



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

AK Steel Corporation
(formerly Armco Inc.)
One Armco Drive

Butler, PA 16003

EPA ID NO. PAD004325254

Prepared by
Office of Remediation
Land and Chemicals Division
June 2017

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List of Acronyms

AOC	Area of Concern
AR	Administrative Record
COC	Contaminant of Concern
EI	Environmental Indicator
EPA	Environmental Protection Agency
FDRTC	Final Decision Response to Comments
GPRA	Government Performance and Results Act
HSWA	Hazardous and Solid Waste Amendments
IC	Institutional Control
MCL	Maximum Contaminant Level
MSC	Medium-Specific Concentration
NPDES	National Pollutant Discharge Elimination System
PADEP	Pennsylvania Department of Environmental Protection
RCRA	Resource Conservation and Recovery Act
SB	Statement of Basis
SWMU	Solid Waste Management Unit
SVOC	Semi-Volatile Organic Compound
UECA	Pennsylvania Uniform Environmental Covenants Act
VOC	Volatile Organic Compound

Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed decision for the AK Steel Corp. (AK Steel) facility located at One Armeo Drive, Butler, Pennsylvania (Facility or Site). This SB highlights key information relied upon by EPA in making its proposed decision of Corrective Action Complete with Controls. EPA's proposed decision requires maintenance of the integrity of the sludge bed caps, ongoing groundwater monitoring, and land use restrictions through the implementation and maintenance of institutional controls (ICs). ICs are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination and/or protect the integrity of the remedy by limiting land or resource use. EPA proposes to implement the final remedy for the Facility through an enforceable document such as an order, agreement and/or environmental covenant to be entered pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa. C.S. Sections 6501-6517, (UECA) and recorded with the deed for the Facility property.

The Facility is subject to the Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k. The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have been investigated and that all releases of hazardous waste and hazardous constituents have been remediated. The Commonwealth of Pennsylvania (the Commonwealth) is not authorized for the Corrective Action program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the Commonwealth for the Corrective Action Program.

The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section 8, Public Participation, for information on how you may review the AR. Information on the Corrective Action Program as well as a fact sheet for the Facility can be found by navigating through the EPA website <https://www.epa.gov/hwcorrectiveactionsites>.

Section 2: Facility Background

AK Steel Corporation (AK Steel) is located along the Connoquenseeing Creek, 3 miles south of Butler, Pennsylvania in Butler County. The Facility is a specialty steel mill that produces silicon and stainless steels. The Site is approximately 975 acres and is comprised of two joint facilities, which consist of the Main Plant, located on Bantam Avenue and the Stainless Processing Plant, located on Standard Avenue. A layout of the Facility is presented in Figure 1.

The steelmaking operations at the Facility include melting, refining, casting, hot-rolling, cold-rolling and finishing. Scrap and alloys are combined in electric arc furnaces to produce the various grades of specialty steels. The emissions include process and fugitive emissions. Process emissions, generated when the furnace is melting with power on and oxygen is added are captured through a direct excavation control system, consisting of water-cooled ductwork, and a close-coupled furnace roof connection. Fugitive emissions, generated when scrap steel is added

to the furnace and liquid steel is removed or tapped from the furnace, are captured and controlled by an overhead fume hood. The captured process and fugitive emissions are conveyed through steel ducts and collected in air pollution control devices. The various operations throughout the facility require the use of a considerable amount of water. AK Steel draws most of its water from the Connoqueneessing Creek. The water is used in a closed loop recirculating system for cooling, evaporative cooling, and for the various pickling and rolling operations.

Section 3: Summary of Environmental Investigations

AK Steel operates several solid waste management units (SWMUs) that are key components to its operations. Over time as the manufacturing operations change, some of the SWMUs were closed under the supervision of the Pennsylvania Department of Environmental Protection Agency (PADEP). PADEP Act 2 Medium-Specific Concentrations (MSCs) standards were applied to the closures of the SWMUs and specific areas of concerns (AOCs). These standards are compatible with EPA Regional Screening Levels (RSLs) and provide equivalent environmental protection. Several of the SWMU closures required ongoing maintenance and monitoring, which will necessitate the implementation of ICs that restricts land use. The SWMUs, AOCs, and the corresponding environmental investigations are described below:

Chrome Reduction Pond (CRP)

The CRP was a clay-lined surface impoundment that was 100 feet by 195 feet and a depth of approximately 10 feet. The Facility operated the CRP from 1980 to 1988. The CRP received treated effluent from the melt shop water clarification system. Solids in the effluent settled in the CRP as the liquid portion continued to flow through an open channel and discharged into the Connoqueneessing Creek via the National Pollutant Discharge Elimination System (NPDES) outfall 006. The sludge wastes that settled was periodically dredged and disposed of in Sludge Bed #5 (SB5). The sludge wastes were classified as K061 hazardous waste and contained levels of heavy metals that included iron, zinc, chromium, sodium manganese, lead and barium.

