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**Final  
Report No. 8**

April 1984

AD-A146 055

**An Archeological Overview and  
Management Plan for the  
Scranton Army Ammunition Plant**

Under Contract CX4000-3-0018  
with the

**National Park Service  
U.S. Department of the Interior**  
Philadelphia, Pennsylvania 19106

for the  
U.S. Army Materiel Development and  
Readiness Command

by

**The Pennsylvania State University**  
University Park, Pennsylvania 16802

and

**Envirosphere Company**  
2 World Trade Center  
New York, New York 10048

Prepared under the Supervision of

Joel I. Klein, Principal Investigator  
Envirosphere Company

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## MANAGEMENT SUMMARY

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This archeological overview and management plan provides a tool which can be used by DARCOM and decision-makers at Scranton Army Ammunition Plant to assist in complying with regulations and procedures relating to historic preservation (Technical Manual 5-801-1, Technical Note No. 78-17, Resources Management; 32 CFR 650.18-650.193; Army Regulation 420-XXX; 36 CFR 800). This document summarizes data relating to the area's environmental history, cultural chronology, historic and modern ground disturbances, previous archeological surveys, presently identified archeological resources, known artifact, ecofact, and/or documentary collections relating to archeological resources, potentially identifiable but not presently-recorded archeological resources, significant archeological resources, ongoing and planned activities that could affect archeological resources, locational data of known archeological resources, and locational data of potential archeological resources.

No significant archeological remains are recorded at Scranton Army Ammunition Plant (SAAP). Potential archeological resources at SAAP may occur on two land surfaces: 1) the present-day surface may include mid-to-late nineteenth century archeological cultural remnants of railroad-related industrial development which preceded the extant structures used by SAAP, and 2) the original land surface, approximately 40 ft. below a fill deposit which comprises the current land surface. At least 16 structures stood on the original land surface as did several city streets. Remnants of these nineteenth century cultural resources may be present beneath the fill. While no prehistoric or early historic archeological sites are recorded at or near SAAP, it is possible that such resources may exist in undisturbed portions of the original ground surface. SAAP's location near Roaring Brook would have been a preferred location for aboriginal and/or early historic utilization.

Unless future development involves excavation beneath the fill deposit, no additional studies of the archeology of SAAP are recommended at this time. Potential archeological cultural resources in the top of the fill deposit (if extant) underlying the current SAAP structures have most likely been extremely disturbed, thus limiting their potential significance in light of National Register criteria.

## PREPARERS AND QUALIFICATIONS

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Conran A. Hay directed the major data collection and analysis for the preparation of this overview. He is presently Research Associate at the Pennsylvania State University. He received his doctoral degree in Anthropology from Pennsylvania State University in 1978, and has directed numerous cultural resources surveys throughout Pennsylvania. Among Dr. Hay's numerous presented papers and publications dealing with Pennsylvania prehistory are "Predictive Models of Site Distribution within the Bald Eagle Creek Watershed" published in The Archaeology of Central Pennsylvania, and "Efficiency in Cultural Resource Management: the Role of Predictive Models" submitted to the Interagency Archeological Services division of NPS. Dr. Hay is a member of the Pennsylvania Archaeological Council and the Society for Pennsylvania Archaeology.

Ira C. Beckerman participated in the data gathering and report preparation stages of this overview. He received his M.A. degree in Anthropology in 1978 from the Pennsylvania State University where he is working toward his Ph.D. degree also in Anthropology. He has worked on numerous archeological projects in Pennsylvania, Tennessee, and Mexico and is the author of several published and presented papers.

Christopher E. Hamilton also participated in the data collection and report preparation stages for this overview. He received an M.A. in Anthropology from the Florida State University in 1977 and is working toward a Ph.D. in Anthropology at the Pennsylvania State University. Hamilton's experience includes on-land excavation in Pennsylvania, cultural resources interpretation and protection in Arizona and Florida, and underwater archeological survey in the Caribbean. Hamilton has written numerous cultural resource management reports.

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Joel I. Klein is Project Manager for the DARCOM project. He is a contributing author of this archeological overview and management plan. He holds a B.S. in Anthropology and Physics and M.A. and Ph.D. degrees in Anthropology, and is certified by the Society of Professional Archeologists in field research and cultural resource management. His 15 years of professional experience have been in anthropological and archeological research, and cultural resource management. He has participated in archeological investigations across the United States. He is presently a Principal Engineer with EnviroSphere Company.

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Sandra Hay edited an early version of this overview draft.

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### 1.1 PURPOSE AND NEED

This archeological overview and management plan will assist the Scranton Army Ammunition Plant in its efforts to comply with laws and regulations which mandate archeological resource management on federal land.

The National Historic Preservation Act of 1966 as amended (94 Stat. 2988) affirmed the policy of the federal government (Sec. 2(3)) to "administer federally owned, administered or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations." Section 110(a)(1) of that code specifies that each federal agency is responsible for the preservation of such resources on agency-owned or controlled lands. DARCOM is committed to the implementation of that policy, following the guidelines for historic resource management set forth in the 1966 Act and related laws, regulations, and technical guidance.

DARCOM has contracted with the U.S. Department of the Interior's National Park Service to provide technical guidance for the development of DARCOM installation cultural resource overviews and management plans. The program is entitled the DARCOM Historical/Archeological Survey (DHAS). The National Park Service has, in turn, separated this review and planning program into two major elements, architectural and archeological. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the archeological resource assessment and planning function is being handled through the Service's Interagency Resources Management Division (IRMD). The archeological function includes both prehistoric and historical archeology.

Under the requirements of the National Historic Preservation Act (NHPA) of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 470), DARCOM must:

- inventory, evaluate, and, where appropriate, nominate to the National Register of Historic Places all archeological properties under agency ownership or control (Sec. 110(a)(2))

- prior to the approval of any ground-disturbing undertaking, take into account the project's effect on any National Register - listed or eligible property; afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project (Sec. 106)
- complete an appropriate data recovery program on an eligible or listed National Register archeological site prior to its being heavily damaged or destroyed (Sec. 110(b), as reported by the House Committee on Interior and Insular Affairs [96th Congress, 2d Session, House Report No. 96-1457, p. 36-37])

Since the passage of the National Historic Preservation Act Amendments of 1980, DARCOM has begun a more active commandwide program in historic resource management. DARCOM's management program involves several steps. The first step is a literature review and preliminary evaluation of known cultural resources on DARCOM facilities. This provides a basis for prediction of the overall resource base requiring management. The second step involves applying the understood parameters of the resource base in a plan which takes into consideration both short- and long-term command activities and goals.

Other compliance regulations taken into consideration by this archeological overview and management plan include:

- o The Archeological and Historic Preservation Act of 1974 (88 Stat. 174, 16 USC 469), which requires that notice of an agency project that will destroy a significant archeological site be provided to the Secretary of the Interior. Either the Secretary or the notifying agent may support survey or data recovery programs to preserve the resource's information values.
- o The Archeological Resources Protection Act of 1979 (93 Stat. 721, 16 USC 470aa; this supersedes the Antiquities Act of 1906 [93 Stat. 225, 16 USC 431-43]), with provisions that effectively mean that:
  - The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4);
  - Anyone damaging an archeological resource on DARCOM lands may incur criminal (Sec. 6) or civil penalties (Sec. 7);
- o 36 CFR 800, "Protection of Historic and Cultural Properties" (44 FR 6068, as modified by 47 FR 24306); these regulations from the Advisory Council on Historic Preservation set forth procedures for compliance with Section 106 of the National Historic Preservation Act;
- o Regulations from the Department of the Interior setting forth procedures for determining site eligibility for the National Register of Historic Places (36 CFR 60, 36 CFR 63), standards for data recovery (proposed 36 CFR 66), procedures implementing

the Archeological Resources Protection Act (43 CFR 7), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (FR 48:44716 - 44742);

- o Guidance from the U.S. Department of the Army as to procedures and standards for the preservation of historic properties (32 CFR 650.181-650.193; Technical Manual 5-801-1; Technical Note 78-17; Army Regulation 420-XXX).

The formulation of archeological plans for DARCOM installations is part of a developing national acceptance of the historic Resource Protection Planning Process (RP3) (HCRS 1980). RP3 presents an outline for the development of preservation plans, which, in turn, provide an analytical structure for preservation decision-making. This archeological overview and management plan has been prepared with those guidelines in mind.

## 1.2 THE SCRANTON ARMY AMMUNITION PLANT

The Scranton Army Ammunition Plant (SAAP) (Figures 1-1 and 1-2) is located on 15.3 a. in the city of Scranton at the mouth of the Roaring Brook Creek where it joins the Lackawanna River. Consisting of four buildings (three production, one administration), the SAAP is a government-owned contractor-operated military/industrial installation, whose purpose is to manufacture ammunition metal parts for artillery weapons.

Prior to 1951, the property was owned by the Delaware, Lackawanna, and Western Railroad, which used it to renovate and repair railroad engines. The federal government acquired it in 1952. By 1953 it had been converted to the production of shells for the Korean War, at a total cost of \$23,000,000. The United States Hoffman Machinery Corporation (USHMC) produced variously-sized artillery shells for the government from December 1953 through 1960. In 1963 contracts with the USHMC were terminated. Subsequently, Chamberlain Manufacturing Corporation of Waterloo, Iowa, was awarded a contract to produce a projectile, model HE, M437, MPTS at the Scranton facility. Chamberlain has since been awarded a number of contracts to manufacture projectiles, including 8 in. and 155 mm types. Increased production needs for the Vietnam War led to an extensive modernization program in the late 1960s.

## 1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE SCRANTON ARMY AMMUNITION PLANT

No archeological surveys have been conducted at the site of the SAAP. As of the summer of 1983, no sites have been recorded in the State Site Files in Harrisburg for the vicinity of Scranton, for the Scranton USGS 7-1/2 minute quadrangle map, or for any of the quadrangle maps immediately surrounding the Scranton quadrangle.



