized in this section.

Table 7. Inventory of DOE-era Cultural Resource Studies and Reports

Project	Phase of Work	Report Reference	Report Date
Initial 1996 to 1997 Architectural Survey and Amended Review	Phase I	Coleman et al.	1997 (Draft)
Update and Clarification of Initial 1996 to 1997 Architectural Survey	N/A	Cusick	2011

6.2.1 Initial and Amended 1997 Architectural Survey

Concurrent with the initial archaeological survey (Schweikart et al. 1997), ASC conducted an architectural survey of all standing structures at PORTS (Coleman et al. 1997). This survey, summarized below, documented all of the buildings at the facility and created a baseline level of documentation of architectural facilities at PORTS.

Coleman, Kevin, Deborah Dobson-Brown, and Dawn Herr
1997 *Phase I Architectural Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio*. Draft report. Prepared by ASC Group, Inc., Columbus, Ohio.

Between 1996 and 1997, ASC identified and recorded architectural resources at PORTS. Due to issues associated with the security classification of some buildings, a complete survey was not possible. In particular, the functions of the buildings were not fully described, photographs of the buildings were not taken, and an overall context was not written. Despite these limitations, the survey represented an important first step in initiating the recordation of architectural resources at PORTS. The purpose of this survey, consisting of a historical document review as well as field survey, was to offer recommendations for potentially contributing and non-contributing architectural resources with regard to Section 110 of the NHPA.

The historical document review included an examination of the Ohio Historic Inventory (OHI) files to locate all previously documented architectural resources within the study area.

No historical maps (atlases, county land plats, or USGS quadrangles) were consulted since no structures dating prior to construction of the PORTS facility remained within the study area. However, minor structures consisting of four historic-era (pre-PORTS facility developmental period, as defined below) bridges were noted. The names and designations for the architectural resources documented during the 1996 to 1997 survey were drawn from the *Portsmouth Facility Directory* (FD) (Project Planning, Martin Marietta Utility Services 1995). For structures that were constructed after the publication of the FD, the *Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation* (United States Department of Energy 1993) was consulted.

The Environmental Management mission at PORTS began in 1989 and the site was divided into four quadrants (Quadrants I through IV) based on estimation of groundwater and surface water flow direction and watershed evaluation. The initial architectural assessment, conducted in 1996 to 1997 by ASC was carried out according to these previously established divisions (the same quadrants were used for the archaeological survey by Schweikart et al. [1997]).

The architectural field survey consisted of a physical examination (visual assessment and measurements) of each standing building, structure, and architectural site. Each architectural resource, regardless of age, was assigned a sequential architectural location (AL) number in the order in which it was recorded in the field. Construction materials, techniques, ornament, alterations, design, and uses of each building, structure, and architectural site were documented on OHI forms and classified by architectural style or building type. Each architectural resource was further classified chronologically and topically by "PORTS Periods of Development" and "PORTS Thematic Groups" to provide context for the development of a framework under which each AL could be categorized and evaluated as either a contributing or non-contributing resource to the PORTS facility's eligibility for inclusion in the NRHP.

The architectural survey documented 160 ALs comprised of 196 buildings and structures; most of them (131 of the 160 ALs) were located within a 1,265-acre area bounded by a roughly ovoid perimeter road in the southwestern portion of the PORTS facility. The remaining 29 ALs are concentrated outside of the Perimeter Road, mostly to the north and northeast. The most common building material encountered was 'transite,' which is a large corrugated or flat asbestos-cement panel used in the construction of the original mid-twentieth century buildings and structures at PORTS.

The report for this survey was originally written in 1997, revised in 2006, and a draft was submitted to OHPO in 2008. The draft report was subsequently withdrawn in 2010 and a revised report was prepared by Restoration Services Incorporated (RSI). The new report was intended to focus DOE's efforts more closely on the Section 110 responsibilities of identifying cultural resources. This revised report was submitted by RSI (Cusick 2011) to the OHPO for review, and the OHPO accepted the final report in March 2011.

Cusick, Lesley T.
2011 *National Historic Preservation Act Section 110 Survey of Architectural Properties at the Portsmouth Gaseous Diffusion Plant in Scioto and Seal Townships, Piketon, Ohio*. Prepared by Restoration Services, Inc., Oak Ridge, Tennessee.

The intent of the RSI report was to clarify and update the status of the buildings and structures at PORTS in accordance with Section 110 of the NHPA and to support the DOE's future Section 106 reviews (Cusick 2011). As a part of the research for the report, formerly classified information on the history of the site and its specific contributions to the DOE's gaseous diffusion complex was declassified and able to be incorporated into the report.

RSI, using the information originally assembled by ASC, categorized the PORTS facility into four developmental periods: (1) Pre-PORTS Facility Structures, Period of Development 1 (1900 to 1951); (2) Original PORTS Facility, Period of Development 2 (1952 to 1956); (3) PORTS Facility Additions, Period of Development 3 (1957 to 1978); and (4) Gas Centrifuge Enrichment Plant (GCEP) Facility, Period of Development 4 (1979 to 1985). Period of Development 1 is comprised of four bridges constructed prior to the establishment of the PORTS facility; they were subsequently reused and modified. Period of Development 2 consists of the original Portsmouth Gaseous Diffusion Plant constructed between 1952 and 1956. These buildings and structures were further classified into six general groups consisting of: (1) three large processing buildings in the center of the facility; (2) the original cooling facilities and pump houses; (3) the headquarters buildings at the main (east) entrance; (4) two large electric switch yards that fed the processing buildings along with an associated two-tiered electric substation; (5) linear one-story steel warehouses with M-roofs; and (6) various steel-framed, asbestos-paneled support buildings. Although the road and railroad system was not inventoried, these transportation corridors were also considered to be important elements of the PORTS facility. Period of Development 3 is comprised of the wide variety of buildings and structures that were added after 1956 but were not part of the original facility plan, including environmental monitoring stations constructed during the 1980s and 1990s, as well as warehouses and support buildings. Period of Development 4 consists of the GCEP, which was a semi-self-sufficient facility that was added to PORTS between 1979 and 1985. These resources are summarized in Table 8 (Figures 3–6).

Table 8. Architectural Resources Identified at PORTS

Portsmouth Number	Portsmouth Name	Date	Period	Quad	AL#/OHI#
X-100	Administration Bldg.	1954	2	I	050/PIK-94-12
X-100B	Air Conditioning Equipment Bldg.	1958	3	I	049/PIK-93-12
X-101	Health Services Center	1954	2	I	047/PIK-91-12
X-102	Cafeteria	1954	2	I	046/PIK-90-12
X-103	Auxiliary Office Bldg.	1954	2	I	039/PIK-83-12
X-104	Guard Headquarters	1954, 1991	2	I	035/PIK-79-12
X-104A	Indoor Firing Range	1980 to 1985	3	I	034/PIK-78-12
X-105	Maintenance Bldg.	1957	2	II	014/PIK-58-12
X-106	Tactical Response Station	1955	2	I	036/PIK-80-12
X-106B	New Fire training Bldg.	1993	3	III	126/PIK-170-12
X-108A	South Portal and Shelter	1955	2	I	030/PIK-74-12
X-108B	North Portal and Shelter	1955	2	I	029/PIK-73-12
X-108E	Construction Entrance Bldg.	1975	3	III	124/PIK-168-12
X-108H	Pike Avenue Portal	1976	3	IV	119/PIK-163-12
X-109A	Personnel Monitoring Bldg.	1955	2	III	106/PIK-150-12
X-109B	Personnel Monitoring Bldg.	1955	2	II	013/PIK-57-12
X-109C	Personnel Monitoring Trailer	1975	3	I	051/PIK-95-12
X-111A	SNM Monitoring Portal	1956, 1981	2	III	099/PIK-143-12
X-111B	SNM Monitoring Portal	1956, 1981	2	III	099/PIK-143-12
X-112	Data Processing Bldg.	1984	4	I	063/PIK-107-12
X-114A (new)	Firing Range (new)	1960 to 1970	3	IV	153/PIK-197-9
X-114A (old)	Former Firing Range	1990	3	IV	150/PIK-194-12
X-120	South Weather Station	1979, 1993-1996	3	I	091/PIK-135-12
X-204*	Undocumented railroad overpass over North Access Road	1923, 1952	1	IV	155/PIK-199-9