In 1988, the Facility commenced the closure of the CRP. The unit was drained. The sludge was removed and disposed of in SB5. The liner and impacted soils were excavated. Post-excavated confirmatory soil samples verify that the cleanup met the PADEP Act 2 residential soil standards. The area was backfilled and covered with gravel. As part of the closure, the Facility installed several monitoring wells and conducted a post-closure assessment of groundwater quality. The groundwater in the vicinity of the former CRP was sampled quarterly from 1988 to 1996 for lead, cadmium, chromium and barium. Historic groundwater data indicated that the operation and closure of the former CRP did not adversely impact groundwater. In May 1997, PADEP issued a clean closure determination and terminated the CRP groundwater monitoring program.

AOC Buried Drum Storage Area

In 1996, the Facility discovered several buried steel drums beneath the ground surface near Sludge Bed #5. Under PADEP supervision, AK Steel conducted an environmental investigation to determine the vertical and horizontal limits of the buried drums and to identify the constituents of concern (COCs). Waste materials discovered consisted of drums of oil and grease, rags, fan

belts, metal banding material, bricks, wood timbers and discolored soil. The nature of the wastes suggested that the area was possibly used as an equipment maintenance and staging location. Several test pits and numerous soil samples were collected to characterize the wastes. Levels of total petroleum hydrocarbons (TPH), polychlorinated biphenyl (PCBs), and volatile organic compounds (VOCs) were detected in some of the soil samples. Based on the historic groundwater data, PADEP concluded that the waste materials detected in soil did not impact the groundwater. The Facility excavated the impacted soils and waste materials. Post-excavation confirmatory soil samples met the applicable PADEP Act 2 Medium-Specific Concentrations (MSCs) for soil and soil to groundwater for non-residential and non-use aquifers. The excavated areas were backfilled and covered with a vegetative cover. In 2002, PADEP approved the investigation and remediation of the buried drum storage area and issued a clean closed determination.

Surface and Subsurface Soil Investigation

In 2003, AK steel conducted a surface and subsurface soil investigation in the vicinity of the No. 3 Baghouse dust load-out area. The purpose of the investigation was to delineate the horizontal and vertical extent of soils potentially impacted by fugitive baghouse dust surrounding Baghouse No. 3. Twenty-two soil borings were spatially installed. Three soil samples were collected from each soil boring location at a depth from 0 to 1 inch, 1 to 12 inches and 12 to 48 inches. The samples were analyzed for cadmium, hexavalent chromium, lead and zinc. None of the soil samples exceeded the applicable PADEP Act 2 non-residential Medium-Specific Concentrations (MSCs) standards. As a result, PADEP issued a clean closed determination for the areas in the vicinity of Baghouse No. 3.

Sludge Bed #4 (SB4)

SB4 was a 12-acre unlined earth dike lagoon impoundment with a fill volume of 316,00 cubic yards. Since the early 1980's, AK Steel used SB4 as a sedimentation basin for the disposal of lime-stabilized waste pickle liquor sludge. The major constituents disposed in the sludge bed consisted of hydrated oxides of iron, calcium, sulfate, calcium fluoride and magnesia. Some minor constituents included chromium and nickel hydroxides, calcium carbonate and oil and grease. Standing water in the SB4 drained into the much larger adjacent Sludge Bed #6 (SB6).

In 1997, the Facility commenced the closure of SB4. The closure of SB4 was a multi-phase operation that capped the sludge wastes in place. Standing water was drained from the impoundment. The remaining sludge was dewatered/consolidated, strengthened, and settled under an increasing load of structural fill that consisted of mixed filled (dewatered filter cake, slag fines and mill scale) and slag aggregates. After achieving the required sludge compaction and grade of the structural fill, the impoundment was covered with a geomembrane. During the process of closing out SB4, AK Steel submitted a permit application to PADEP to construct a residual waste landfill overtop of SB4. Instead of capping SB4 with a vegetative cover under the original closure work plan, the landfill liner will serve as the final cap. PADEP approved the application and issued AK Steel the residual waste landfill permit in 2013. The area of the former impoundment has been converted to an onsite captive residual waste landfill. Under the PADEP permit, AK steel will continue to conduct post-closure groundwater monitoring to ensure that the operation of the former impoundment has not adversely impacted groundwater.