**Figure 1-1. MAP OF THE GENERAL VICINITY OF THE SCRANTON ARMY AMMUNITION PLANT**

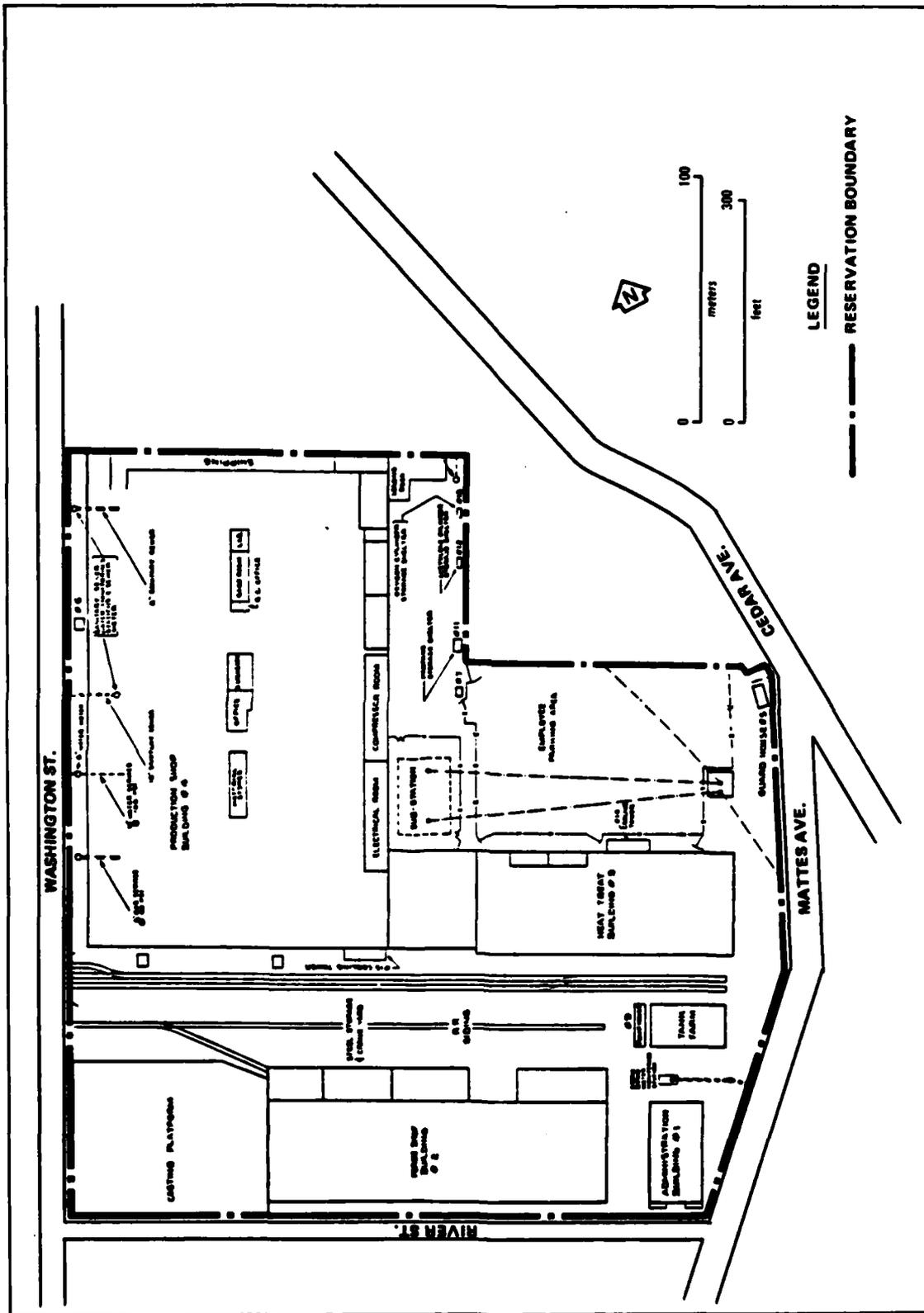


Figure 1-2. MASTER BASE MAP OF THE SCRANTON ARMY AMMUNITION PLANT

#### 1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT

The last Native Americans residing within the Scranton-Wilkes Barre region were the Munsey Delaware, who left in 1771. The living descendants of this group, numbering several thousand, are scattered through Oklahoma, Wisconsin, and Ontario, Canada (Weslager 1972). The present population of the Scranton-Wilkes Barre area is ethnically relatively homogeneous, with origins almost wholly from Western European countries such as England, Ireland, Germany, Scotland, and Wales. Only about 1 percent of the population traces its roots to other parts of the world (U.S. Bureau of the Census 1982). Immigrants from Italy, Poland and Lithuania are the majority population in the immediate region of SAAP (Morgan Benson, 1984, personal communication).

Lackawanna County statistics for 1977 indicate a relatively depressed economy with more than average poverty and unemployment, although housing and health care are better than average. The county exhibits a relatively high level of educational achievement; half of the population of Scranton has had four years or more of high school (U.S. Bureau of the Census 1978).

Interest in Scranton's past is evident from the very active Lackawanna County Historical Society, which provided much of the information for this report. Also, citizens of the City are attempting to relocate the Steam Town USA, a Railroad Museum, in the unused rail yards adjacent to the SAAP. Their efforts are another indication not only of their desire to promote their area economically, but to do so in a manner that expresses their interest in their heritage and their pride in the founders of their city.

2.0

AN OVERVIEW OF THE

CULTURAL AND RELEVANT NATURAL HISTORY OF THE SCRANTON ARMY AMMUNITION PLANT

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2.1 THE PHYSICAL ENVIRONMENT

2.1.1 Earth Resources

Scranton, Pennsylvania, is located in the northern end of the Wyoming Valley in the Middle Section of the Ridge and Valley Province. The Wyoming Valley, a geological syncline, is an unusual deep, structural trough which penetrates the relatively level Allegheny Plateau (Fenneman 1938:233). The geological structure of the area is complex, being that of a compressed, folded belt. Scranton and Wilkes-Barre are located in the northern of two anthracite basins, which at one time provided the coal which fueled the area's industrial development.

The Scranton Army Ammunition Plant (SAAP), in downtown Scranton, is situated at the confluence of the Lackawanna River and Roaring Brook Creek on an artificial terrace 40 ft. above the floodplain. The Wyoming Valley is fairly narrow at this point, bounded on the northwest by Bald Mountain and on the southwest by Moosic Mountain. The original landscape was composed of glacial till, glacial outwash deposits, and the Lackawanna River floodplain. Recently, the original landscape has been heavily interspersed with extensive strip mine spoil dumps. At one time there was a large alluvial flat at the confluence of the two aforementioned streams, but the exact topography of the floodplain at the location of the SAAP is obscured by 40 ft. of fill placed on the site in the nineteenth century.

2.1.2 Water Resources

The SAAP is bordered on the southeast by Roaring Brook Creek, a perennial third order stream. Fifteen hundred feet to the west of the Lackawanna River is a second order stream. At one time, many springs were available in low-lying areas in the Wyoming Valley. These springs are now contaminated by mine spoil and industrial waste. In early historic times, wells dug into glacial drift provided good water, but even these were eventually abandoned as they became contaminated. The current water supply is provided by deep wells drilled into Catskill Formation aquifers.

### 2.1.3 Modern Climate

Scranton has a mean annual high temperature of 59.9°F and a mean annual low temperature of 40.0°F (USDA 1982). The average high and low temperatures for July are 83.8°F and 61.2°F, respectively. In January the high and low temperature means are 34.6°F and 19.0°F, respectively. Annual precipitation is 36.57 in. most of which falls during the spring and summer months. The area experiences a growing season of 173 days. In 5 out of 10 years, a killing frost occurs after April 11 and before November 2. The average noon humidity is 60 percent during the winter months and 55 percent during the summer months. Prevailing winds are from the southwest during both the winter and summer.

### 2.1.4 Plant Resources

The City of Scranton is located within the ridge and valley section of the Oak-Chestnut forest region (Braun 1974). On valley floors and terraces (including the location of the SAAP), a predominantly white oak community existed at the time of Euro-American settlement. White oak, tuliptree, hickory, red oak, black oak, and white pine dominated the canopy. The understory contained white oak, with black oak, red oak, scarlet oak, white pine, and smaller percentages of hickory, dogwood, wild cherry, sassafras, haw, and serviceberry. The shrub layer contained dogwood, Ceanothus, elderberry, raspberry, rose, grape, bitterwort, Virginia creeper, and poison ivy. The herb layer was composed of geranium, bellwort, false-solomon's seal, beggar lice, Amphicarpa, aster, and goldenrod. Along the stream banks, a mixed mesophytic community dominated, with beech, basswood, sugar maple, yellow poplar, northern red oak, white oak, white ash, and black walnut in the canopy.

The Native American inhabitants of the area undoubtedly utilized acorns and other nut species, serviceberry, raspberry, grape, and several of the herbs and grass seeds. With the introduction of maize agriculture in the Late Woodland period (see Section 2.2.1), acorns probably provided a back-up food source in case of crop failure.

### 2.1.5 Animal Resources

Prior to modern land development, the area surrounding the SAAP supported a wide range of game animals, including deer, bear, turkey, raccoon, beaver, muskrat, squirrel, rabbit, marten, passenger pigeon, and migratory waterfowl. Anadromous fish, such as shad, were seasonably available in large numbers. Bass, pike and walleye were also preferred food fish, but a wide range of freshwater fish would have been available, including drum, darters, and catfish. Eels, turtles, and amphibians may also have been important riparian food resources.

### 2.1.6 Paleoenvironment

During the last 15,000 years the Wyoming Valley (which contains the SAAP) has undergone radical changes in environment. The area was glaciated during the Wisconsin glacial episode and remained so until 13,500 BP. With the melting of the Wisconsin Glacier, a White Spruce

community with green alder, poplar, and ground juniper as associated species colonized the newly exposed land surface (Watts 1979). This community reflected a cool, moist climate. The subsequent vegetation of the area was characterized by a succession of colonizing species which migrated from more favorable environments further south. By 12,000 BP, tag alder and Diploxylon pines (probably jack pine) were present. White pine, tamarack, and paper birch were present by 11,500 BP, reflecting a climate that was warmer and moister than the glacial climate but cooler than that of today. Shortly after 10,000 BP, paper birch disappeared, white pine decreased, and white birch appeared. Hemlock was present by 9600 BP, and pitch pine by 9000 BP. These changes produced an early Holocene forest similar to the modern Hemlock-White Pine-Northern Hardwoods Forest of New York (Braun 1974).

Subsequent to 9000 BP, the climate became warmer and drier, culminating in the Hypsithermal interval of 8000-5500 BP. Chestnut, one of the last species to migrate into the area, arrived around that time. At 5500 BP, white and pitch pine again began to increase in importance, signifying a return to a cooler, wetter climate. Hemlock ceased to be an important part of the forest at 4600 BP, probably due to disease, but reemerged approximately 3000 years later. Since 1500 BP the climate and forest composition have remained essentially unchanged, with two exceptions. Burning and clearing of agricultural fields by native Americans during the Woodland period opened large expanses for grasses, brush, and eventually colonizing pines. Secondly, chestnut blight resulted in the total loss of this species early in this century.

## 2.2 THE CULTURAL ENVIRONMENT

An outline of the cultural chronology of the SAAP area is presented in Table 2-1.

### 2.2.1 Prehistory

Archeologists are in disagreement over the starting date of man's occupation of North America. Some argue for an early entry in the New World approximately 25,000-40,000 years ago, while others maintain that the earliest irrefutable evidence dates man's entry into this continent to only 14,000 years ago. The earliest arguable evidence of man in the northeastern U.S. comes from the Meadowcroft Rockshelter in western Pennsylvania. Located in the unglaciated portion of the Appalachian Plateau, the lowest levels of the occupation date to over 17,000 BC (Adovasio et al. 1978). The assemblage includes a lanceolate biface and a highly developed small blade industry reminiscent of the Arctic Small Tool Tradition of western Alaska. The blade industry is similar to that found at other Paleo-Indian sites in the northeast, such as the Shoop, Debert, Williamson sites. Also in the lowest occupational levels at Meadowcroft were the remains of deer, wapiti, shells, and chenopod seeds, suggesting that these species were important food resources.