Table 8. Architectural Resources Identified at PORTS

Portsmouth Number	Portsmouth Name	Date	Period	Quad	AL#/OHI#
X-215D	Electric Power Tunnels	1954, 1955, 1985, 1997	2	IV	120/PIK-164-12
X-220A	Instrumentation Tunnels (beside X-326, X-330, and X-333)	1954	2	I and III	100/PIK-144-12
X-230J2	South Environmental Sampling Bldg.	1968	3	I	089/PIK-133-12
X-230J3	West Environmental Sampling Bldg.	1968	3	III	132/PIK-176-12
X-230J5	West Environmental Monitoring Station	1981	3	III	133/PIK-177-12
X-230J6	Northeast Environmental Monitoring Station	1981	3	IV	149/PIK-193-12
X-230J7	East Environmental Monitoring Station (Liquid Effluent System)	1981	3	II	092/PIK-136-12
X-230J9	North Environmental Storage Bldg.	1986	3	IV	143/PIK-187-12
X-300	Plant Control Facility	1952 to1955	2	I	040/PIK-84-12
X-300A	Process Monitoring Bldg.	1954	2	I	041/PIK-85-12
X-300C	Emergency Communications Antenna	1952 to1955	2	I	040/PIK-84-12
X-326	Process Bldg.	1956 to 1981	2	III	099/PIK-143-12
X-330	Process Bldg.	1955	2	III	101/PIK-145-12
X-333	Process Bldg.	1955	2	IV	123/PIK-167-12
X-334	Transformer Storage and Cleaning Bldg.	1985	3	IV	118/PIK-162-12
X-342A	Feed Vaporization and Fluorine Generation Facility	1954, 1982 to 1983	2	IV	113/PIK-157-12
X-342B	Fluorine Storage Bldg.	1954	2	IV	114/PIK-158-12
X-343	Feed Vaporization and Sampling Facility	1981	3	II	006/PIK-50-12
X-344A	Toll Enrichment Facility	1958, 1971 to 1975	2	IV	112/PIK-156-12
X-344B	Maintenance Storage Bldg.	1958	2	IV	115/PIK-159-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-344C	Hydrofluoric Acid Storage Bldg.	1958	2	IV	117/PIK-161-12
X-344E	Gas Ventilation Stack	1958	2	IV	117/PIK-161-12
X-344F	Safety Bldg.	1958	2	IV	117/PIK-161-12
X-345	Special Nuclear Materials Storage Bldg.	1980	3	II	023/PIK-67-12
X-530A	Switchyard	1954-1980	2	III	103/PIK-147-12
X-530B	Switch House (includes Control House, North Switch House, South Switch House)	1954	2	III	104/PIK-148-12
X-530C	Test and Repair Bldg.	1954 to 1980	2	III	103/PIK-147-12
X-530D	Oil House	1954 to 1980	2	III	103/PIK-147-12
X-530E	Valve House	1954 to 1980	2	III	103/PIK-147-12
X-530F	Valve House	1954 to 1980	3	III	103/PIK-147-12
X-530G	Oil Pumping Station	1954 to 1980	3	III	103/PIK-147-12
X-533A	Switchyard	1954, 1955, 1985, 1997	2	IV	120/PIK-164-12
X-533B	Switch House (includes Control House, East Switch House, West Switch House)	1955	2	IV	121/PIK-165-12
X-533C	Test and Repair Facility	1955	2	IV	120/PIK-164-12
X-533D	Oil House	1955	2	IV	120/PIK-164-12
X-533E	Valve House	1955	2	IV	120/PIK-164-12
X-533F	Valve House	1955	2	IV	120/PIK-164-12
X-533H	Gas Reclaiming Cart Garage	1954, 1955, 1985, 1997	2	IV	120/PIK-164-12
X-540	Exchange Telephone Bldg.	1954	2	I	048/PIK-92-12
X-600	Steam Plant	1954, 1996	2	I	054/PIK-98-12
X-600B	Steam Plant Shop Bldg.	1981	3	I	055/PIK-99-12
X-605H	Booster Pump House and Appurtenances	1954	2	IV	144/PIK-188-12
X-605I	Chlorinator Bldg.	1954	2	IV	144/PIK-188-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-605J	Diesel Generator Bldg.	1954	2	IV	144/PIK-188-12
X-611	Water Treatment Plant Chemical Bldg. and Mixing and Settling Basins	1954	2	IV	147/PIK-191-12
X-611C	Water Treatment Plant Fitter Bldg.	1954, 1979, 1993 to 1997	2	IV	148/PIK-192-12
X-611D	Recarbonation Instrumentation Bldg.	1954, 1979, 1993 to 1997	2	IV	148/PIK-192-12
X-612	Elevated Water Tank	1960	3	III	146/PIK-190-12
X-6614D	Sewage Lift Station	1970 to 1978	3	I and III	082/PIK-126-12
X-615	Sanitary Sewage Treatment Facility	1954 to 1955	2	III	128/PIK-172-12
X-616	Liquid Effluent Control Facility	1976	3	III	127/PIK-171-12
X-617	South PH Adjustment Facility	1979	3	I	088/PIK-132-12
X-618	North Holding Pond Storage Bldg.	1981	3	IV	142/PIK-186-12
X-621	Coal Pile Runoff Treatment Facility	1984	3	I	056/PIK-100-12
X-622	South Groundwater Treatment Facility	1994	3	I	085/PIK-129-12
X-623	East Groundwater Treatment Facility	1994 to 1995	3	II	007/PIK-51-12
X-624-1	Recirculating Water Pump House	1993 to 1996	3	II	093/PIK-137-12
X-624	Little Beaver Groundwater Treatment Facility	1993 to 1996	3	II	094/PIK-138-12
X-625	Groundwater Treatment Facility	1995	3	I	095/PIK-139-12
X-626-1	Recirculating Water Pump House	1954	2	I	057/PIK-101-12
X-626-2	Cooling Tower	1954	2	I	058/PIK-102-12
X-630-1	Recirculating Water Pump House	1954 to 1955	2	IV	107/PIK-151-12
X-630-2A	Cooling Tower	1954 to 1955	2	IV	108/PIK-152-12
X-630-2B	Cooling Tower	1954 to 1955	2	IV	109/PIK-153-12
X-633-1	Recirculating Water Pump House	1953 to 1954	2	II	003/PIK-47-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-633-2A	Cooling Tower and Uncovered Extension Basin	1954 to 1955	2	II	002/PIK-46-12
X-633-2B	Cooling Tower and Uncovered Extension Basin	1954 to 1955	2	II	004/PIK-48-12
X-633-2C	Cooling Tower	1976	3	II	001/PIK-45-12
X-633-2D	Cooling Tower	1978	3	II	005/PIK-49-12
X-640-1	Recirculating Water Pump House	1960	3	II	122/PIK-166-12
X-640-2	Elevated Water Tank	1960	3	II	025/PIK-69-12
X-700	Converter Shop and Cleaning Facility	1955	2	II	018/PIK-62-12
X-700A	Air Conditioning Equipment Bldg.	1975	3	II	020/PIK-64-12
X-701A	Lime House	1955	2	II	016/PIK-60-12
X-701C	Neutralization Pit	1953	2	II	017/PIK-61-12
X-701D	Water Deionization Facility	1955	2	II	019/PIK-63-12
X-701E	Neutralization Bldg.	1973	3	II	009/PIK-53-12
X-705	Decontamination Bldg.	1955	2	II	002/PIK-65-12
X-705D	Heating Booster Pump Bldg.	1983	3	II	022/PIK-66-12
X-710	Technical Service Bldg.	1953, 1975	2	I	043/PIK-87-12
X-710A	Technical Service Gas Manifold Shed	1955	2	I	045/PIK-89-12
X-710B	Explosion Test Facility	1956	2	I	044/PIK-88-12
X-720	Maintenance and Stores Bldg.	1954	2	II	027/PIK-71-12
X-720A	Maintenance and Stores Gas Manifold and Shed	1954	2	II	028/PIK-72-12
X-720B	Radio Base Station Bldg.	1978	3	II	024/PIK-68-12
X-720C	Plant and Oil Storage Bldg.	1980	3	II	026/PIK-70-12
X-735A	Landfill Utility Bldg.	1980	3	IV	145/PIK-189-9
X-740	Waste Oil Storage Bldg.	1982	3	III	105/PIK-149-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-741	Oil Drum Storage Facility	1954	2	I	031/PIK-75-12
X-742	Gas Cylinder Storage Facility	1954	2	I	032/PIK-76-12
X-743	Lumber Storage Facility	1953 to 1956	2	I	042/PIK-86-12
X-744B	Salt Storage Bldg.	1979	3	IV	140/PIK-184-12
X-744G	Bulk Storage Bldg. – Non-UEA	1956	2	II	008/PIK-52-12
X-744H	Bulk Storage Bldg.	1953	2	II	010/PIK-54-12
X-744J	Bulk Storage Bldg.	1953	2	II	011/PIK-55-12
X-744K	Warehouse K – Non-UEA	1953 to 1954, 1978	3	I	084/PIK-128-12
X-744L	Maintenance and Stores Warehouse	1983	3	II	015/PIK-59-12
X-744N	Warehouse	1988	3	III	131/PIK-175-12
X-744P	Warehouse	1988	3	III	131/PIK-175-12
X-744Q	Warehouse	1988	3	III	131/PIK-175-12
X-744S	Warehouse	1957, 1978	2	III	129/PIK-173-12
X-744T	Warehouse	1957, 1978	2	III	129/PIK-173-12
X-744U	Warehouse	1957, 1978	2	III	129/PIK-173-12
X-744W	Surplus and Salvage Warehouse	1957, 1983	2	IV	141/PIK-185-12
X-746	Materials Receiving and Inspection	1954	2	I	033/PIK-77-12
X-748	Truck Scale Facility	1975	3	III	124/PIK-168-12
X-750	Mobile Equipment Maintenance Shop	1953	2	I	037/PIK-81-12
X-750A	Garage Storage Bldg.	1953	2	I	038/PIK-82-12
X-751	Mobile Equipment Garage	1979	4	I	083/PIK-127-12
X-752	Warehouse	1978	3	IV	139/PIK-183-12
X-760	Chemical Engineering Bldg.	1954	2	I	052/PIK-96-12
X-770	Mechanical Test Bldg.	1954	2	I	053/PIK-97-12
XT-801	South Office Bldg.	1977 to 1978	4	I	090/PIK-134-12
XT-847	Construction Warehouse	1980 to 1984	4	I	087/PIK-131-12
X-1000	Administration Bldg.	1981	4	I	065/PIK-109-12
X-1007	Fire Station	1981	4	I	062/PIK-106-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-1020	Plant Emergency Operation Center	1980 to 1985	4	I	061/PIK-105-12
X-1107AV	Administrative Portal – Vehicular	1983	4	I	086/PIK-130-12
X-1107BP	Administrative Portal – Pedestrian	1985	4	I	064/PIK-108-12
X-1107BV	Interplant Portal	1985	4	I	059/PIK-103-12
X-1107DV & X-1107DP	Northeast Portal – Vehicular & Northeast Portal – Pedestrian	1985	4	III	125/PIK-169-12
X-1107EV & X-1107EP	Northwest Portal – Vehicular & Northwest Portal – Pedestrian	1985	4	III	159/PIK-203-12
X-1107FP	South Portal – Pedestrian	1985	4	I	080/PIK-124-12
X-1107FV	South Portal – Vehicular	1985	4	I	081/PIK-125-12
X-3000	Electronic Maintenance Facility	1980 to 1985	4	I	066/PIK-110-12
X-3001	Process Building #1	1979 to 1985	4	I	072/PIK-116-12
X-3002	Process Building #2	1979 to 1985	4	I	070/PIK-114-12
X-3012	Process Support Bldg.	1983	4	I	071/PIK-115-12
X-3346	Waste Handling and Storage Facility (Feed and Withdrawal Facility)	1980 to 1985	4	I	079/PIK-123-12
X-5000	Switch House	1982	4	I	078/PIK-122-12
X-5001	Switchyard	1982	4	I	078/PIK-122-12
X-5001A	Valve House	1982	4	I	078/PIK-122-12
X-5001B	Oil Pumping Station	1982	4	I	078/PIK-122-12
X-6000	Cooling Tower Pump House	1984	4	I	067/PIK-111-12
X-6001	Cooling Tower	1984	4	I	068/PIK-112-12
X-6001A	Valve House	1984	4	I	068/PIK-112-12
X-6613	Sanitary Water Storage Tank	1980 to 1985	4	I	075/PIK-119-12
X-6614G	Sewage Lift Station	1970 to 1978	3	I and III	082/PIK-126-12