Sludge Bed #5 (SB5)

SB5 was a 26-acre unlined waste disposal surface impoundment that was active from 1946 to 1988. The impoundment received various wastes that consisted of lime neutralized spent pickle liquor sludge, K061 hazardous waste sludge from the former CRP and processed water. Standing liquid from SB5 drained into SB6. In 1991, the AK Steel commenced the closure of SB5. The closure of SB5 consisted of capping the impoundment with the sludge wastes in place. Standing water was drained from the impoundment. The remaining sludge was dewatered/consolidated, strengthened, and settled under an increasing load of slag aggregates over several years. After achieving the required settlement and slope of the compacted sludge, the impoundment was covered and capped. The final cover and cap were designed to minimize infiltration and to promote drainage from the site, while minimizing erosion. The construction of the cover included a claymax cap, a synthetic cap, a geonet, and filter fabric. A final vegetative cap consisted of a minimum of 24 inches of top soil completed the closure of SB5. In 1999, PADEP approved the closure of SB5. AK steel will continue to conduct post-closure groundwater monitoring to ensure that the operation of the former impoundment has not adversely impacted groundwater.

Sludge Beds #6 (SB6)

SB6 was the largest of the three sludge beds. It was approximately 29-acre with a fill volume of 1,088,000 cubic yards. Similar to the other sludge beds it was also an unlined earth dike lagoon impoundment. AK Steel used SB6 as a sedimentation basin for the disposal of lime-stabilized waste pickle liquor sludge. The major constituents disposed in the sludge bed consisted of hydrated oxides of iron, calcium, sulfate, calcium fluoride and magnesia. Some minor constituents included chromium and nickel hydroxides, calcium carbonate and oil and grease.

In 1999, the Facility commenced the closure of SB6. The closure of SB6 was a multi-phase operation that consisted of capping the impoundment with the sludge wastes in place. Standing water was drained from the impoundment. The remaining sludge was dewatered/consolidated, strengthened, and settled under an increasing load of structural fill that consisted of mixed filled (dewatered filter cake, slag fines and mill scale) and slag aggregates. After achieving the required settlement and slope of the compacted sludge, the impoundment was covered with a geomembrane, top soil, and a vegetative cap. The final cover and cap were designed to minimize infiltration and to promote drainage from the site, while minimizing erosion. In 2016, PADEP approved the closure of SB6. AK steel will continue to conduct post-closure groundwater monitoring to ensure that the operation of the former impoundment has not adversely impacted groundwater.

Ongoing Groundwater Monitoring

As required for the closures of the former CRP and sludge beds #4, #5, #6, AK Steel implemented a post-closure groundwater monitoring program to ensure that the operation of the former impoundments has not adversely impacted groundwater. Several monitoring wells were installed up-gradient, downgradient and adjacent to the units. Below is a list of contaminants of concern (COCs) that are analyzed, the range of concentrations detected in groundwater, and the respective regulatory Maximum Contaminant Limits (MCLs):

Heavy Metals	Range of Detected Concs. (µg/L)	MCLs (µg/L)
Arsenic	ND	10
Barium	ND - 30	2000
Cadmium	ND	5
Chromium	ND - 26	100
Lead	ND	15
Mercury	ND	2
Selenium	ND	50

Volatiles	Range of Detected Concs. (µg/L)	MCLs (µg/L)
Benzene	ND	5
1,2-Dibromoethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	7
1,2-Dichloroethylene	ND	70
Ethylbenzene	ND	7
Methylene Chloride	ND	5
Tetrachloroethylene	ND	5
1,1,1-Trichloroethane	ND	200
Toluene	ND	1,000
Trichloroethylene	ND	5
Vinyl Chloride	ND	2
Xylene	ND	10,000

Historic groundwater results indicate that the former CRP and sludge beds have not adversely impacted groundwater. There are no residential wells within a two-mile radius of the Facility. There are no onsite drinking or process water supply wells on the Facility property. The Facility is connected to public water for potable use. Although groundwater for potable use on the site is not likely, it would be inadvisable given the capped contaminant wastes that remain in the former sludge beds. The Facility will continue to implement post-closure groundwater monitoring to ensure that the closed units do not adversely impact groundwater.