Paleo-Indian (10,000 - 8000 BC). The Paleo-Indian Period is the first firmly identified archeological period in North America. The beginning of the Paleo-Indian Period coincides with the initial retreat of the

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE SCRANTON ARMY AMMUNITION PLANT

Cultural Unit	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American	Mercantile	1931-present	Urban centers with wholesale and retail goods and services. Centers surrounded by dependent suburban neighborhoods. Centers interconnected with complex motor transport system with smaller retail centers and populations on or near major thoroughways. Modest rural population.	Urban centers perform major trade functions as well as light and some heavy industry. Goods and services to transient populations important.	Large amounts of glass, metal, and plastics. Many containers of individual consumer items. Much standardization but variety of electromechanical devices. Frame, brick, concrete, aluminum construction. Some steel supports in industrial construction.
Heavy Industry		1842-1930	Urban centers with wholesale and retail goods and services also supplying many work areas in heavy industrial settings. Large rural component between urban centers. Moderate roadway development. Some opulent individual domestic dwellings within urban districts. Development of areas of extensive lowest income multifamily dwellings occupied by blue collar laborers.	Heavy industry based on local resources to include coal and iron as well as railroad services. Many support industries and services.	Metal, glass and ceramics usually of domestic manufacture. Mechanical devices usually hand, steam, or gas powered. Topographical disturbance due to extractive industries. Frame, brick, stone and concrete structures. Some iron and steel supports in industries.
Slocum Hollow		1785-1841	Farmsteads with towns at intersections of major roads. Nucleation of population around incipient industrial centers located near critical resources. Modest road development with some railway and canal services late in period.	Generally self-sufficient rural economy with cottage industries. Early manufacturing and processing industries with limited employment. Farm surplus sold to external markets.	Some cottage industry manufactures for local use. Iron, glass, ceramic items. Frame, brick or stone construction with some log dwellings. Farmsteads usually log or stone.
Frontier	Dark Hollow	1762-1784	Widely spaced farmsteads, few roads connecting small widely spaced towns. Soil fertility and access major considerations. Some small fortifications for surrounding settlers.	Self sufficient farmsteads with external trade in necessities and some luxury items for farm surplus items.	Small farm structures of log or stone. Items of domestic manufacture with some imported manufactures of iron glass, or ceramic. Possible higher ratio of individual weaponry.

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE SCRANTON ARMY AMMUNITION PLANT (Continued)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Native American	Protohistoric	1675 to 1770 AD	Variety of separate tribes in communities and hamlets in the area; Moravian organized villages. Seasonal movement of subgroups for wild food resources.	Swidden agriculture, relying on corn, beans, squash. Deer and other game supplementing diet. Fur trade and cash economy dominates late period.	Traditional native artifact forms made with imported raw materials; wampum beads. European trade goods, such as glass beads, copper kettles, bottles, rings, iron tools. Stockaded villages. Features include hearths, storage pits, burials, etc.
	Susquehannock	1550 to 1675 AD	Small family hamlets on slight rises in floodplain. Seasonal hunting and gathering camps.	Swidden agriculture, relying on corn, beans, squash. Deer and other game supplementing diet. Fur trade provides trade goods such as axes, beads, copper kettles.	Traditional native artifact forms made with imported raw materials; wampum beads. European trade goods, such as glass beads, copper kettles, bottles, rings, iron tools. Stockaded villages. Features include hearths, storage pits, burials, etc.
	Late Woodland	1100 to 1550 AD	Large agricultural villages, palisaded, on alluvial expanses. Seasonal hunting and gathering camps. Warfare present, high population density.	Corn swidden agriculture, with fishing, hunting, some gathering. Acorns used in years of crop failure.	Madison and Levanna Points, Owasco-like pottery, grit tempered, clay elbow pipes. Stockaded villages. Features include hearths, storage pits burials, etc.
	Middle Woodland	200 to 1100 AD	Small villages, non-palisaded on high ground above marshes and on the sides of hills.	Incipient agriculture. Encouraged wild foods, such as Chenopodium and Amaranth. Shellfish and fish used, with a wide range of gathered foodstuffs and game.	Polished stone pendants. Stone tubular pipes, thick cache blades, antler combs. Jacks Reef corner notched points, Jacks Reef pottery. Small, non-stockaded villages with hearths, storage pits, and burials.
	Early Woodland	1000 BC to 200 AD	Small villages near and on floodplains, seasonal camps for gathered foods, hunting camps.	Broad spectrum hunting and gathering with Chenopodium and Amaranth used heavily. Fishing and shellfish gathering important.	Meadowood points, Vinette pottery, grit tempered, tubular pipes, birdstones, native trade goods from Mid-

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE SCRANTON ARMY AMMUNITION PLANT (Concluded)

Cultural Unit		Kinds of Archeological Remains Representative of Period			
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	
	Transitional	1300 to 1000 BC	Riverine orientation, numerous small, scattered sites along banks of major streams, in high parts of floodplains, and on islands in rivers.	Broad spectrum hunting and gathering with <i>Chenopodium</i> and <i>Amaranth</i> used. Net fishing important. Nut species important Fall resource. Wide range of animals hunted.	<p>vest: copper tools, slate gorgets, flint. Small, stockaded villages with hearths, storage pits, and burials.</p> <p>Jasper broad spear points, Orient fish-tail points. Steatite vessels. Large and small camps with hearths, storage pits and burials.</p>
Native American	Late Archaic	2500 to 1300 BC	Base camp with seasonal camps. Camps on either bottomland terraces or along lakes. Decreased annual mobility, central based foraging pattern.	Broad spectrum hunting and gathering with <i>Chenopodium</i> and <i>Amaranth</i> heavily used. Fishing important. Nut species are important Fall-Winter food. Wide range of animals hunted.	<p>Bare Island, Poplar Island points; tapered and stemmed. Fitted stones, groundstone, net sinkers. Large and small camps with hearths, storage pits, and features.</p>
	Middle Archaic	5500 to 2500 BC	Restricted foraging pattern. Seasonal camps along rivers and uplands.	Emphasis on deer, turkey, bear, with small game also utilized. Gathered foods emphasized nuts, some grasses, berries. Selective diet.	<p>Brewerton, Vooburg, and Otter Creek points. Stone mortars, pestles. Grooved are. Small camps generally lacking features.</p>
	Early Archaic	8000 to 5500 BC	Small, mobile, seasonal base camps, sites commonly in lowlands.	Hunting of large game emphasized. Small game taken occasionally. Hickory and walnut important Fall food resources. Selective diet.	<p>Bifurcate-base points, Falser, Kirk points. Small camps generally lacking features.</p>
	Paleo-Indian	10,000 to 8000 BC	Small, highly mobile bands. Sites located on high ground overlooking large expanses.	Hunting of large and small game. Pleistocene megafauna, some use of gathered foods.	<p>Fluted projectile points, small end scrapers, heavily utilized, highly curated flakes, raw material from outside local area. Small camps generally lacking features.</p>

Wisconsin Period continental glaciers. The period ends with the terminus of the Pleistocene geologic period. During this terminal phase of the Pleistocene, a tundra-like environment existed in northeastern Pennsylvania (Watts 1979), and supported a wide variety of now-extinct megafauna, such as mastodon and giant ground sloth. Modern species were also present, including elk, deer and reindeer (Ritchie 1969; Ritchie and Funk 1973). Paleo-Indian peoples are thought to have hunted these and other species, supplementing their diet with the scarce, available arctic flora. Paleo-Indian peoples were probably organized into small, highly mobile groups that may have traveled hundreds of miles in an annual round. Camps were often located at the top of knolls, overlooking valley expanses. Dutchess Quarry Cave (10,500 BC) in New York State (Ritchie and Funk 1973) and the Bull Brook Site (10,000 BC) (Byers 1954) in Massachusetts are two examples of this kind of adaptation.

Characteristic artifacts of this period are lanceolate and fluted Clovis projectile points and well-made, steeply-sided endscrapers. The lithic raw materials used in the manufacture of these artifacts are generally of high quality, and often came from sources far removed from the sites where the artifacts were found (Witthoft 1952).

Early Archaic (8000 - 5000 BC). The Archaic Period, beginning with the Early Archaic, was a period characterized by a warmer climate, more similar to that of today (Watts 1979). During the Early Archaic, small migratory bands hunted and gathered in the deciduous forest environment that had replaced the Pleistocene tundra. Annual movement probably declined significantly as the more mobile game animals moved north or became extinct. Deer, bear, and turkey were now the preferred game animals, and plant foods, particularly acorns and other nuts, provided an important part of the diet (Kent et al. 1971; Ritchie 1969). Small corner-notched points are characteristic of the period. Examples include the Palmer and Kirk types. More crudely made endscrapers and sidescrapers replaced the earlier variety. Local chert and jasper sources provided the bulk of the raw material for lithic tools. These sites are generally found in level areas along streams.

Middle Archaic (5000 - 2500 BC). Middle Archaic peoples continued the Early Archaic shift toward reliance on the resources of the deciduous forest. Plant foods, especially acorns and hickory nuts, probably became increasingly important staples. In New York, this Middle Archaic period is divided into two contemporaneous adaptational strategies, Laurentian and Lamoka Lake (Ritchie 1969). Laurentian, as exemplified by Brewerton, was basically a hunting adaptation, while Lamoka was characterized by a seasonally sedentary fishing and gathering complex. Socially, aboriginal groups were organized into small bands, aggregating periodically to exchange mates or organize collective hunts (Wobst 1978). Sites are sometimes found in level areas along streams.

Late Archaic (2500 - 1300 BC). During the Late Archaic, a fundamental shift toward sedentism, horticulture, and more complex social organization began. Late Archaic sites are larger, probably representing year round base camps. Social organization probably was that of the patrilineal band (Ritchie and Funk 1973). Population sizes were larger.

Important phases in the Late Archaic are the River Phase (1800 BC) and Snook Kill Phase (1500 BC) (Funk 1976). Base camps tend to be at level areas along streams while special purpose camps are found in a variety of areas.

Transitional (1300 - 1000 BC). With the Transitional Period in northeastern Pennsylvania, evidence for social stratification emerges. The distribution of steatite may represent one example of the exchange of high status items (Ford 1974). The two most important diagnostics of the Transitional Period are steatite and broad, weak-shouldered points (Susquehanna Broadspears, Perkiomen, Orient Fishtail). Some have inferred a strong riverine orientation from the general location of the sites on floodplains (Witthoft 1971). Beyond these traits, settlement and subsistence were similar to Late Archaic adaptations and virtually identical to Early Woodland adaptations. What appears to have been important socially in the Transitional - Early Woodland phase of cultural evolution was the rise of trade networks in exotic goods, mound burials, and increased evidence of social ranking, a phenomenon visible in ethnographically known chiefdoms.

Woodland (1000 BC - 1500 AD). The Woodland Period in the northeast has been divided into a minimum of three phases, Early, Middle, and Late. During each phase, pottery was prevalent, large sedentary villages were the basic settlement type, and collected and horticulturally maintained vegetal foods such as Chenopodium, Amaranth, Helianthus, and Polygonum were important supplements to wild food resources. Early in the Late Woodland period, maize agriculture was introduced into northeastern Pennsylvania, and quickly became the dominant subsistence base.

The Middle Woodland period follows the trajectory set by the shift to sedentism during the Early Woodland. Villages and population sizes were larger. Phases within the Middle Woodland are the Canoe Point Phase (200 AD) and the Squawkie Hill Phase (500 AD). Later, Kipp Island (700 AD), Fox Creek, and the terminal Hunter's Home Phases represent the last manifestations of the pre-agricultural Woodland (Ritchie 1969).

The introduction of maize agriculture into the northeast during the Late Woodland signaled several changes in social organization. Population size increased as productivity of the land was increased. Village sizes also increased, with some being palisaded. This has been interpreted as the result of increased warfare over critical resources such as prime agricultural land and/or hunting territories (Kinsey and Graybill 1971). Sites tend to be located on level areas along streams and near expanses of high quality agricultural soils.