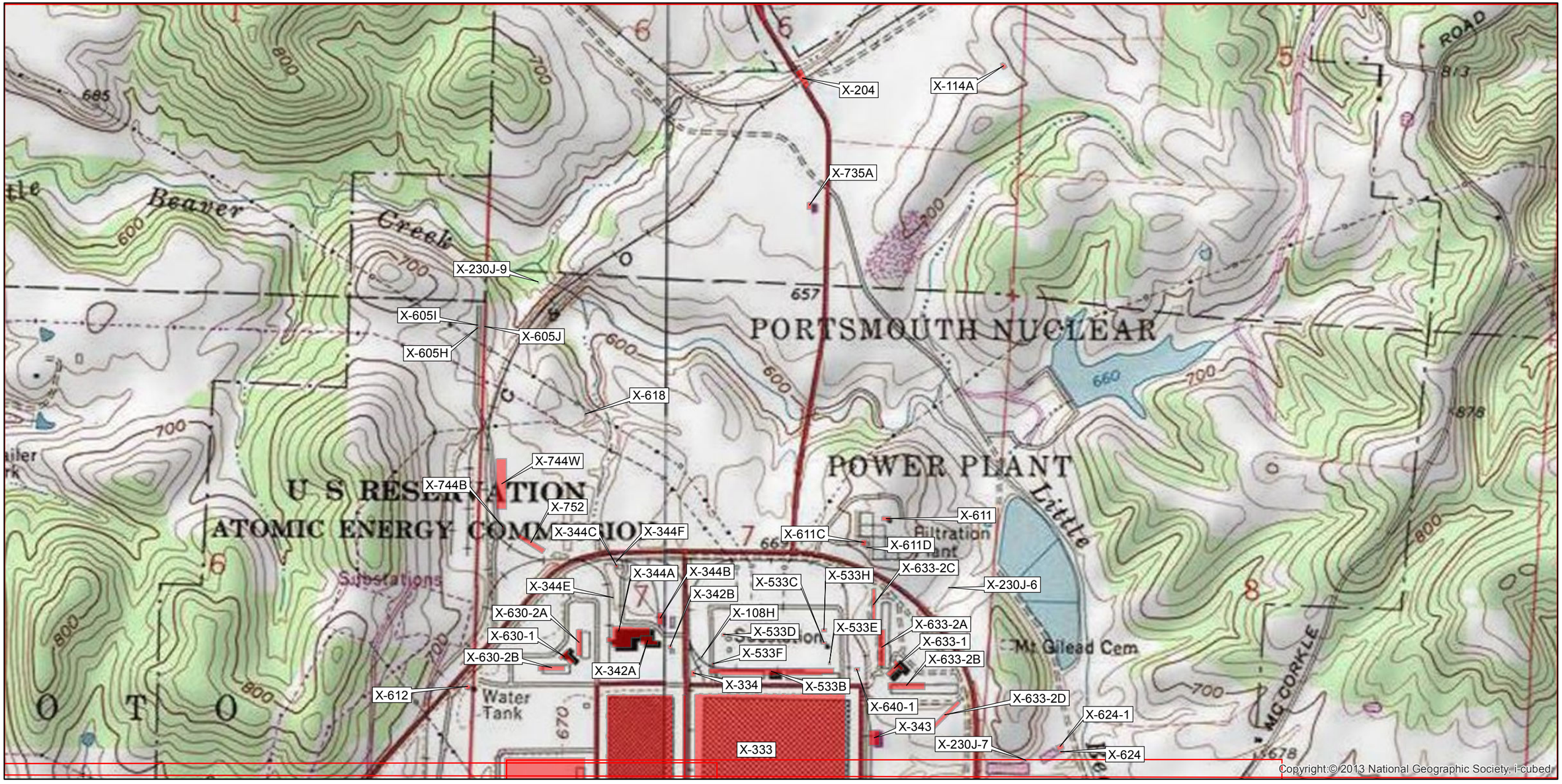
Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
X-6614E	Sewage Lift Station	1970 to 1978	3	I and III	082/PIK-126-12
X-6614G	Sewage Lift Station	1970 to 1978	3	I	082/PIK-126-12
X-6614H	Sewage Lift Station	1970 to 1978	3	I and III	082/PIK-126-12
X-6614J	Sewage Lift Station	1970 to 1978	3	I and III	082/PIK-126-12
X-6619	Sewage Treatment Facility	1980	4	III	130/PIK-174-12
X-6643-I	Fire Water Storage Tank 1	1980 to 1985	4	I	076/PIK-120-12
X-6643-II	Fire Water Storage Tank 2	1980 to 1985	4	I	077/PIK-121-12
X-6644	Fire Water Pump House	1980 to 1985	4	I	074/PIK-118-12
X-7721	Maintenance, Stores, and Training Facility	1985	4	I	060/PIK-104-12
X-7725 and X-7726	Hazardous Waste Storage Bldg. (Recycle/Assembly Bldg. and Training and Test Facility)	1983	4	III	096/PIK-140-12
X-7725A	Waste Accountability Facility	1984	4	III	097/PIK-141-12
X-7727H	Transfer Corridor	1983	4	I and III	073/PIK-117-12
---	Undocumented Guard Post	1952 to 1960	2	II	012/PIK-56-12
---	Undocumented Guard Booth	1960 to 1980	3	I	069/PIK-113-12
---	Undocumented temporary warehouse in X-7745R Yard	1996 to 1997	3	III	098/PIK-142-12
---	Undocumented bridge over tributary to Little Beaver Creek	1930 to 1950, 1954	1	IV	102/PIK-146-9
---	Undocumented shed in X-745C Yard	1954 and 1980	2	III	103/PIK-147-12
---	Undocumented mobile office in X-530A switchyard	1954 and 1980	2	III	103/PIK-147-12
---	Two undocumented booths in X-745E	1970 to 1980	3	IV	110/PIK-154-12