Environmental Indicators

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address RCRA Corrective Action facilities. Under the GPRA, EPA evaluates two key environmental cleanup indicators for each facility: (1) Current Human Exposures Under Control and (2) Migration of Contaminated Groundwater Under Control. On January 31, 2002, EPA determined that both environmental indicators had been met. The approved environmental indicator determinations are available at:

https://www.epa.gov/sites/production/files/2016-01/documents/hh_pad004325254.pdf

https://www.epa.gov/sites/production/files/2016-01/documents/gw_pad004325254.pdf

Section 4: Corrective Action Objectives

EPA's Corrective Action Objective for the Facility is the following:

A. Subsurface Soils

EPA's corrective action objective for subsurface soils is to eliminate any exposure pathway to the waste contaminants that remain in the former sludge beds and to minimize cross-media transfer of contaminants of concern (COCs) from subsurface soil to groundwater to levels above the respective COCs National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 C.F.R. Part 141.

Section 5: Proposed Remedy

Under this proposed remedy, contaminant wastes remain in the subsurface above levels appropriate for residential use. EPA's proposed remedy requires the compliance with and maintenance of the vegetative cap that eliminate direct exposures to the wastes, ongoing groundwater monitoring to ensure that the wastes closed in place do not adversely impact groundwater quality, and the implementation of land use restrictions. EPA proposes to implement the remedy at the Facility through an enforceable document such as a permit, order, or environmental covenant.

A. Vegetative Cap

Because waste contaminants will remain capped in the former sludge beds and to protect the integrity of the remedy, this proposed remedy requires that the integrity of the cap be monitored and maintained.

B. Groundwater Monitoring

AK steel is required to conduct post-closure groundwater monitoring to ensure that the former sludge beds do not adversely impact groundwater until the Agencies determine that groundwater monitoring is no longer necessary. In the event that the groundwater data indicate a pattern of deteriorating groundwater quality, the Facility will inform the Agencies and will submit a proposal to further assess and address the impact of the former sludge beds to groundwater.

C. Institutional Controls (ICs)

ICs are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination and/or protect the integrity of the remedy by limiting land or resource use. Because contaminant wastes remain in the subsurface above levels appropriate for residential use, ICs will restrict land use at the Facility to non-residential use.

D. Implementation

EPA proposes that maintaining the integrity of the cap for the former sludge beds, continue groundwater monitoring, and land use restrictions for the Facility be

implemented through an enforceable document such as an order, agreement and/or an environmental covenant to be entered pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa. C.S. Sections 6501-6517, (UECA) and recorded with the deed for the Facility property. Current owners and all subsequent owners will be required to comply with these requirements and restrictions.

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three remedy threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1. Protect human health and the environment	EPA's proposed remedy is protective of human health and the environment. The primary human health and environmental threats posed by the remaining wastes in the former sludge beds are direct exposures to the contamination. EPA's proposed remedy requires that the integrity of the cap be maintained, continue groundwater monitoring to ensure that wastes that remain in the former sludge beds do not adversely impact groundwater quality and the compliance with land use restrictions to nonresidential use only.
2. Achieve media cleanup objectives	Sludge wastes in the former sludge beds were capped in place. There are no direct exposures to the sludge wastes. Historic groundwater water monitoring results indicate that the wastes in former sludge beds have not adversely impacted groundwater. EPA's proposed remedy requires that the integrity of the cap be maintained, ongoing groundwater monitoring to ensure the closures of former sludge beds do not adversely impact groundwater, and restricts the Facility to non-residential use.
3. Remediating the Source of Releases	In all remedy decisions, EPA seeks to eliminate or reduce further releases of hazardous wastes or hazardous constituents that may pose a threat to human health and the environment. The sludge wastes that remained are capped in place. The cap eliminates any direct human exposures and minimizes infiltration that prevents contaminant releases into groundwater. Historic groundwater results confirm that wastes that remained in the former sludge beds have not adversely impacted groundwater. AK Steel will continue groundwater monitoring to confirm groundwater quality at the facility.