### 2.2.2 Ethnohistory

Prior to 1675, the Wyoming Valley was the home of the Susquehannock Indians (also known as the Andaste), who had settled along the Susquehanna River in the mid-sixteenth century. Defeat by the Iroquois in that year led to the relocation of the Susquehannocks to the southern reaches of the Susquehanna. The newly opened Wyoming Valley territory was then settled by a number of groups under Iroquian hegemony, including

the Minsi Delaware. One of the settlements established was a meadow in Scranton, west of the Lackawanna River. Headed by Chief Capouse, it was located in an area that became the Scranton Fairgrounds in the late nineteenth century (Craft 1891). In the late seventeenth and early eighteenth centuries Delaware Indians, although under control of the Six Nations, were afforded protection under the Proprietary Government of William Penn (Weslager 1972). Nevertheless, disease and conflict with Euro-American settlers in New Jersey and southeastern Pennsylvania led to increasing numbers of Delawares and Nanticokes settling in the upper reaches of the Susquehanna and Delaware Rivers. After 1715, conditions between the Delaware and the Pennsylvania government deteriorated as Pennsylvania developed a policy of giving the Six Nations control over their conquered tribes. Pressures also were felt by groups forced to relocate following extensive land acquisitions in southeastern Pennsylvania. Finally, in 1742, with the backing of the Proprietary Government, the Six Nations removed all Delawares to either the Shamokin or Wyoming areas. In the Wyoming Valley, 15 mi. southwest of Scranton, the villages of Candowsa (or Lackawanna) and Adjouquay were founded (Kent, Rice, and Ota 1981).

In 1754, representatives of the Six Nations sold the Wyoming Valley tracts and the lands west of the Susquehanna River to the Susquehanna Company, a Connecticut-based land company. Although hotly contested by the Pennsylvania government and the Delaware Indians, resolution of the issue was delayed when French-allied Delaware raided and burned English settlements in March 1755. The Susquehanna Delaware, many of whom had converted to Christianity under the Moravians, attempted to stay neutral. A massacre of Moravian settlers at Gnadenhutten by a faction of the Delaware on November 24, 1755, drew the Susquehanna Delaware into the conflict. Teedyuskung pressed the authorities for return of the title of the Wyoming lands. However, his murder in 1763, followed by colonization of the Wyoming Valley by the Susquehanna Company two weeks later, led to a complete deterioration of relations between the Delaware and the government. Captain Bull, a son of Teedyuskung, led a war party in the Fall of 1763 and tortured and killed many Euro-American settlers. In 1764, a reward for Indian scalps was reinitiated by the Proprietary Government. Military defeat of the Delaware in 1765 by Henry Bouquet ended hostilities (Weslager 1972).

The treaty of Fort Stanwix in 1768 effected the removal of all Indians to west of the Ohio River and ended the ethnohistoric period in the Wyoming Valley. The last group to leave the region did so by 1771 (Throop 1895).

The eighteenth century saw many changes for the Delaware. Moravian missionaries actively converted Indians to Christianity. The influx of trade goods and the fur trade economy brought them into the world monetary economy. Disease decimated villages. Sudden and frequent relocations to other towns and areas put the Delaware into new settlement arrangements. As a result of these and other factors, many Delaware had "voluntarily" relocated first to western Pennsylvania and then to Ohio.

By 1765, only a small group of Delaware, numbering at most 1000 individuals, remained on the Susquehanna River (Weslager 1972).

Two Indian paths have been documented for the vicinity of Scranton (Wallace 1971). The Lackawanna Path which ran from the Indian town of Lackawanna to Oquaga (Windsor, NY), passed Scranton on the west side of the Lackawanna River. The Minisink Path ran from Minisink Island on the Delaware to Wilkes-Barre. It crossed Little Roaring Creek near its mouth, passed through Dunmore and Scranton (probably to the north of the SAAP) and forded the Lackawanna to meet with the Lackawanna Path.

### 2.2.3 History

Dark Hollow and Slocum Hollow Phases (1762 - 1841). The early history of the Scranton area was turbulent. With the arrival of the first European settlers in 1762 came conflicts between the settlers and Indians, resulting in a massacre of settlers in 1764. In addition, a territorial dispute between the original settlers from New England with their Connecticut claim and Pennsylvania land speculators under the charter of William Penn produced a series of confrontations. A genuine civil war erupted in 1769, was interrupted by the American Revolution, and was renewed in 1782. After much bloodshed and negotiation, the Decree of Trenton brought peace to the area and the basic pattern of rural life was established (Craft 1891:37-63).

During the last half of the eighteenth century, the area around the SAAP was known as Dark Hollow and was characterized by widely spaced frontier farms. During the first 40 years of the nineteenth century, several industries were established in the area, including charcoal iron smelting, lumber and grist mills, and a distillery. Dark Hollow became known as Slocum Hollow after Ebenezer Slocum, founder of the distillery and other industries. These developments were the initial phases of the industrial growth that would take place in the area in subsequent years.

Although no records of utilization of the SAAP property during the Dark Hollow phase exist, at least five structures were located near it by the end of the Slocum Hollow Phase (Merrifield 1896). Ebenezer Slocum is known to have owned and utilized the general vicinity of the SAAP property in his iron furnace, distillery, flour and saw mill enterprises, but all of these facilities appear to have been close to Roaring Brook and outside the boundaries of the SAAP. Considering their proximity to the SAAP, however, outbuildings related to these facilities may have existed within the property.

Population growth in the area was slow during the early years of the nineteenth century. As late as 1840 there were only five structures in Slocum Hollow. They included the first frame house in the valley (built in 1802), a log dwelling, a school, and two mills. The charcoal iron furnace ceased operation in 1828.

Heavy Industry Phase (1842 - 1930). Beginning in the 1840s, the Scranton area experienced rapid industrial and commercial growth. This trend was due primarily to growth in two major industries -- the iron smelting and

related coal mining industries, and the railroads. Initially, these industries were largely under the control of two major corporations -- the Lackawanna Iron and Steel Company and the Delaware, Lackawanna, and Western Railroad. These corporations played a key role in the industrial development of the Scranton area in general and in the history of what is today the SAAP in particular.

The Lackawanna Iron and Steel Company originated as Scrantons, Grant and Company, which put the first anthracite fired iron furnace in the Lackawanna Valley into blast in 1841. This and subsequent furnaces are still standing in a park next to the SAAP. Utilizing the massive anthracite and iron deposits underlying the region, the success of these coal-fired furnaces established not only the mineral industries of Scranton but also promulgated other support industries, forming the early economic nucleus of the city. The Scrantons, Grant and Company reorganized several times and the name changed over the years to Scrantons and Platt in 1846, Lackawanna Iron and Coal Company in 1853, and the Lackawanna Iron and Steel Company in 1888 (Craft 1891:80-103; Platt 1886).

Probably the most important offshoot of the metals and coal industries of the region was the introduction of railroads. The major obstacle to industrial development in the region was transportation to eastern markets. The origins of the Delaware, Lackawanna and Western Railroad can be traced to an early charter for a gravity railroad (originally known as Ligett's Gap Railroad) issued in 1832. In 1851, the name of this railroad was changed to the Lackawanna and Western Railroad, with an interlocking directorate with Scrantons and Platt. In March 1853, a further reorganization with the Delaware and Cobb's Railroad Company produced the Delaware, Lackawanna, and Western Railroad (Casey and Douglas 1951).

By 1854, what is now the SAAP was located within the City of Scranton, and included all of three borough lots and portions of a fourth. Mechanic St. and Adams St. intersected near the center of the property while River St., Washington Ave., Jefferson Ave. (now Mattes St.) and railroad yards formed its boundaries (Amsden 1854). At that time, those lots appear to have been vacant.

In 1856, the Lackawanna Iron and Coal Company acquired much of the area included within the SAAP property from the borough of Scranton (Craft 1891:114-115). By 1864, several structures of unidentified function had been erected on the Lackawanna Iron and Coal Company portion of the property. In addition to these structures, several buildings existed in the northern corner of what is now the SAAP, and seem to have been related to the immediately adjacent rail yards (Anon. 1864). It therefore seems likely that this northern portion of the SAAP had been acquired by the Delaware, Lackawanna, and Western Railroad by 1864, and was being utilized for railroad-related purposes.

During the remainder of the nineteenth century, the SAAP locality was heavily utilized as an industrial site by both the Delaware, Lackawanna, and Western Railroad and the Lackawanna Iron and Coal

Company. Until the early 1900s, the Delaware, Lackawanna and Western Railroad maintained a complex of paint shops, car shops, and railroad sidings on their portion of the site. The remainder of the SAAP property, owned by the Lackawanna Iron and Coal Company, witnessed the erection of a series of rolling mills and associated facilities. The first of these mills was completed in 1867. Prior to its construction, an apron of fill, contained within a nearly vertical stone retaining wall and 40 ft. deep at its deepest point, was placed on the hillside extending from below Lackawanna Ave. to River St. Consisting of slag, sand, gravel, rock, concrete, brick, and other rubble, the fill covered 15.3 a. including all of Mechanics St. between Mattes St. and Washington Ave. (Craft 1891:252). It presumably covered the remains of any previous Lackawanna Iron and Coal Company structures located there as well. The rolling mill complex of 1867, and several subsequent rolling mill complexes, were constructed by the Lackawanna Iron and Coal Company on the surface of this fill.

In the early twentieth century the Lackawanna Iron and Coal Company portion of what is now the SAAP was acquired by the Delaware, Lackawanna and Western Railroad. The existing rolling mill complex was removed, and, by 1907, a locomotive repair facility had been constructed. With some additions and alterations, this facility was purchased by the U.S. Department of the Army and transformed into the SAAP.

The city of Scranton witnessed a meteoric rise in wealth and population during the nineteenth century with the growth in the coal mining, iron smelting, and railroad industries. In 1800, the population of Providence Township in Luzerne County, which encompassed present day Scranton, was 579. As late as 1850 the township had a population of no more than 4467, and Scranton remained a village. During the next 80 years, Scranton grew to be a city of more than 140,000 people, reaching its peak in 1930.

The Mercantile Phase (1930 - present). During the post-1930 era, the coal was mined out and the demand for rail transportation fell. The economic fortunes of much of the region, including Scranton, suffered as a result. Since 1930, censuses have posted steady declines. By 1980, the total population of Scranton had dropped to 88,117. As the heavy industrial economic base of the region slowly died, other endeavors increased in economic significance. The SAAP is one of those employers whose importance to the community has increased. More recently, efforts have been made to attract a large concern, the Steam Town USA Museum. If successful in its bid, Scranton will have added a badly-needed source of employment and income to the Lackawanna Valley region.

## 2.3 ARCHEOLOGICAL RESEARCH DIRECTIONS

### 2.3.1 Regional Concerns

Although the Pennsylvania Archeological Plan currently contains no study units for northeastern Pennsylvania, archeological data from the region in which the SAAP is located can contribute to several research questions concerning the prehistory and history of northeastern Pennsylvania.

To date, little prehistoric archeological research has been conducted in northeastern Pennsylvania. Consequently, information regarding the prehistory of this region has an unusually high scientific importance. Very basic questions of subsistence and settlement have yet to be addressed in any depth. Optimal site location and the choice of physiographic factors in site placement could be examined using isolated sites and regional settlement studies. The North Branch of the Susquehanna River probably served as a major link between the interior plateau regions and the Coastal Plain in prehistoric times. However, little is known concerning the influence of either area on the cultural evolution of northeastern Pennsylvania. In addition, the study of the relationship between groups settling on the Susquehanna River proper and groups settling in its tributaries could provide information on territorialism, trade, warfare, and social organization.