Table 8. Architectural Resources Identified at PORTS					
Portsmouth Number	**Portsmouth Name**	**Date**	**Period**	**Quad**	**AL#/OHI#**
	Yard				
---	Undocumented shed in X-754C Yard	1996-1997	3	III	111/PIK-155-12
---	Undocumented mobile office behind X-344A	1990-1997	3	IV	116/PIK-160-12
---	Undocumented mobile office in X-533A switchyard	1954, 1955, 1985, 1997	2	IV	120/PIK-164-12
---	Ohio Valley Electric Corporation office bldg.*	1954, 1980 to 1990	2	III	134/PIK-178-12
---	Ohio Valley Electric Corporation storage shed*	1960 to 1980	3	III	135/PIK-179-12
---	Ohio Valley Electric Corporation microwave tower and dish*	1980 to 1990	3	III	136/PIK-180-12
---	Ohio Valley Electric Corporation Don Marquis substation (upper tier yard)*	1954 to 1970	2	III	137/PIK-181-12
---	Ohio Valley Electric Corporation Don Marquis substation (lower tier yard)*	1954 to 1970	2	III	138/PIK-182-12
---	Chlorine Bldg.	1954, 1979, 1993 to 1997	3	IV	148/PIK-192-12
---	Undocumented pipeline from Water Treatment Plant to X-611B Sludge Lagoon	1979 to 1980	3	IV	151/PIK-195-12
---	Undocumented Sludge Lagoon Environmental Monitoring Station	1980	3	IV	152/PIK-196-12
---	Undocumented Water Pipeline Bldg. near Little Beaver Creek	1954	2	IV	154/PIK-198-9
---	Undocumented earthen barricade	1980 to 1990	3	IV	156/PIK-200-9

Table 8. Architectural Resources Identified at PORTS

Portsmouth Number	Portsmouth Name	Date	Period	Quad	AL#/OHI#
---	Undocumented bridge over tributary to Little Beaver Creek	1880 to 1920, 1954	1	IV	157/PIK-201-9
---	Undocumented bridge over tributary to Little Beaver Creek	1880 to 1920, 1954	1	IV	158/PIK-202-12
---	Undocumented temporary warehouse beside X-3346	1996 to 1997	3	I	160/PIK-204-12

* Non-DOE Property



LEGEND

Documented Architectural Locations

0 145 290 580 Meters

0 495 990 1,980 Feet

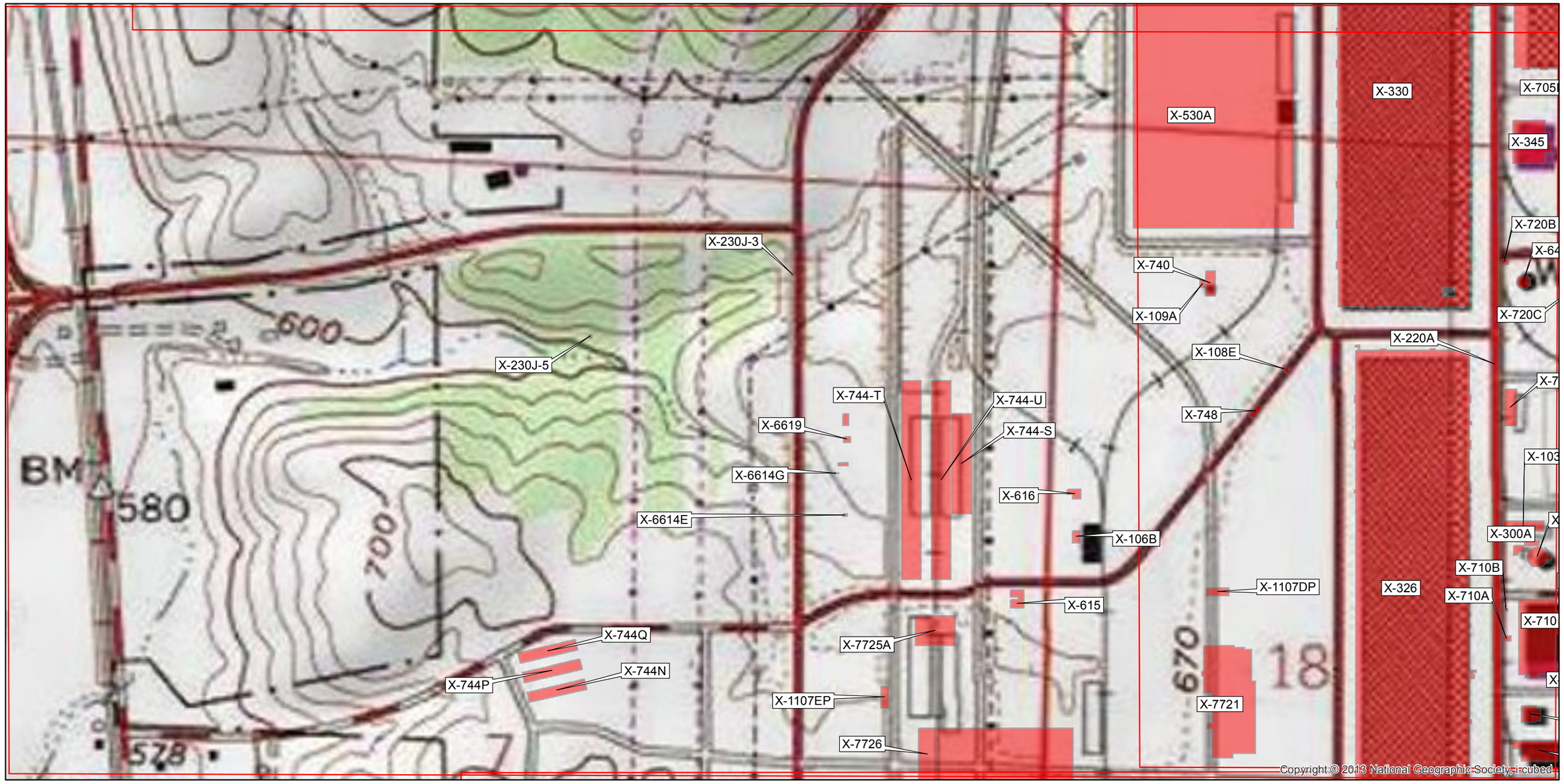
N W E S

Created in ArcGIS 10 for Gray & Pape Project 12-63201.002

Overview of Architectural Resources at PORTS (1 of 4)