Balancing Criteria	Evaluation
4. Long-term effectiveness	The proposed remedy will maintain protection of human health and the environment over time by controlling exposure to the hazardous constituents remaining in the subsurface. EPA's proposed remedy requires continued groundwater monitoring, maintenance of the cap, and the compliance with land use restrictions at the Facility. EPA anticipates that the land use restrictions will be implemented through an environmental covenant to be recorded with the deed for the Facility property. The environmental covenant will run with the land and as such, will be enforceable by EPA and the State against future land owners.
5. Reduction of toxicity, mobility, or volume of the Hazardous Constituents	The proposed remedy does not reduce the toxicity, mobility or volume of waste contaminants remaining in the subsurface at the Facility. There are no direct exposures to the sludge wastes. The Facility will maintain the integrity of the cap that eliminate direct exposures to the sludge wastes.
6. Short-term effectiveness	EPA's proposed remedy does not involve any additional activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment. In addition, EPA anticipates that the land use restrictions will be fully implemented shortly after the issuance of the Final Decision and Response to Comments (FDRTC).
7. Implementability	EPA's proposed remedy is readily implementable. The Facility will continue to implement the current groundwater monitoring program. EPA anticipates that the land use restrictions will be fully implemented shortly after the issuance of the FDRTC.
8. Cost	EPA's proposed remedy is cost effective. The cost in implementing ICs and groundwater monitoring is minimal.
9. Community Acceptance	EPA will evaluate community acceptance of the proposed remedy during the public comment period for this SB and will describe community acceptance in the FDRTC.
10. State/Support Agency Acceptance	EPA will evaluate State acceptance of the proposed remedy during the public comment period and will describe the State's position in the FDRTC.

Section 7: Financial Assurance

EPA has evaluated whether financial assurance is necessary to implement the proposed remedy as described in Section 5. Given the minimal cost of groundwater monitoring and implementing ICs at the Facility, EPA is proposing that financial assurance not be required

Section 8: Public Participation

Before EPA makes a final decision on its proposal for the Facility, the public may participate in the proposed remedy selection process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by EPA in reaching this proposed remedy. It is available for public review during normal business hours at:

U.S. EPA Region III
1650 Arch Street
Mail code: 3LC30
Philadelphia, PA 19103
Contact: Mr. Khai Dao
Phone: (215) 814-5467
Fax: (215) 814-3113
Email: dao.khai@epa.gov

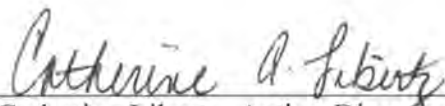
and

PADEP Southeast Regional Office
2 E. Main Street
Norristown, PA 19401-4915
Phone: (484) 250-5900

Interested parties are encouraged to review the AR and comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Mr. Khai Dao. EPA will hold a public meeting to discuss this proposed remedy upon request. Requests for a public meeting should be made to Mr. Khai Dao.

EPA will respond to all relevant comments received during the comment period. If EPA determines that new information warrant a modification to the proposed remedy, EPA will modify the proposed remedy or select other alternatives based on such new information and/or public comments. EPA will announce its final remedy and explain the rationale for any changes in the FDRTC. All persons who comment on this proposed remedy will receive a copy of the FDRTC. Others may obtain a copy by contacting Mr. Khai Dao at the address listed above.

6-6-17
Date


Catherine Libertz, Acting Director
EPA Region III
Land and Chemicals Division

Section 9: Index to Administrative Record

Armco Advanced Materials Corp., Engineers Design Report for RCRA Closure of No. 5 Sludge Bed, prepared by GAI Consultants, Inc., January 1990.

Armco Inc., Amendment to Closure Report for Chromium-Reduction Pond, prepared by Civil & Environmental Consultants, Inc., October 1996.

USEPA AK Steel Corp. Environmental Indicator Inspection Report, prepared by United States Army Corps of Engineers, January 2000.