### 2.3.2 Installation-Specific Archeological Research Directions

Neither archeological sites nor archeological investigations have been reported for the SAAP or its immediate vicinity. Given the small acreage of the facility and the urban/industrial nature of the area, the lack of archeological sites or reports is not surprising. It is possible, however, that archeological sites of both prehistoric and historic age exist within SAAP boundaries. If present, such sites could occur within either of two geomorphological situations. First, the original ground surface underlying the fill upon which the SAAP sits may be intact. If so, sites may be preserved in or immediately below the original ground surface. Second, the upper levels of the fill may contain remnants of foundations and artifacts associated with the various industrial facilities that were constructed prior to the erection of the existing SAAP facility.

Any prehistoric sites within the SAAP must exist on or below the original ground surface that was present prior to the placement the fill. Given the paucity of prehistoric research in the area, any such extant resources would be informative in studies of lifeways of the prehistoric inhabitants of the area. It should be emphasized, however, that with the exception of the area along the northeastern-most periphery of the facility where the fill may be thin, the presence of the fill effectively precludes any impact to or investigation of these sites in the foreseeable future. Any extant archeological cultural resources are effectively protected by the overlying fill which limits access to the original ground surface.

The same considerations apply to sites of the Dark Hollow and Slocum Hollow phases. Sites dating to these phases may exist on and directly below the original ground surface below the fill, but again, most are effectively sealed by the fill.

More detailed information is available for the period between the end of the Slocum Hollow Phase (1841) and the construction of the fill apron (1864-1867). During this period, city streets and blocks were laid out, and unidentified structures were erected by the Lackawanna Iron and Coal Company and by the Delaware, Lackawanna, and Western Railroad.

Since these activities occurred prior to fill placement, the remains of the streets and buildings may exist on the original ground surface below the fill. Since these remains date to the earliest phases of the growth of heavy industry in Scranton, they possess considerable potential to provide new information about the history of these industries. However, as with the other sites which may exist on the original ground surface, these early industrial facilities are effectively sealed by the fill apron throughout most of the SAAP property.

In contrast, remnants of structures and artifacts from the post-1867 era postdate the placement of fill, and thus should exist within the upper portions of the fill. These sites have more research potential, since they are accessible and may provide information concerning the evolution of the iron, steel, coal, and railroad industries in the Scranton area. The potential significance of such sites is greatly reduced, however, if (as expected) they have been fragmented and mixed by the construction of the existing SAAP facility.

An additional cultural resource at SAAP is the fill layer itself. The fill may contain artifactual material from another area which could be of research interest. The nineteenth century engineering techniques used to add and secure 40 ft. of fill at SAAP may also be of interest to industrial archeologists and historians.

AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

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### 3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

Any sites located within SAAP boundaries are currently protected from natural erosional agents by the fill apron and by the existing industrial plant. Sites located on the original ground surface below the fill may be in excellent condition as a result of the protection afforded by the fill, or may have been damaged or destroyed by compaction. Sites in the upper portions of the fill have been largely or entirely disturbed by the construction of the existing industrial facility.

### 3.2 HISTORIC AND RECENT LAND USE

The SAAP has been the focus of over 100 years of extensive and continuous construction and development. None of the original land surface is visible today as 40 ft. of fill, held in place by a sizeable retaining wall, covers this surface. During the Slocum Hollow Phase, the vicinity was utilized by Ebenezer Slocum for his iron furnace, distillery, flour, and saw mill, but these activities seem to have taken place east of the SAAP site. Growth of the city of Scranton was rapid by the 1850s and 1860s, both in industry and population. By 1864 the SAAP had been subdivided and contained several structures. However, development on the original land surface was terminated by the placement of fill to bring a proposed iron rolling mill site up to the railroad grade.

The mill, built in 1867, was expanded and changed several times before being sold to the Delaware, Lackawanna and Western Railroad in 1907. The Delaware, Lackawanna and Western Railroad razed the existing buildings, built a machine and erecting shop, a foundry, a pattern shop, blacksmith shop, laboratory and associated outbuildings, and re-routed track. In 1952, when the property was acquired by the U.S. Department of the Army, it was essentially unchanged from 1907, with the exception of the retaining wall, which had been partially destroyed in a 1955 flood. Subsequently, a crane yard, joiner building, and substation were added. Several outbuildings were both added and removed. The major episodes in this construction sequence are summarized in Table 3-1.

To facilitate the discussion of prior ground disturbance, the SAAP has been divided into 11 Ground Disturbance Areas (GDAs) (Figure 3-1). The

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SCRANTON ARMY AMMUNITION PLANT

GDA No	Type of Disturbance	Date Constructed (yr)	Reference <sup>a</sup>	Area Disturbed (acres)	Estimated Depth Below Surface (ft.)	Ratio of Disturbed to Total Area	Location of Disturbed Area			USGS Quad Sheet	Coincidental Sited
							UTM <sup>b</sup>	UTM <sup>b</sup>	UTM <sup>b</sup>		
GDA-0	Construction of: Mechanic Street Adams Street 16 unidentified structures and associated out-buildings, underground utilities, fill	ca.1854 ca.1854 ca.1864	Amaden 1854 Amaden 1854 Anon. 1864	15	0-40 <sup>c</sup>	NA	4583650	444260	Scranton	SCR75	
GDA-1	Construction of: Casting Platform Underground utilities	1907 var.	Benson (1983, personal communication) Dvg. 0000-83-02-002 Dvg. 0000-83-01-001	1		9:10	4583630	444265	Scranton	SCR75	SAAP-1-3 SAAP-40
GDA-2	Construction of: Forge Shop-Building No. 2 Subway Underground utilities	1907 var.	Volks and Kuehle (1918) Benson (1983, personal communication) Benson (1983, personal communication) Dvg. 0000-83-01-001 Dvg. 0000-83-02-002 Dvg. 0000-81-01-003 Sh.1 Dvg. 0000-81-07-004 Sh.1 Dvg. 0000-83-02-012 - 014	1.5	14+	9:10	4583596	444326	Scranton	SCR75	SAAP-4 SAAP-6 SAAP-18 SAAP-22 SAAP-40
GDA-3	Construction of: Administration Building No. 1 Subway Underground utilities	1907 1907 var.	Volks and Kuehle (1918) Benson (1983, personal communication) Benson (1983, personal communication) Dvg. 0000-83-02-002 Dvg. 0000-83-01-001 Dvg. 0000-81-01-004 Sh.1	0.33	14+	9:10	4583568	444374	Scranton	SCR75	SAAP-7 SAAP-8 SAAP-40

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SCRANTON ARMY AMMUNITION PLANT (Continued)

GDA No	Type of Disturbance	Date Constructed (yr)	Reference <sup>a</sup>	Area Disturbed (acres)	Estimated Depth Below Surface (ft.)	Ratio of Disturbed to Total Area	Location of Disturbed Area			USGS Quad Sheet	Coincidental Site <sup>c</sup>
							UTM <sup>b</sup>	Easting	Northing		
GDA-4	Construction of: Crane Yard	1907	Dwg. 0000-87-99-001	2.4		9:10	4583637	444324	Scranton	SCR75	SAAP-9
			Dwg. 0000-76-99-001								SAAP-18
			Dwg. 0000-76-98-001								SAAP-22
			Benson (1983, personal communication)								SAAP-27
GDA-5	Construction of: Storm Drain Water Monitoring Station Tank Farm Pump House #9 Underground utilities	var.	Dwg. 0000-83-01-001	0.57	12+	9:10	4583590	444390	Scranton	SCR75	SAAP-31
			Dwg. 0000-83-02-002								SAAP-35-38
			Dwg. 0000-83-01-001								SAAP-40
			Dwg. 0000-83-01-001								SAAP-19
GDA-6	Construction of: Production Shop Building No. 4	1907	Dwg. 0000-87-99-001	0.24	14+	9:10	4583736	444324	Scranton	SCR75	SAAP-12
			Dwg. 0000-76-99-001								SAAP-17
			Dwg. 0000-76-98-001								SAAP-20
			Benson (1983, personal communication)								SAAP-38-42
			Dwg. 0000-81-01-003 Sh. 2								SAAP-22-33
			Dwg. 0000-81-01-003 Sh. 3								SAAP-38-42
GDA-7	Construction of: Joiner Building	1970-1971	Dwg. 0000-83-02-005-009	0.24	12+	9:10	4583660	444352	Scranton	SCR75	SAAP-17
			Benson (1983, personal communication)								SAAP-18
			Benson (1983, personal communication)								SAAP-22
			Dwg. 0000-83-02-002								SAAP-34
GDA-7	Subway	var.	Dwg. 0000-83-01-001	0.24	12+	9:10	4583660	444352	Scranton	SCR75	SAAP-40
			Dwg. 0000-81-01-003 Sh. 2								SAAP-17
GDA-7	Underground utilities	var.	Dwg. 0000-83-02-002	0.24	12+	9:10	4583660	444352	Scranton	SCR75	SAAP-18
			Dwg. 0000-81-01-003 Sh. 2								SAAP-22

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SCRANTON ARMY AMMUNITION PLANT (Concluded)

GDA No	Type of Disturbance	Date Constructed (yr)	Reference <sup>a</sup>	Area Disturbed (acres)	Estimated Depth Below Surface (ft.)	Ratio of Disturbed to Total Area	Location of Disturbed Area				USGS Quad Sheet	Coincidental Site <sup>c</sup>	
							UTM <sup>b</sup>	Northing	Easting	Township Range			Section
GDA-8	Construction of: Electrical Substation Underground utilities	1950s	Benson (1983, personal communication)	0.24		9:10	4583688	444361	Scranton		SCR75	SAAP-18 SAAP-22 SAAP-34	
		var.	Dwg. 0000-83-02-002 Dwg. 0000-83-01-001										
		var.											
GDA-9	Construction of: Paved area used for storage and loading Underground utilities	var.	Dwg. 0000-83-02-002 Dwg. 0000-83-01-001	0.82		9:10	4583736	444380	Scranton		SCR75	SAAP-18 SAAP-20 SAAP-22 SAAP-34	
		var.											
		var.											
GDA-10	Construction of: Heat Treatment Building No. 3 Subway Underground utilities	1907	Dwg. 0000-87-99-001 Dwg. 0000-76-99-001 Dwg. 0000-76-98-001	.99	14+	9:10	4583640	444391	Scranton		SCR75	SAAP-17 SAAP-19 SAAP-20 SAAP-22 SAAP-34 SAAP-40	
		1907	Benson (1983, personal communication)		12+								
			Dwg. 0000-83-02-002 Dwg. 0000-83-01-001										
			Dwg. 0000-81-01-004 Sh.2 Dwg. 0000-83-02-017 Dwg. 0000-83-02-018										
GDA-11	Construction of: Employee parking lot Electrical substation guard house Underground utilities	var.	Dwg. 0000-83-01-001 Dwg. 0000-83-02-002	2.5		4:10	4583678	444407	Scranton		SCR75	SAAP-13-16 SAAP-19 SAAP-20 SAAP-22 SAAP-34 SAAP-40	

Notes: a. Drawings on file at SAAP. Drawings numbers refer to SAAP file numbers.  
b. UTM Zone 18.  
c. SCR75 = USGS Topographic Map, Scranton, 7.5', Photorevised 1969 and 1976.  
d. Within the GDA.  
e. Feet below existing ground surface.