GRAY & PAPE, INC.
ARCHAEOLOGY · HISTORY · HISTORIC PRESERVATION

Figure 3



LEGEND

Documented Architectural Locations

0 70 140 280 Meters

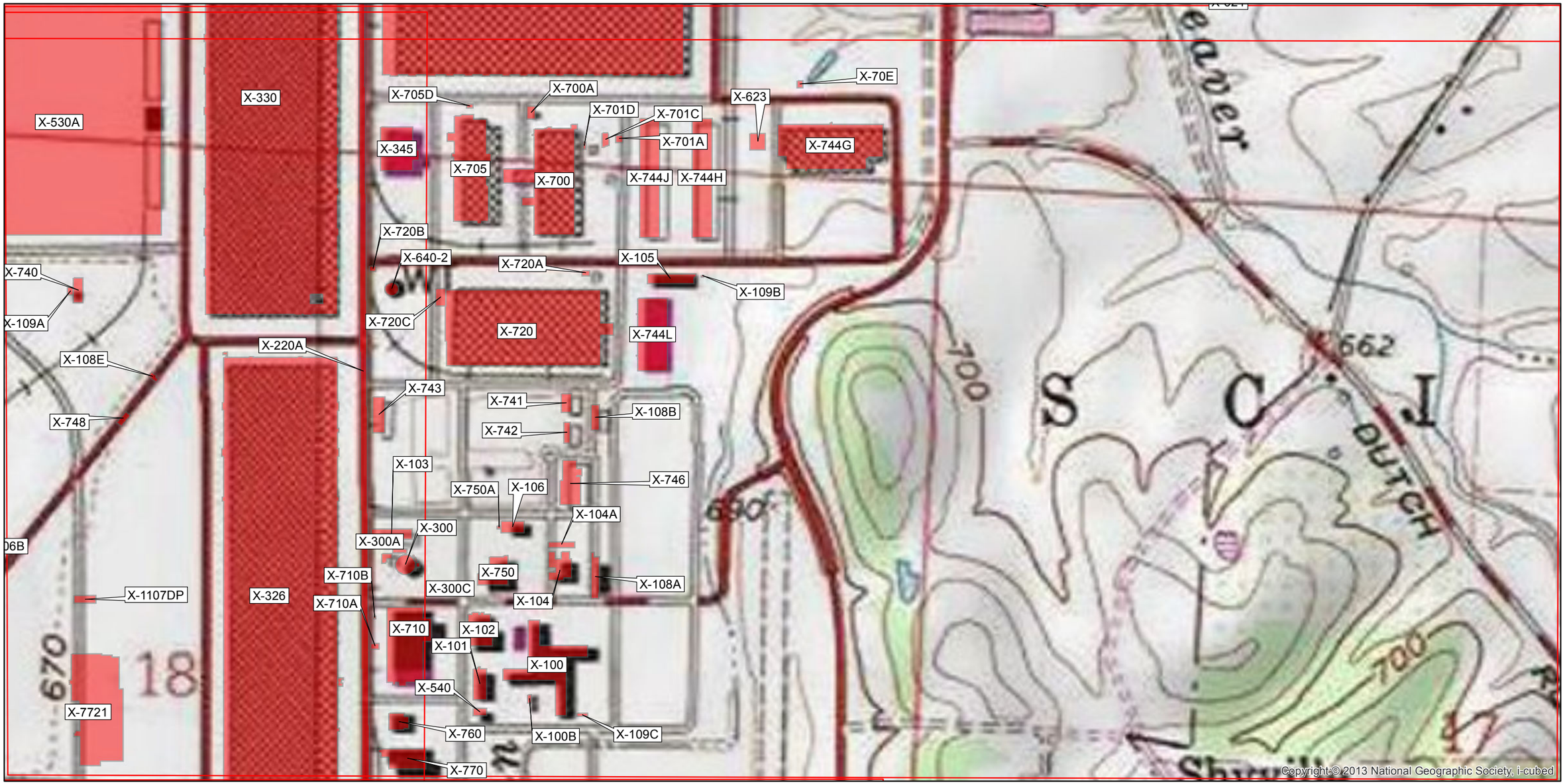
0 245 490 980 Feet

N W E S

Overview of Architectural Resources at PORTS (2 of 4)

GRAY & PAPE, INC.
ARCHAEOLOGY - HISTORY - HISTORIC PRESERVATION

Figure 4



LEGEND

Documented Architectural Locations

0 70 140 280 Meters

0 245 490 980 Feet

N W E S

Overview of Architectural Resources at PORTS (3 of 4)

GRAY & PAPE, INC.
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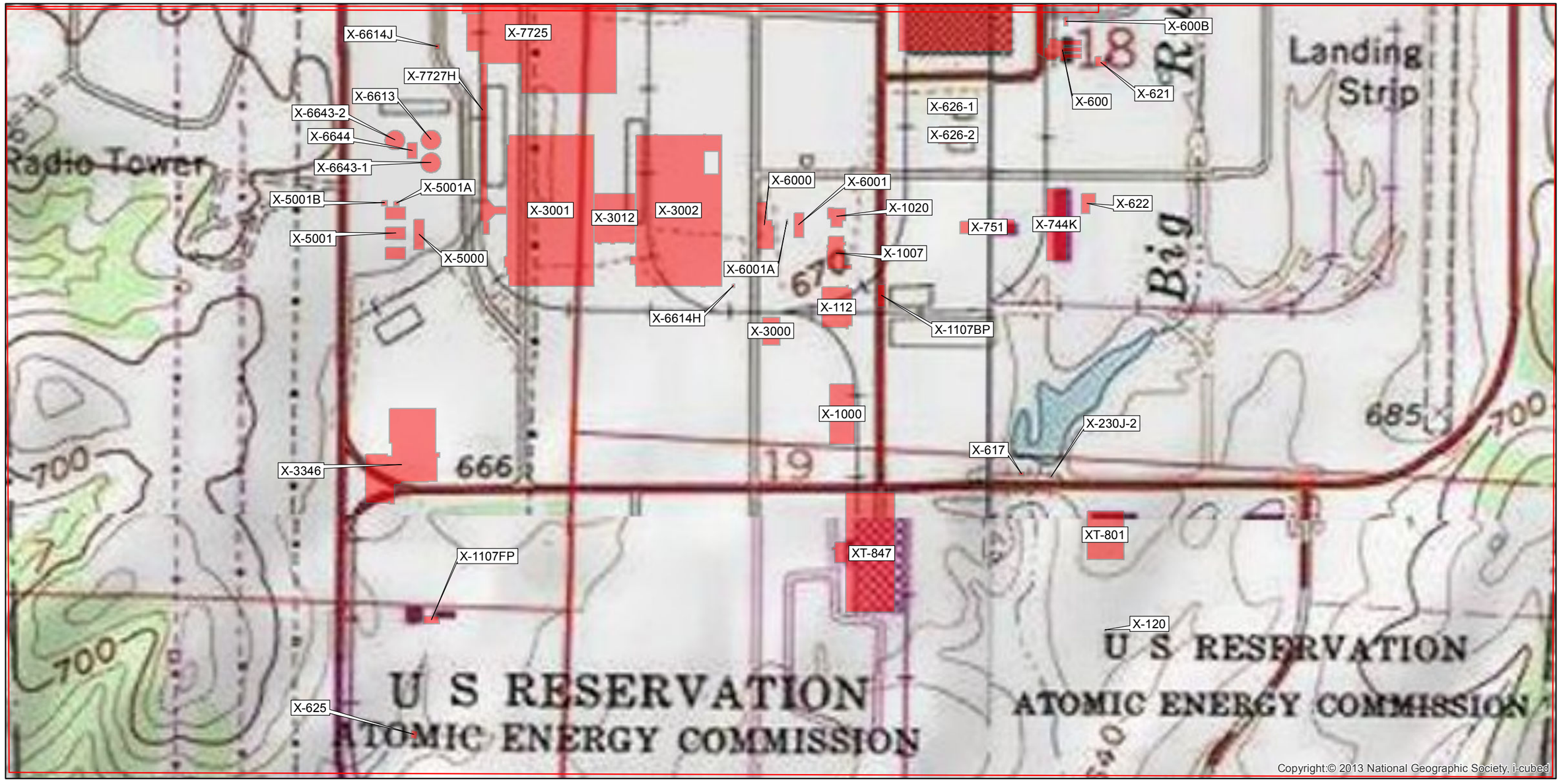
Figure 5



LEGEND

Documented Architectural Locations

0 70 140 280 Meters

0 245 490 980 Feet

N W E S

Created in ArcGIS 10 for Gray & Pape Project 12-63201.002

Overview of Architectural Resources at PORTS (4 of 4)

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Figure 6

7.0 DISCUSSION AND SUMMARY

This comprehensive survey summary document has reviewed work conducted to identify cultural resources associated with the three periods of occupation at PORTS: prehistoric, historic era, and DOE era. While some surveys were linked to CERCLA actions for D&D and clean-up, cultural resource investigations undertaken at PORTS have been performed specifically under provisions of Sections 106 and 110 of the NHPA. To date, the vast majority of cultural resource work has been conducted to support Section 110.