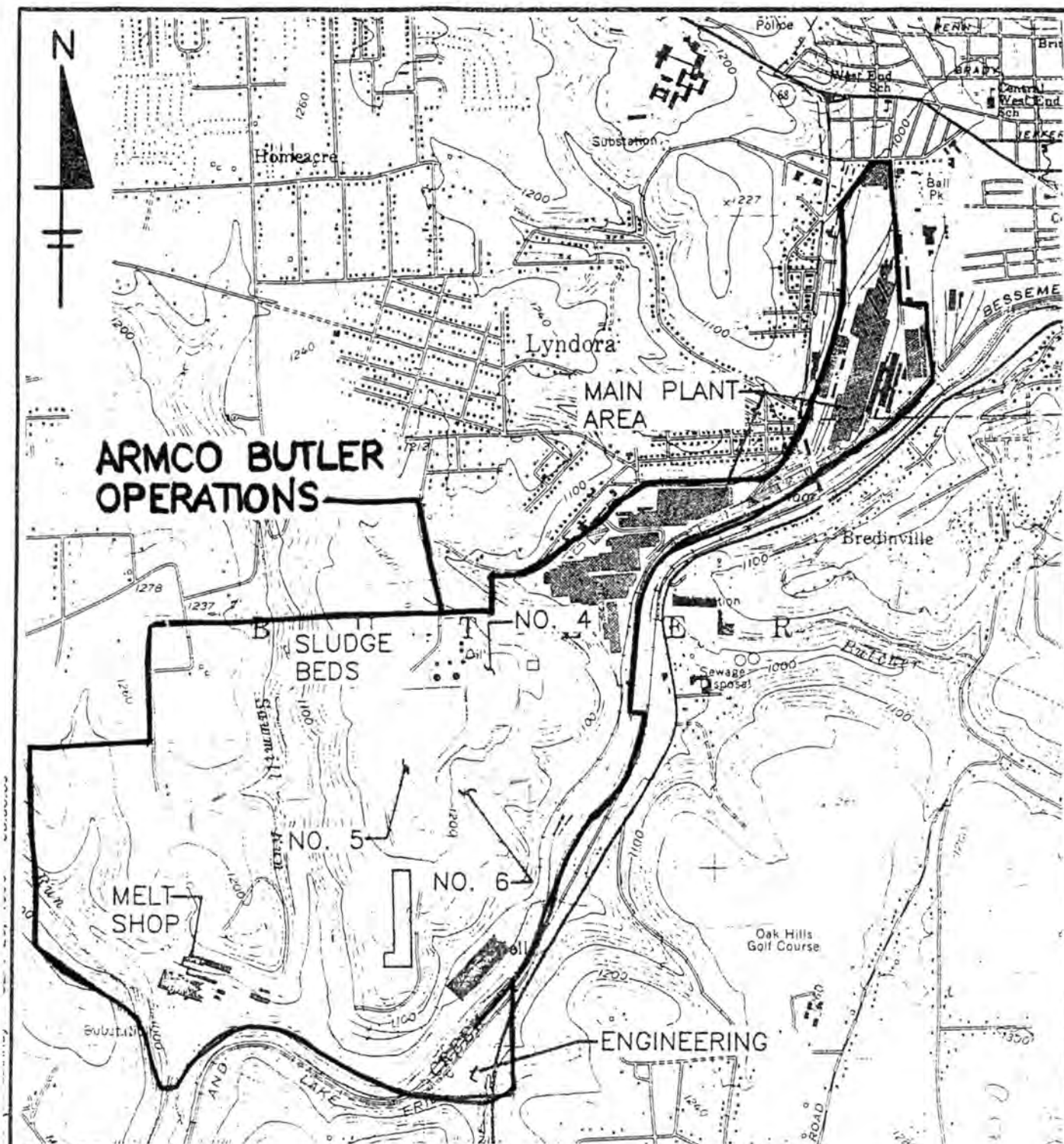
AK Steel Corporation, Remediation of Buried Drum Storage Area, prepared by Civil & Environmental Consultants, Inc., December 2001.

AK Steel Corporation, Report of Findings No. 3 Baghouse Site Investigation, prepared by Civil & Environmental Consultants, Inc., January 2004.

AK Steel Corporation, Summary Report Closure of No. 4 and No. 6 Sludge Beds, prepared by Civil & Environmental Consultants, Inc., March 2013.

PADEP Comprehensive Monitoring and Evaluation (CME) Groundwater Monitoring Reports 2000-2016.

Attachment



REFERENCE:
 U.S.G.S. 7.5' TOPOGRAPHIC MAP BUTLER
 QUADRANGLE PENNSYLVANIA, DATED: 1958,
 PHOTOREVISED: 1969, PHOTOINSPECTED: 1977,
 SCALE: 1"=2000'.

SCALE IN FEET
 0 2000 4000

C&E
Civil & Environmental Consultants, Inc.
 Pittsburgh, PA Cincinnati, OH
 (412) 921-3402 • (800) 365-2324 (513) 985-0226 • (800) 759-5614

SITE LOCATION
 AK STEEL CORPORATION
 BUTLER OPERATIONS
 BUTLER, PENNSYLVANIA

OWN BY: M.T.M.	ACAD FILE	SCALE	DATE		
CHKD. BY:	94234F21	1"=2000'	9/26/96	94234.0003	FIGURE 1