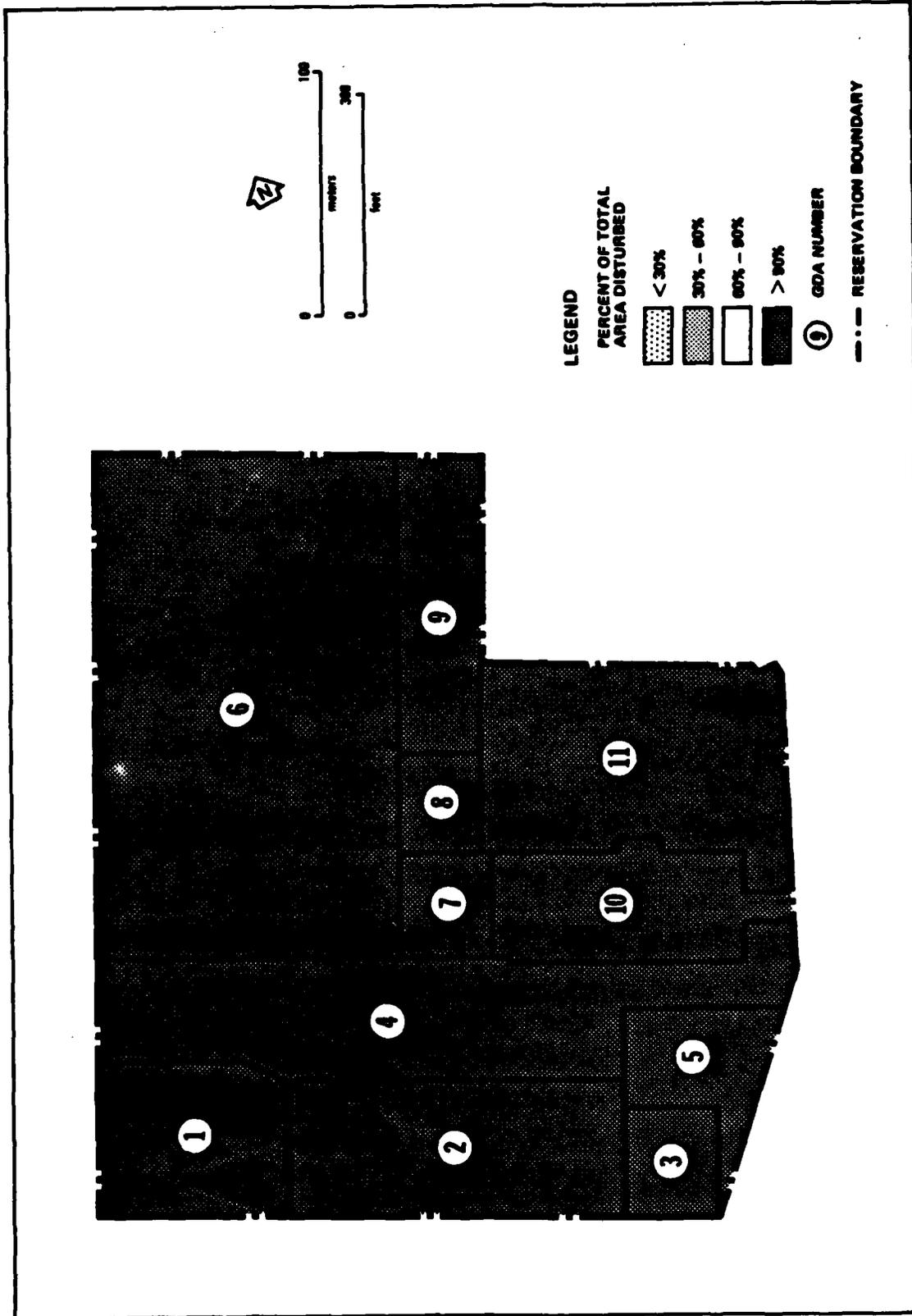


Figure 3-1. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SCRANTON ARMY AMMUNITION PLANT

possibility of site preservation within these GDAs, either on the original ground surface below the fill or within the upper portions of the fill is contingent on three basic factors. First, the original ground surface of the SAAP property may have been scraped, graded, or otherwise altered prior to placing the fill. Such activities would greatly reduce or destroy the integrity of any archeological sites that were present on the original surface. Second, the fill apron varies in depth from approximately 0 ft. along the northeastern boundary of the SAAP to 40 ft. along its southwestern boundary. The degree of possible protection afforded by the fill thus varies with its depth. In the northeastern-most portions of the SAAP property, foundations, utility lines, etc. have in all probability penetrated the fill and disturbed the original landscape. In the bulk of the property, the fill is of sufficient depth to preclude such disturbance. Third, the preservation of potential sites within the fill itself is largely contingent upon the degree of disturbance resulting from construction of the existing SAAP facility. Whether any foundation remnants or intact middens relating to earlier industrial facilities exist hinges largely on the extent of this disturbance.

The level and type of disturbance within each of the 11 SAAP GDAs was assessed using these three factors in combination. These assessments, and their implications for site preservation, are summarized below.

GDA-0: Original Land Surface (Not shown). The land surface prior to 1867 was from 0-40 ft. below its present elevation. At that time, fill consisting of slag, sand, gravel, rock, concrete, brick, and other rubble was placed on the site for the purpose of raising it to the elevation of the nearby railroad line. Whether extensive disturbance of the original land surface occurred at this time is not known. However, several episodes of historic disturbance had occurred on the original surface prior to this date. By 1854, the city had laid out Mechanic Street which ran parallel to River Street through GDAs 6, 7, 8, 10 and 11, and Adams Street which ran parallel to Mattes Avenue through GDAs 2, 4, 7, 8 and 9. These streets intersected near the center of the current SAAP property (Amsden 1854). Jefferson Avenue was also parallel to Mattes Avenue and was located on the approximate eastern edge of the SAAP area through GDAs 5, 4, 10 and 11. Three city lots were numbered and several more were surveyed, but these lots appear to have been vacant. During the next 10 years, 16 structures were erected, primarily along River, Washington, and Adams Streets (Anon. 1864). These structures and associated outbuildings would have disturbed only a small percentage of the original land surface of the SAAP.

GDA-1. This area is coextensive with the extant Casting Platform constructed at least as early as 1918 (Volks and Kuehls 1918). Earlier, in the nineteenth century, maps indicate the area as an undeveloped lot (Hopkins 1877). Prior to the placement of fill in 1867, three unidentified structures stood in this area (Anon. 1864).

GDA-2. Most of this GDA is comprised by the current Forge Shop, Building No. 2. A subway, constructed in 1907, ran under this building to facilitate railroad engine repair. A portion of the Bessemer Steel Rail Rolling Mill, previously stood in the location of the eastern half of Building No. 2 (Goghlan 1870, Hopkins 1877). Prior to the placement of

fill in 1867 the area was mostly undeveloped. The western portion of the former Adams Avenue extended into this GDA (Anon. 1864). Two unidentified structures stood in the GDA south of Adams Avenue (Anon. 1864).

GDA-3. Administration Building No. 1 is the prominent structure in GDA-3. This was originally used as a Pattern Shop (Volks and Kuehls 1918). This area was undeveloped in the late 1800s (Hopkins 1877). Prior to the placement of the fill layer, three small unidentified structures stood in this area (Anon. 1864).

GDA-4. Converted from the 1907 railroad sideyard, GDA-4 is a highly disturbed area containing parallel railroad tracks. It currently serves as a Crane Yard and steel storage area. The 1907 track construction, accompanied by grading, suggests that widespread ground disturbance to a depth of several feet occurred in this area. Prior to 1907, GDA-4 was the site of the 1875 Steel Works Buildings (Hopkins 1877). Portions of the Bessemer Steel Rail Rolling Mill were also located in this GDA as were portions of track (Hopkins 1877). Remnants of the foundations of these structures and associated industrial middens may still exist in GDA-4. By 1918, three small unidentified structures stood where the steel works and rolling mill once stood (Volks and Kuehls 1918). It is unlikely that any construction activities within GDA-4 have penetrated the original land surface. Other than the presence of portions of the former Adams and Jefferson Avenues, there was no development of this area in the mid-nineteenth century (Anon. 1864).

GDA-5. The extant structures in GDA-5 are a Tank Farm, Pump House No. 9, and a Storm Drain Water Monitoring Station. In the early twentieth century, the area included a couple of rail lines (Volks and Kuehls 1918). A similar lack of development was shown by Hopkins (1877). Prior to the 1867 fill addition, a small segment of Jefferson Avenue was located in this area (Anon. 1864).

GDA-6. GDA-6 is the location of the Production Shop Building No. 4. This building appears on the Volks and Kuehls 1918 drawing as the Machine and Erecting Shop. This substantial building was constructed in 1907 and was renovated by Hoffman Company. Given its size and massiveness, it is likely that several feet of fill were disturbed while laying its foundation. The subway, also constructed in 1907, runs beneath this building. In the late nineteenth century, this GDA was the site of a number of buildings including: a portion of the Bessemer Steel Rail Rolling Mill; a Blacksmith Shop; a Paint Shop; a Passenger Car Shop; a Freight Car Shop; five unidentified outbuildings and several rail lines (Hopkins 1877; Graves and Steinbarger 1898). Prior to the placement of fill in 1867, this GDA was the site of three unidentified structures and a portion of a fourth, a portion of Mechanics Street and a number of rail lines (Anon. 1864). It is unlikely that remnants of any of these structures survive. Penetration and complete disturbance of the original land surface is probable within the northeastern half of GDA-6.

GDA-7. This GDA is coextensive with the Joiner Building which was built in 1970-1971. The 1907 subway runs beneath the building. How much fill under the Joiner Building has been disturbed is unknown. In 1918 this GDA

was the site of a portion of a Transfer Table (Volks and Kuehls 1918). In the mid-nineteenth century this GDA was the location of a portion of the Bessemer Steel Rail Rolling Mill (Hopkins 1877). Prior to the 1867 fill episode, a portion of Adams Avenue was located throughout most of GDA-7 (Anon. 1864).

GDA-8. This GDA is primarily occupied by an electrical substation. This was constructed in the 1950s. The fill under the substation is probably heavily disturbed. In 1918, this GDA was the site of a portion of the Transfer Table (Volks and Kuehls 1918). Earlier, in the mid-nineteenth century, a portion of the Bessemer Steel Rail Rolling Mill stood in this area. Mill foundations and associated middens may survive. In the mid-1860s, prior to the placement of fill at SAAP, this GDA was part of Adams Avenue.

GDA-9. This GDA is a paved area currently used for storage and loading activities. In 1907, this was the site of a portion of the Transfer Table. Previously, in the mid-nineteenth century, a portion of the Bessemer Steel Rail Rolling Mill stood there. Prior to the placement of fill at SAAP, GDA-9 was part of Adams Avenue.

GDA-10. This GDA is the site of Heat Treatment Building No. 3. The Heat Treatment Building was constructed in 1907 and originally was used as a blacksmith shop (Volks and Kuehls 1918). This structure is substantial and fill at its location is probably disturbed to a depth of several feet. Prior to 1907, portions of the Bessemer Steel Rail Rolling Mill and miscellaneous rail lines were located in this area (Hopkins 1877). In the mid-nineteenth century, the area included portions of Mechanics Street, Jefferson Avenue, and a rail line (Anon. 1864).

GDA-11. This GDA is currently an employee parking area paved in blacktop. Two small structures in the area are an electrical substation and a guard house. During the WWI period at this site, the area was undeveloped. In the 1870s, the area included several rail lines and small portions of both the Bessemer Steel Rail Rolling Mill and Jefferson Avenue (Hopkins 1877). This area was more developed in the 1860s. Four unidentified structures stood in this GDA as did a portion of Jefferson Avenue (Anon. 1864).

Numerous underground utility lines run throughout the SAAP. These include water, sewer, and electrical lines. Disturbance of the fill has undoubtedly resulted from the placement of these lines, but their overall contribution to the level of ground disturbances within the SAAP has been slight.