Cultural resource studies have resulted in the production of numerous technical reports. These studies have documented project findings, assessed the NRHP-eligibility of identified cultural resources, and forwarded recommendations for further work. Cultural resources identified include 99 archaeological resources assigned formal trinomial state site numbers, and 196 architectural buildings or structures. Most of the identified archaeological resources have been found not to be eligible for inclusion in the NRHP and no further work was recommended. However, four prehistoric archaeological sites (**33PK347, 33PK348, 33PK371,** and **33PK372**) and two historic-era archaeological sites, Mt Gilead Church and Cemetery and Holt Cemetery (**33PK189** and **33PK214**), have been recommended eligible for listing in the NRHP. The DOE is committed to working closely with the OHPO regarding appropriate preservation and avoidance of these sites.

DOE-era architectural resources at PORTS have been thoroughly inventoried. As many of these architectural resources will be demolished as part of the overall site cleanup and a Documentation Model has been prepared and is proposed as the means to comprehensively describe and detail the site history and its DOE-era architectural resources prior to their demolition (if that is the CERCLA decision that is reached). This Model is currently in the early implementation stages; however, the DOE continues to work closely with all parties interested in historic preservation.

One of the recommended elements of the Documentation Model included a Virtual Museum. In January of 2012, the DOE released the PORTS Virtual Museum to the public. The PORTS Virtual Museum is a website designed to provide a detailed historical description of the site, including anecdotal information from employees and retirees (captured in oral histories), photos, and video. Additional interviews are included with local citizens to provide insight into the local impact of the plant during construction and operation. One of the unique features of the museum is a virtual tour of plant buildings. This aspect of the Virtual Museum is intended to be especially interesting to museum visitors due to the sensitive nature of the operations at the site, which have prevented anyone other than those with the necessary security clearance from site access. The Virtual Museum can be accessed at the following link: http://www.portsvirtualmuseum.org.

The archaeological and architectural investigations conducted at the PORTS facility to date have documented an abundance of material remains and have brought to light details about the people who have occupied the area across time—from the early prehistoric periods

through European settlement to the modern era. While this information is, admittedly, limited, a common thread that is evident through time, is that the rural landscape of the PORTS area provides a myriad of natural resources that have provided a persistent place of settlement for families and communities of all kinds.

The DOE commissioned a number of surveys in an effort to document all cultural resources, within the PORTS facility boundary. These surveys are associated with three broad time periods of occupation, including prehistoric, historic era, and DOE era. Although these surveys have been performed specifically under provisions of Sections 106 and 110 of the NHPA, the vast majority of cultural resource work has been conducted under Section 110. All but six of the identified cultural resources have been found not to be eligible for inclusion in the NRHP and no further work was recommended. The DOE will work closely with OHPO regarding appropriate preservation and avoidance of the NRHP-eligible sites.

8.0 REFERENCES CITED

Abrams, Elliot M.
1992 Woodland Settlement Patterns in the Southern Hocking River Valley, Southeastern Ohio. In *Cultural Variability in Context: Woodland Settlements of the Mid-Ohio Valley*, edited by Mark F. Seeman, pp. 19-23. The Kent State University Press, Kent, Ohio.

Anonymous
1999 *History of the Lower Scioto Valley.* Reprint indexed by the Scioto County Chapter of the Ohio Genealogical Society. Little Miami Publishing Company, Milford, Ohio (1884 edition, Inter-State Publishing Company, Chicago, Illinois).

Atwater, Caleb
1820 Description of the Antiquities Discovered in the State of Ohio and other Western States. *American Antiquarian Society, Archaeological Americana, Transactions and Collections*, Vol. 1, pp. 105-267. Worcester, Massachusetts.

Burks, Jarrod
2011a *Additional Farmsteads and Buildings at PORTS Not Documented During the Initial Phase I Archaeological Survey*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

2011b *Prehistoric Native American Earthwork and Mound Sites in the Area of the Department of Energy Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

2011c *Report of a Survey for Mound-like Topographic Features at the Portsmouth Gaseous Diffusion Plant in Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

Bush, David R.
1989 *A Summary of the Cultural Resources of the Proposed Pik-SR 32-13.55 Project in Pike County, Ohio*. Research Report No. 35, Archaeology Laboratory, Case Western Reserve University. Unpublished report prepared for Burgess and Niple, Limited.

Cabak, Melanie A., Mark D. Groover, and Mary M. Inkrot
1999 Rural Modernization during the Recent Past: Farmstead Archaeology in the Aiken Plateau. *Historical Archaeology* 33(4):19-43.

Church, Flora
1995 *The Results of Data Recovery at Site 33 Pk 153 for the PIK-SR.32-13.55 Project, Seal Township, Pike County, Ohio.* Archaeological Services Consultants, Inc. Submitted to Burgess and Niple, Limited, Columbus.

Coleman, Kevin, Deborah Dobson-Brown, and Dawn Herr
1997 *Phase I Architectural Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility)* in Scioto and Seal Townships, Pike County, Ohio. Draft Report. ASC Group, Inc., Columbus, Ohio.

Cunningham, R.M.
1973 Paleo Hunters Along the Ohio River. *Archaeology of Eastern North America* 1:118-126.

Cusick, Lesley T.
2011 *National Historic Preservation Act Section 110 Survey of Architectural Properties at the Portsmouth Gaseous Diffusion Plant in Scioto and Seal Townships, Piketon, Ohio*. Restoration Services, Inc., Oak Ridge, Tennessee.

Dancey, William S. and Paul J. Pacheco (editors)
1997 *Ohio Hopewell Community Organization*. Kent State University Press, Kent, Ohio.

Drooker, Penelope B.
1997 The View from Madisonville: Protohistoric Western Fort Ancient Interaction Patterns. *Memoirs of The Museum of Anthropology, University of Michigan, Number 31.* Ann Arbor, Michigan.

EPA Superfund
2012 *CERCLA Overview*. http://www.epa.gov/superfund/policy/cercla.htm. Accessed July 3, 2012.

Fowke, Gerald
1901 *Archaeological History of Ohio.* Columbus, Ohio.

Garrard, Karen Niemel, and Jennifer Burden
2012 *Phase I Archaeological Investigations for 361 Acres at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

Griffin, James, B.
1943 *The Fort Ancient Aspect: Its Cultural and Chronological Position in Mississippi Valley Archaeology.* University of Michigan Press, Ann Arbor, Michigan.

Hazel, Christopher M.
2003 *Phase II Archaeological Testing at Site 33PK210, Scioto Township, Pike County, Ohio*. Duvall and Associates, Franklin, Tennessee.

Henderson, Gwynn A. (editor)
1992 *Fort Ancient Cultural Dynamics in the Middle Ohio Valley*. Monographs in World Archaeology, No. 8, Madison, Wisconsin.

Howe, Henry
1902 *Historical Collections of Ohio, Volume II*. C.J. Krehbiel, Cincinnati, Ohio.

Hudson, Karen E.
2011 *Portsmouth Gaseous Diffusion Plant, Pike County, Ohio: Recommended Cold War Era Mission Documentation Model*. Prepared by Cultural Resource Analysts, Inc., Lexington, Kentucky.

Jagel, Donald
2012 *Geophysical and Buried Utility Investigation Historic Farmstead Site 33PK322 (HMBL 4), PORTS Facility, Piketon, Ohio*. Prepared by Advanced Geological Services, Malvern, Pennsylvania.

Jones, Robert Leslie
1983 *History of Agriculture in Ohio to 1880*. Kent State University Press, Kent, Ohio.

Kalfs, Barbara Bolmer
1976 *75 Years with Pike County*. Waverly First National Bank, Waverly, Ohio.