### 3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS; COVERAGE AND INTENSITY

There have been no archeological investigations conducted within the present boundaries of the SAAP, nor have there been studies conducted within a 20 km radius of the facility (Tables 3-2 and 3-3).



Table 3-3. ARCHEOLOGICALLY RELEVANT RESEARCH INVESTIGATIONS, EXCLUSIVE OF ARCHEOLOGICAL SURVEYS, CONDUCTED ON THE SCRANTON ARMY AMMUNITION PLANT

Study No.	Study Type	Study Date	Institution Agency, Firm	Principal Investigator	Bibliographic Reference	Location				USGS Quad Map	Associated Archeological Resources	
						UTM	Northing	Eastings	Town-ship			Range

NONE

#### 3.4 SUMMARY ASSESSMENT OF DATA ADEQUACY, GAPS

Given the types and locations of prehistoric archeological cultural resources recorded in eastern Pennsylvania and given SAAP's location near Roaring Brook, there is some potential that as yet unrecorded prehistoric archeological resources could be discovered at SAAP. These, however, would occur on the original ground surface now covered by an extensive fill deposit.

It is likely that for the nineteenth century historic period postdating 1884, all potentially remnant archeological resources at SAAP have been identified. Earlier, (pre-1884), period historic cultural resources may not have been identified since maps of this period are rare and do not clearly delineate the former locations of structures.

KNOWN ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT

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## 4.1 KNOWN ARCHEOLOGICAL RESOURCES ON SCRANTON ARMY AMMUNITION PLANT

At present, there are no known archeological resources located within the SAAP boundaries (Tables 4-1, 4-2, and 4-3).

## 4.2 POTENTIAL ARCHEOLOGICAL RESOURCES ON SCRANTON ARMY AMMUNITION PLANT

As indicated above, potential archeological resources on the SAAP property may exist in either of two distinct geomorphological settings: on the original ground surface below the fill and within the upper portions of the fill. Potential resources located on the original ground surface include the remains of 16 unidentified structures presumably owned by the Lackawanna Iron and Coal Company and the Delaware, Lackawanna, and Western Railroad. Potential archeological resources contained within the upper portions of the fill include the remains of several iron rail rolling mill complexes, steel rail rolling mill complexes, and railroad maintenance buildings. To facilitate description, the potential archeological resources of the SAAP are discussed under two headings: pre-1867 structures and structures extant between 1867 and 1907.

4.2.1 Pre-1867 Structures

Prior to fill placement between 1864 and 1867, 16 unidentified structures existed within the boundaries of what is now the SAAP (Table 4-4). These structures probably housed various facilities associated with the early activities of the Lackawanna Iron and Coal Company and the Delaware, Lackawanna, and Western Railroad. In addition to structures, the remains of city streets and railroad lines may exist on the original land surface (Anon. 1864).

4.2.2 Structures Extant Between 1867 and 1907

Between 1867 and 1907, the SAAP property experienced a nearly continuous process of structure erection, modification, and enlargement. These building activities were necessitated by growth and development in the heavy iron and steel production industry and in railroad activities. Brief descriptions of the structures present on the SAAP property at three points between 1867 and 1907 are provided below.

Table 4-1. PRESENTLY IDENTIFIED ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT: ADMINISTRATIVE DATA

Site Number	Site Recorder	Date of Site Record	SHPO Survey Number	Site Record Repository	Survey Collection Policy	Current Status of Investigation	NRHP Status	State, Local Status	Architectural Association	Bibliographic Reference

NONE

Table 4-2. PRESENTLY IDENTIFIED ARCHEOLOGICAL COMPONENTS ON THE SCRANTON ARMY AMMUNITION PLANT: DESCRIPTION AND EVALUATION

Site Number	Unit Age		Unit Description				Dimension			Evaluation			
	Temporal Unit		Artifacts	Features	Context	Landform	Area (m <sup>2</sup> )	Depth (m)	Ascribed Function	Percent Intact	Value Intergrity	RV	CR
	Date	Years BC/AD											

NONE

Table 4-3. PRESENTLY KNOWN ARTIFACT, ECOFACT, OR DOCUMENTARY COLLECTIONS FROM ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT

Site Number, Name	Collection Characteristics				
	Collection Location	Artifact	Ecofact	Documentary	
Curatorial Repository	Accession Number(s)	Brief Description	Size/No.	Brief Description	Size/No.

NONE

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED  
 ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY  
 AMMUNITION PLANT

Site Number, Name <sup>a</sup>	Reference	Description	Research Value CR <sup>b</sup>
SAAP-1	Anon. 1864	Unidentified structure associated with Lackawanna Iron and Coal Co. (LICC) and Delaware, Lackawanna and Western Railroad (DLWR)	2
SAAP-2	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-3	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-4	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-5	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-6	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-7	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-8	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-9	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-10	Anon. 1864	Unidentified structure associated with LICC and DLWR	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED  
 ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY  
 AMMUNITION PLANT (Continued)

Site Number, Name <sup>a</sup>	Reference	Description	Research Value CR <sup>b</sup>
SAAP-11	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-12	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-13	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-14	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-15	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-16	Anon. 1864	Unidentified structure associated with LICC and DLWR	2
SAAP-17	Anon. 1864	Mechanic Street	2
SAAP-18	Anon. 1864	Adams Avenue	2
SAAP-19	Anon. 1864	Jefferson Avenue	2
SAAP-20	Anon. 1864	Miscellaneous Railroad lines (pre-1867)	1
SAAP-21	Anon. 1864	Fill (0-40 ft. above original ground surface)	1
SAAP-22	Hopkins 1877 Craft 1891 Sanborn 1898 Graves and Steinbarger 1898 Goghlan 1870	Bessemer Steel Rail Rolling Mill (Formerly Iron Rail Rolling Mill)	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED  
 ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY  
 AMMUNITION PLANT (Continued)

Site Number, Name <sup>a</sup>	Reference	Description	Research Value CR <sup>b</sup>
SAAP-23	Goghlan 1870 Sandborn 1918 Volks and Kuehls 1918	Locomotive Repair Shop (formerly Freight Car Shop)	2
SAAP-24	Hopkins 1877	Passenger Car Shop	2
SAAP-25	Goghlan 1870	Blacksmith Shop	2
SAAP-26	Hopkins 1877	Paint Shop	2
SAAP-27	Hopkins 1877	Steel Works	2
SAAP-28	Graves and Stein- barger 1898	Caboose Shop	2
SAAP-29	Graves and Stein- barger 1898	Unidentified structure	1
SAAP-30	Graves and Stein- barger 1898	Unidentified structure	1
SAAP-31	Graves and Stein- barger 1898	Unidentified structure	1
SAAP-32	Graves and Stein- barger 1898	Unidentified structure	1
SAAP-33	Graves and Stein- barger 1898	Unidentified structure	1
SAAP-34	Sanborn 1918 Volks and Kuehls 1918	Transfer Table	1
SAAP-35	Volks and Kuehls 1918	Unidentified structure	1
SAAP-36	Volks and Kuehls 1918	Unidentified structure	1
SAAP-37	Volks and Kuehls 1918	Unidentified structure	1

**Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED  
 ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY  
 AMMUNITION PLANT (Concluded)**

Site Number, Name <sup>a</sup>	Reference	Description	Research Value CR <sup>b</sup>
SAAP-38	Volks and Kuehls 1918	Unidentified structure	1
SAAP-39		Industrial middens (various)	2
SAAP-40		Miscellaneous railroad lines (post 1867)	1

- Notes:
- a. Designations assigned for this study
  - b. Confidence Rating (CR): 1 = resource has little research value or the information about it is unreliable, 2 = resource may have research value and the information about it is probably reliable, 3 = resource may have research value and the information about it is reliable.

1867. Immediately after placing the fill apron, the Lackawanna Iron and Coal Company erected an iron rail rolling mill on the site. At that time, the Delaware, Lackawanna and Western Railroad maintained two car shops and a maintenance shop on the site (Goghlan 1870).

1875. By 1875, the iron rail rolling mill had been enlarged and converted to a steel rail rolling mill, and a building labeled "steel works" had been built near the rolling mill. A paint shop had been added near the former maintenance shop which had been converted into a blacksmith shop. In addition, four small unidentified structures existed in the vicinity of the blacksmith shop. The two car shops and the blacksmith (formerly the maintenance) shop remained in their original locations (Hopkins 1877).

1898. Prior to 1898, the steel rail rolling mill was again altered by the separation of the section nearest River St. from the main body of the structure. In addition, the steel works building had been enlarged. A caboose shop was added on the Delaware, Lackawanna and Western Railroad property. The remaining structures were largely unaltered (Graves and Steinbarger 1898; Sanborn Company 1898).

5.0

AN ASSESSMENT OF THE SIGNIFICANCE OF THE  
ARCHEOLOGICAL RESOURCE BASE ON THE SCRANTON ARMY AMMUNITION PLANT

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### 5.1 THE SIGNIFICANT RESOURCE BASE

There are no known prehistoric or historic archeological resources located on SAAP property. However, such sites may exist on or below the original ground surface below the fill that now covers the site. Given the paucity of information concerning the prehistory of northeastern Pennsylvania, any prehistoric sites located below the SAAP fill should possess considerable potential to contribute information on many aspects of prehistoric lifeways. This potential is largely obviated, however, by the existence of the fill, which effectively precludes access to sites for research purposes and/or impact to sites by earthmoving activities.

There are no known early historic period archeological sites within the SAAP property. As with prehistoric sites, presently unlocated sites may exist in the original ground surface beneath the fill. Any such sites that are present predate 1854, and relate to the Dark Hollow and/or Slocum Hollow historic phases. The potential significance of these early historic sites is again considerable, since they might contribute to an understanding of the day to day lives of the early inhabitants of the area, and to knowledge concerning the early evolution of the iron smelting, grist and saw mill, and distilling industries of Slocum Hollow. If present, however, these early historic sites are also effectively sealed by the overlying fill from disturbance and/or research.

The locations of numerous later historic period structures which stood on SAAP property have been documented. Remains of these structures may exist in the upper portions of the fill. Their present condition, should they exist, is unknown.

Table 5-1 summarizes the potential archeological resources at SAAP.

#### 5.1.1 Pre-1867 Structures

By 1864, 16 unidentified structures existed on the SAAP property. If remains associated with these structures exist, they are located on, or immediately below the original land surface. These structures were probably associated with the early activities of the Lackawanna Iron and

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence				Socio-cultural Assn.	Landform Assn.	Physical Integrity	Research Value <sup>a</sup>	RV CR <sup>b</sup>	Socio-cultural Value <sup>c</sup>	SCV CR <sup>b</sup>
			Known Occur- rences (no.)	Potential Occur- rences (no.)	Other Likely Occur- rences	Socio-cultural Assn.							
Paleo-Indian	Hunting and gathering cultural pattern	Kill and/or butchering area	0	0	+	Native Am.	Various	NA	5	3	4	3	
Early Archaic	Hunting and gathering cultural pattern	Habitation area	0	0	+	Native Am.	Various	NA	5	3	4	3	
		Animal procurement areas	0	0	+	Native Am.	Various	NA	5	3	4	3	
Middle Archaic	Restricted foraging cultural pattern	Habitation area	0	0	+	Native Am.	Various	NA	5	3	4	3	
		Seasonal camps	0	0	+	Native Am.	Various	NA	5	3	4	3	
Late Archaic	Central based foraging cultural systems	Base camp	0	0	+	Native Am.	Various	NA	5	3	4	3	
		Seasonal camp	0	0	+	Native Am.	Various	NA	5	3	4	3	
Transitional	River-oriented cultural systems	Small River site	0	0	+	Native Am.	Various	NA	5	3	4	3	
Early Woodland	Development of village life	Small village near flood-plain	0	0	+	Native Am.	Various	NA	5	3	4	3	
Middle Woodland	Development of agriculture	Small villages	0	0	+	Native Am.	High ground above marshes and on hillsides	NA	5	3	4	3	
Late Woodland	Warfare among Native Am.	Large agricultural villages	0	0	+	Native Am.	High ground floodplain	NA	5	3	4	3	
Susquehannock	Acculturation	Seasonal camps	0	0	+	Native Am.	Various	NA	5	3	4	3	
		Hamlets	0	0	+	Native Am.	Slight rises in floodplain	NA	5	3	4	3	
		Seasonal camps	0	0	+	Native Am.	Various	NA	5	3	4	3	

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT (Continued)

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence			Socio-cultural Assn.	Landform Assn.	Physical Integrity	Research Value <sup>a</sup>	RV CR <sup>b</sup>	Socio-cultural Value <sup>c</sup>	SCV CR <sup>b</sup>
			Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences							
Protohistoric	Cultural adaption to permanent European presence	Hamlets	0	0	+	Native Am.	Various	NA	5	3	4	3
			0	0	+	American	Various	NA	5	3	4	3
			0	0	+	American	Various	NA	5	3	4	3
Mid-to-late 18th Century	Frontier	Small fortified towns	0	0	+	American	Various	NA	5	3	4	3
			0	0	+	American	Various	NA	5	3	4	3
			0	0	+	American	Various	NA	5	3	4	3
Early 19th Century	Industrial development	Charcoal iron foundry	0	0	+	American	Near water source	NA	5	3	4	3
			0	0	+	American	Near water source	NA	5	3	4	3
			0	0	+	American	Near water source	NA	5	3	4	3
Mid 19th - Mid 20th Century	Heavy industrialization	Grist mills	0	0	+	American	Near water source	NA	5	3	4	3
			0	0	+	American	Various	NA	4	3	5	3
			0	0	+	American	Various	NA	4	3	5	3
Mid 19th - Mid 20th Century	Urbanism	Coal processing site	0	0	+	American	Various	NA	4	3	5	3
			0	0	+	American	Various	NA	4	3	5	3
			0	20	+	American	Various	Fair	4	3	5	3

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE SCRANTON ARMY AMMUNITION PLANT (Concluded)

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence				Landform Assn.	Physical Integrity	Research Value <sup>a</sup>	RV CR <sup>b</sup>	Sociocultural Value <sup>c</sup>	SCV CR <sup>b</sup>
			Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences	Sociocultural Assn.						
Mid 20th Century - Present	Urban centers	Cities	0	0	+	American	Various	NA	5	3	4	3
	Industrial centers	Industrial structures and associated features	0	20	+	American	Various	Poor	3	3	3	3
	Suburban development	Suburban homes	0	0	-	American	Various	NA	5	3	4	3
		Suburban shopping centers	0	0	-	American	Various	NA	5	3	4	3

a. This is a subjective summary assessment of the overall research value (RV) of the resource class. It is an evaluation of the class' quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Based on these research values, the resource class under discussion is ranked from 0 (no value) to 5 (highest value), including "NA" if such an evaluation is believed to be impossible given the available information.

b. The Confidence Rating (CR) is a further evaluation of the perceived reliability of the research (RV) or sociocultural (SCV) values of the resource class. The following code records a judgement of that reliability, based on the available information: (1) the judgement is more guess than science, and likely not to be reliable; (2) the judgement is moderately reliable; (3) the judgement is most likely reliable.

c. This is a subjective summary assessment of the overall sociocultural value (SCV) of the resource class. It is an evaluation of the social, religious, or political importance of the resource to a contemporary community, from 0 (no value) to 5 (highest value).

Coal Company and the Delaware, Lackawanna, and Western Railroad. These corporations played a key role in the industrial and commercial growth of Scranton. Structures and associated artifactual materials relating to their early development thus possess considerable potential significance.

Nine of the pre-1867 structures were located along the southwestern boundary of the SAAP property within GDA-1 and GDA-2 (Anon. 1864). If remains of these structures exist, they are effectively sealed from disturbance or research activities by the fill apron. The remaining seven structures, which were located in the northern and northeastern portion of the SAAP property are potentially accessible. Two of these seven structures existed within GDA-5 in the northern corner of the property, and have probably been destroyed. Portions of foundations of the remaining five structures may be present within GDA-7 (Anon. 1864).

#### 5.1.2 Structures Extant Between 1867 and 1907

Numerous structures were built on the SAAP site subsequent to the placement of fill. These structures all relate to heavy industrial iron and steel production and railroad maintenance activities. During this period, the property remained in the possession of the Delaware, Lackawanna and Western Railroad and the Lackawanna Iron and Coal Company. The structures erected on the site relate to the activities of these two corporations and document their growth and industrial development. The remains of these structures, if extant, possess considerable significance, since the growth of the Scranton area during the later half of the nineteenth century was intimately tied to the industrial success of these two corporations. A brief description of the structures present on the SAAP property is provided in Section 4.2. Although the condition of the remains associated with any 1867-1907 era structures is unknown, most are probably quite fragmentary and disturbed. There are probably no remains of the former Freight Car Shop (SAAP-23), Passenger Car Shop (SAAP-24), Paint Shop (SAAP-26), and Blacksmith Shop (SAAP-25). Major portions of the Steel Works (SAAP-22) foundation may be intact. A small remnant of the Caboose Shop (SAAP-28) may also exist.

#### 5.2 IDEAL GOALS AND OBJECTIVES

Given the total absence of known, significant archeological resources on SAAP property, a discussion of how to best study and manage resources which might be identified in the future would be premature. However an objective for future archeological work at SAAP should be that of determining if subsurface physical remains are extant. This will require archeological consideration of two land surfaces, one beneath the fill and the other near the top of the fill beneath the extant SAAP complex. Investigations of the former would involve prehistoric and pre-1867 historic cultural resources. The latter would involve cultural resources which post-date 1867.

6.0

A RECOMMENDED ARCHEOLOGICAL MANAGEMENT  
PLAN FOR THE SCRANTON ARMY AMMUNITION PLANT

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### 6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

The Scranton Army Ammunition Plant is considered to be a fully developed installation (Morgan Benson, 1983, personal communication). SAAP lacks an official master plan, however, the Chief Engineer maintains a list of mobilization projects which would be implemented if necessitated by wartime conditions. While most projects involve interior modernization of extant buildings, several projects would result in ground disturbance. These include:

- a) Construction of a five-story parking facility in the present employee parking area (GDA-11).
- b) Increasing the oil storage facilities at SAAP by building additional tanks within the extant tank farm area (GDA-5). This will involve building a foundation block by digging 2 ft. and pouring concrete.
- c) Rehabilitation of 80 year old gas distribution and sanitary sewer pipes. The lines outside of the extant subway tunnel will require excavation.
- d) Repairs of the concrete flood wall. While these will primarily involve patching and sealing, repairs along the base of the wall may require excavation (GDAs 1, 2, 3, 4, 5, 10 and 11).

It is doubtful that any of this development will result in the disturbance of the original ground surface. Only disturbances to the fill layer are anticipated.

### 6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS WITHIN THE SCRANTON ARMY AMMUNITION PLANT'S MASTER PLAN

#### 6.2.1 General Facility Planning

The SAAP lies on an extensive fill deposit. This fill caps and protects the original land surface and any pre-1867 cultural resources

which may be extant. It is unlikely that development at SAAP will disturb either this original land surface or the associated cultural resources. If extensive development which will penetrate the fill is planned in the future, the original ground surface should be tested after the fill is removed from the respective areas. Field testing of the original ground surface should be initiated on a project-by-project basis.

The extant SAAP structures are substantial as are their foundations (Morgan Benson, 1983, personal communication). While the site of SAAP underwent several building episodes after it was elevated through filling in the mid-nineteenth century, it is unlikely that remains of prior cultural resources remain in the fill under the extant structures. The current Employee Parking Area (GDA-11) and the Casting Platform (GDA-1), are minimally developed portions of SAAP on top of fill. These areas may contain foundation remnants of earlier structures.

Available documentation indicates that historic archeological resources pre-dating the placement of fill probably exist at SAAP. Remains of some sites postdating the fill may also survive. If future GDAs 1 and 11 development will disturb the ground surface beneath the fill or the upper levels of the fill in relatively undisturbed areas, it is recommended that archeological investigations be undertaken to assess the nature of any archeological resources that may be affected.

#### 6.2.2 Project-Specific Resource Protection or Treatment Options

No project-specific resource protection or treatment options are recommended at this time.

#### 6.2.3 A Summary of Recommended Management Directions and Priorities for Effective Compliance and Program Development

The following archeological resource management task and policy should be implemented.

- o SAAP should avoid subsurface disturbance within areas that may contain post-fill foundation remnants (principally GDAs 1 and 11). SAAP should also avoid disturbance which will extend into the original ground surface beneath the fill. These areas may contain archeological sites, the existence and/or significance of which should be established prior to ground disturbance.

#### 6.3 ESTIMATED SCOPES-OF-WORK AND COST LEVELS FOR PRESENTLY IDENTIFIABLE MANAGEMENT NEEDS

There is no anticipated need at this time to develop a scope-of-work or to budget funds for archeological cultural resource management at SAAP.

7.0  
SUMMARY

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All major information sources likely to have data relating to the archeology of the site occupied by the Scranton Army Ammunition Plant were reviewed for this study. The review indicated that little prehistoric archeological research has been conducted in northwestern Pennsylvania and that neither archeological sites nor archeological investigations have been reported for the SAAP or its immediate vicinity. It is possible that prehistoric resources exist within the original ground surface at SAAP. Also potentially within this stratum of the SAAP location are early-to-mid-nineteenth century archeological resources. These would include remnants of foundations and artifacts associated with the various industrial facilities that were constructed prior to the placement of up to 40 ft. of fill in 1867. The physical integrity of these potential sites is unknown.

The current SAAP structures, built on top of the fill, have in some cases replaced earlier industrial buildings. The potential archeological resources within the fill deposit are expected to have minimal site integrity.

Among the institutions consulted as part of the basic data gathering for this overview were: the Scranton Army Ammunition Plant; the Pattee Library at Pennsylvania State University; the Pennsylvania Historical and Museum Commission, Bureau of Historic Preservation, Division of Archaeology; the Scranton Historical Society; the Oppenheim Building at the Steam Town USA display; The American Museum of Natural History; The Museum of the American Indian - Heye Foundation; the New York Public Library (Map Division); and the Navy and Old Army, Still Photo, and Modern Military History branches of the National Archives. In addition the "America: History and Life" data base of Lockheed's Dialog Information Retrieval Services which contains abstracts from more than 2,000 history journals, was also consulted.

Two separate visits to SAAP were made by the authors. In addition to a general walkover of the facility, construction plans and drawings maintained by the Facilities Engineering Division were examined.

Archeological cultural resources located on the original ground surface below the fill at SAAP may be in excellent condition. Sites in the upper portions of the fill have been largely or entirely disturbed by the construction of the existing SAAP facility but foundation remnants may exist. Unless future development will result in disturbance of the original ground surface presently protected by up to 40 ft. of fill or will occur in areas where post-fill foundation remnants may exist (principally GDAs 1 and 11), no further archeological work is recommended at SAAP.

8.0  
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