King, Thomas F.
1998 *Cultural Resource Laws & Practices: An Introductory Guide*. Altamira Press, Walnut Creek, California.

Klinge, David F.
2010 *Phase II Site Evaluations of 33PK212 and 33PK213 for the Portsmouth Gaseous Diffusion Facility, Seal Township, Pike County, Ohio*. Prepared by ASC Group, Columbus, Ohio.

2012 *Addendum Letter Report for Site 33PK322.* As Documented in Mustain and Klinge (2011) *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

Klinge, David F., and Chuck Mustain
2011 *Phase II Archaeological Site Evaluations of 33PK184, 33PK193, 33PK194, 33PK195, and 33PK197, Portsmouth Gaseous Diffusion Plant (PORTS), Piketon, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

Konicki, Leah J., J.C. Pritchard, M. Purtill, and C.S. Weed
2003 *Phase I Cultural Resources Survey of Lake White Dam and Defined Area-Of-Potential Effect, Pee Pee Township, Pike County, Ohio*. Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

Lepper, Bradley T.
2005 *Ohio Archaeology*, pp. 108-169. Orange Frazer Press, Wilmington, Ohio

Lynch, Kevin
1972 *What Time Is This Place?* MIT Press, Cambridge, Mass.

McClain, Mark S.
2013 *Geomorphological Investigation of the Little Beaver Creek and Associated Drainages Portsmouth Gaseous Diffusion Plant, Piketon, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

McCormick, Mrs. Harold
1958 *History of Pike County.* The Commissioners of Pike County. Piketon, Ohio.

Mills, William C.
1902 Excavation of the Adena Mound. *Ohio State Archaeological and Historical Quarterly,* Vol. 10, pp. 451-479. Columbus, Ohio.

1907 The Exploration of the Edwin Harness Mound. *Ohio State Archaeological and Historical Quarterly,* Vol. 16, pp. 113-193. Columbus, Ohio.

1914 *Archaeological Atlas of Ohio.* Ohio State Archaeological and Historical Society, Columbus, Ohio.

1922 Explorations of the Mound City Group. *Ohio State Archaeological and Historical Quarterly,* Vol. 31, pp. 423-458. Columbus, Ohio.

Moorehead, W. K.
1897 Report of Fieldwork Carried on in the Muskingum, Scioto, and Ohio Valleys during the Season of 1896. *Ohio State Archaeological and Historical Quarterly,* Vol. 5, pp. 165-274. Columbus, Ohio.

Mustain, Chuck
2012a *Summary of Archaeological Resources in the Vicinity of the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.

2012b *Phase I Archaeological Survey of Area 1 at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Middleburg Heights, Ohio.

Mustain, Chuck and David F. Klinge

2011 *Summary Report for Preliminary Assessment of 12 Historic Archaeological Sites at the PORTS Plant, Piketon, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

2012 *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

Mustain, Chuck and David Lamp

2012 *Phase I Archaeological Survey of Areas 5A, 5B, and 6A at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Middleburg Heights, Ohio.

National Park Service

1997 *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin No. 15. U.S. Department of the Interior, Washington, D.C.

Norr, Jeremy

2012 *Phase I Archaeological Investigations for 384 Acres (Areas 4A and 4B) at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

Ohio History Central

2012 *Zane's Trace*. www.ohiohistorycentral.org/entry.php?rec=827 Accessed on August 7, 2012.

Ohio Historic Preservation Office

1994 *Archaeology Guidelines*. Columbus, Ohio.

Ohio Valley Archaeology, Inc.

2011 *Geophysical Survey at the Holt Cemetery at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

Peacefull, Leonard (editor).

1996 *A Geography of Ohio*. Kent State University Press, Kent, Ohio.

Pecora, Albert M.

2012a *Phase I Archaeological Survey of Area 2 Located Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

2012b *Phase I Archaeological Survey of Area 6B Located Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

2013 *Preliminary Reconnaissance Survey of Fifteen Historic-Era Building Locations within the Portsmouth Gaseous Diffusion Plant (Ports), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

Pecora, Albert M., and Jarrod Burks

2012a *Phase I-Level Documentation of Four Historic-Era Farmstead Sites (33PK311, 33PK312, 33PK317 and 33PK318) within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

2012b *Phase II Archaeological Evaluation of Six Historic Farmstead Sites 33PK185, 33PK203, 33PK206, 33PK211, 33PK217, and 33PK218, Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.

2013a *Phase II Archaeological Investigations of 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372 Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.

2013b *Prehistoric Archaeological Components Identified at Six Historic-Era Farmstead Sites (33PK185, 33PK203, 33PK211, 33PK217, & 33PK218) Within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Report prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.

Pecora, Albert M., Jarrod Burks, and Karen L. Leone

2013 *Summary Report of Historic-era Archaeological Resources Within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio. Revised May 7, 2013.

Project Planning, Martin Marietta Utility Services

1995 *Portsmouth Facility Directory*. Martin Marietta Utility Services. Portsmouth, Ohio.

Prufer, Olaf H.
1967 The Scioto Valley Archaeological Survey. In *Studies in Ohio Archaeology*, edited by Olaf H. Prufer and Douglas H. McKenzie, pp. 267-328. Western Reserve University Press, Cleveland, Ohio.

Purtill, Matthew P.
2009 The Ohio Archaic: A Review. In *Archaic Societies: Diversity and Complexity across the Midcontinent*, edited by T.E. Emerson, D.L. McElrath, and A.C. Fortier, pp. 565-606. State University of New York Press, Albany, New York.

Rapoport, Amos
1982 *The Meaning of the Built Environment: A Nonverbal Communications Approach.* Sage Publications, Beverly Hills, Calif.

Schweikart, John F., Kevin Coleman, and Flora Church
1997 *Phase I Archaeological Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.

Schweikart, John F., and Kevin Coleman
2003 After the Thaw: Investigation Results from a Nineteenth- to Mid-Twentieth Century Rural Upland South Community at a Cold War-Era Nuclear Facility in Pike County, Ohio. *Ohio Valley Historical Archaeology: The Proceedings of the Symposium on Ohio Valley Urban and Historic Archaeology* 18:175-186.

Seeman, Mark F.
1992 The Bow and Arrow, The Intrusive Mound Complex, and a Late Woodland Jack's Reef Horizon in the Mid-Ohio Valley. In *Cultural Variability in Context: Woodland Settlements of the Mid-Ohio Valley*, edited by Mark F. Seeman, pp. 41-51. The Kent State University Press, Kent, Ohio.

1994 Intercluster Lithic Patterning at Nobles Pond: A Case for "Disembedded" Procurement among Early Paleoindian Societies. *American Antiquity* 59:273-288.

Seeman, Mark F., Garry Summers, Elaine Dowd, and Larry Morris
1994 Fluted Point Characteristics at Three Large Sites: The Implications for Modelling Early Paleoindian Settlement Patterns in Ohio. In *The First Discovery of America: Archaeological Evidence of the Early Inhabitants of the Ohio Area*, edited by William S. Dancey, pp. 77-94. The Ohio Archaeological Council, Columbus, Ohio.

Shaffer, Scott C.
1998 *A Phase I Cultural Resources Survey for the Proposed Zahn's Corners Industrial Park, Seal Township, Pike County, Ohio.* Vaughan Engineering Report of Investigations No. 174. Prepared for Community Action Committee of Pike County, Inc.

Shane, L.C., G.G. Snyder, and K.H. Anderson.
2001 Holocene Vegetation and Climate Changes in the Ohio Region. In *Archaic Transitions in Ohio and Kentucky Prehistory*, edited by O.H. Prufer, S.E. Pedde, and R.S. Meindl, pp. 11–58. Kent State University Press, Kent, Ohio.

Squire, Ephram G., and E. H. Davis
1848 Ancient Monuments of the Mississippian Valley. *Smithsonian Contributions to Knowledge*, Volume 1. Washington, D.C.

State of Ohio Highway Department
1910 *Highway Maps of the Counties of Ohio*. State Highway Department of Ohio, Bulletin No. 11. Columbus, Ohio.

Trader, Patrick D.
2011 *Phase I Archaeological Reconnaissance of Selected Historical Sites at the PORTS Facility, Pike County, Ohio*. Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

United States Department of Energy
1993 *Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation*. U.S. Department of Energy, Washington, D.C.

Vehling, Marcia, Donald Burden, and Doug Owen
2011 *Phase I Cultural Resources Investigation of Selected Historical Sites at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.

Vickery, Kent D.
2008 Archaic Manifestations in Southwestern Ohio and Vicinity. In *Transitions: Archaic and Early Woodland Research in the Ohio Country*, edited by M.P. Otto and B.G. Redmond, pp. 1-28. Ohio University Press, Athens, Ohio.

White, Claude F.
1978 *Archaeological Impact Assessment of the Construction of Piketon Hills, Piketon, Pike County, Ohio.* Unpublished report on file at Ohio Historical Society, Columbus, Ohio.

Wilhelm, Hubert G.H., and Allen G. Noble
1996 Ohio's Settlement Landscape. In *A Geography of Ohio*, edited by Leonard Peacefull, pp. 80 – 109. Kent State University Press, Kent, Ohio.

APPENDIX A: INVENTORY OF CULTURAL RESOURCE STUDIES AND REPORTS

Project	Report Reference	Report Date	Phase of Work
Archaeological Studies			
Initial 1996-1997 Archaeological Survey	Schweikart, John F., Kevin Coleman, and Flora Church 1997 *Phase I Archaeological Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.	1997	Phase I
2012 Summary of Archaeological Resources	Mustain, Chuck 2012a *Summary of Archaeological Resources in the Vicinity of the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio	2012	Historical Document Review
2011-2012 Prehistoric Settlement Surveys	Mustain, Chuck 2012b *Phase I Archaeological Survey of Area 1 at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio.* Prepared by ASC Group, Inc., Middleburg Heights, Ohio.	2012	Phase I
	Pecora, Albert M. 2012a *Phase I Archaeological Survey of Area 2 Located within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2012	Phase I
	Garrard, Karen Niemel, and Jennifer Burden 2012 *Phase I Archaeological Investigations for 361 Acres at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.	2012	Phase I
	Norr, Jeremy 2012 *Phase I Archaeological Investigations for 384 Acres (Areas 4A and 4B) at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.	2012	Phase I
	Mustain, Chuck, and David Lamp 2012 *Phase I Archaeological Survey of Areas 5A, 5B, and 6A at the Portsmouth Gaseous Diffusion Plant (PORTS) in Scioto and Seal Townships, Pike County, Ohio*. Prepared by ASC Group, Inc., Middleburg Heights, Ohio.	2012	Phase I

Project	Report Reference	Report Date	Phase of Work
	Pecora, Albert M. 2012b *Phase I Archaeological Survey of Area 6B Located Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2012	Phase I
	McClain, Mark S. 2013 *Geomorphological Investigation of the Little Beaver Creek and Associated Drainages Portsmouth Gaseous Diffusion Plant, Piketon, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.	2013	Phase I
The 2011 Earthwork and Mound Surveys	Burks, Jarrod 2011b *Prehistoric Native American Earthwork and Mound Sites in the Area of the Department of Energy Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2011	Historical Document Review
	Burks, Jarrod 2011c *Report of a Survey for Mound-like Topographic Features at the Portsmouth Gaseous Diffusion Plant in Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2011	Historical Document Review
2003-2013 Phase II Testing of Prehistoric Sites	Hazel, Christopher M. 2003 *Phase II Archaeological Testing at Site 33PK210, Scioto Township, Pike County, Ohio*. Report prepared by Duvall and Associates, Franklin, Tennessee.	2003	Phase II
	Pecora, Albert M. and Jarrod Burks 2013a *Phase II Archaeological Investigations of 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372 Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.	2013	Phase II
	Pecora, Albert M. and Jarrod Burks 2013b *Prehistoric Archaeological Components Identified at Six Historic-Era Farmstead Sites (33PK185, 33PK203, 33PK211, 33PK217, & 33PK218) Within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio*. Report prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2013	Phase II
2009-2012 Historic-era Farmstead Investigations	Klinge, David F., and Chuck Mustain 2011 *Phase II Archaeological Site Evaluations of 33PK184, 33PK193, 33PK194, 33PK195, and 33PK197, Portsmouth Gaseous Diffusion Plant (PORTS), Piketon, Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.	2011	Phase II

Project	Report Reference	Report Date	Phase of Work
	Klinge, David F. 2010 *Phase II Site Evaluations of 33PK212 and 33PK213 for the Portsmouth Gaseous Diffusion Facility, Seal Township, Pike County, Ohio*. Prepared by ASC Group, Columbus, Ohio.	2010	Phase II
	Pecora, Albert M., and Jarrod Burks 2012b *Phase II Archaeological Evaluation of Six Historic Farmstead Sites 33PK185, 33PK203, 33PK206, 33PK211, 33PK217, and 33PK218, Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.	2012	Phase II
	Pecora, Albert M. and Jarrod Burks 2013a *Phase II Archaeological Investigations of 33PK347, 33PK348, 33PK349, 33PK371, and 33PK372 Within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology Inc., Columbus, Ohio.	2013	Phase II
2011-2012 Investigations of the Newly Identified 54 Possible Farmstead/House Locations	Burks, Jarrod 2011a *Additional Farmsteads and Buildings at PORTS Not Documented during the Initial Phase I Archaeological Survey*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2011	Historical Document Review
	Pecora, Albert M. 2013 *Preliminary Reconnaissance Survey of Fifteen Historic-Era Building Locations within the Portsmouth Gaseous Diffusion Plant (Ports), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2013	Preliminary Field Assessment
	Pecora, Albert M., and Jarrod Burks 2012a *Phase I-Level Documentation of Four Historic-Era Farmstead Sites (33PK311, 33PK312, 33PK317 and 33PK318) within the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2012	Phase I
	Mustain, Chuck and David F. Klinge 2011 *Summary Report for Preliminary Assessment of 12 Historic Archaeological Sites at the PORTS Plant, Piketon, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.	2011	Preliminary Field Assessment

Project	Report Reference	Report Date	Phase of Work
	Mustain, Chuck and David F. Klinge 2012 *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio.* Prepared by ASC Group, Inc., Columbus, Ohio.	2012	Phase I
	Jagel, Donald 2012 *Geophysical and Buried Utility Investigation Historic Farmstead Site 33PK322 (HMBL 4), PORTS Facility, Piketon, Ohio*. Prepared by Advanced Geological Services, Malvern, Pennsylvania.	2012	Phase I
	Klinge, David F. 2012 *Addendum Letter Report for Site 33PK322. As* Documented in Mustain and Klinge (2011) *Phase I Archaeological Survey of Sites 33PK322, 33PK323, and 33PK324 at the Portsmouth Gaseous Diffusion Plant (PORTS), Pike County, Ohio*. Prepared by ASC Group, Inc., Columbus, Ohio.	2012	Phase I
	Trader, Patrick D. 2011 *Phase I Archaeological Reconnaissance of Selected Historical Sites at the PORTS Facility, Pike County, Ohio*. Prepared by Gray & Pape, Inc., Cincinnati, Ohio.	2011	Preliminary Field Assessment
	Vehling, Marcia, Donald Burden, and Doug Owen 2011 *Phase I Cultural Resources Investigation of Selected Historical Sites at the Portsmouth Gaseous Diffusion Plant (PORTS Facility), Scioto and Seal Townships, Pike County, Ohio.* Prepared by Gray & Pape, Inc., Cincinnati, Ohio.	2011	Phase I
2009 Historic Cemetery Documentation	Ohio Valley Archaeology, Inc. 2011 *Geophysical Survey at the Holt Cemetery at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*. Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio.	2011	Preliminary Field Assessment
2013 Summary of Historic-era Resources	Pecora, Albert M., Jarrod Burks, and Karen L. Leone 2013 *Summary Report of Historic-era Archaeological Resources Within the Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Prepared by Ohio Valley Archaeology, Inc., Columbus, Ohio. Revised May 7, 2013.	2013	Document Review
Architectural Studies			

Project	Report Reference	Report Date	Phase of Work
Initial 1996-1997 Architectural Survey and Amended Review	Coleman, Kevin, Deborah Dobson-Brown, and Dawn Herr 1997 *Phase I Architectural Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio*. Draft Report. Prepared by ASC Group, Inc., Columbus, Ohio.	1997	Phase I
	Cusick, Lesley T. 2011 *National Historic Preservation Act Section 110 Survey of Architectural Properties at the Portsmouth Gaseous Diffusion Plant in Scioto and Seal Townships, Piketon, Ohio*. Prepared by Restoration Services, Inc., Oak Ridge, Tennessee.	2011	not applicable