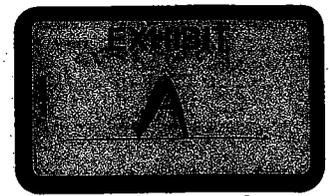




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



October 9, 2002

REPLY TO THE ATTENTION OF
DE-9J

CERTIFIED MAIL 7099 3400 0000 9586 6772
RETURN RECEIPT REQUESTED

Mr. David C. Horn
Vice President and General Counsel
AK Steel Corporation
703 Curtis Street
Middletown, Ohio 45043

Re: RCRA 3013 Administrative Order on
Consent
U.S. EPA ID No. OHD 004 281 598

Re: AK Steel Corporation, Zanesville, OH

Dear Mr. Horn:

Thank you for signing the RCRA 3013 Administrative Order on Consent for the AK Zanesville, Ohio facility. A fully executed original of the Consent Order is enclosed. Your cooperation in resolving this matter is appreciated, and I look forward to the progress your company will be making towards remediating the contamination at the site.

Sincerely yours,

Joseph M. Boyle, Chief
Enforcement and Compliance Assurance Branch
Waste, Pesticides, and Toxics Division

Enclosure

cc: Paul Casper, Frost Brown and Todd ✓
Tom Williams, ORC

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

IN THE MATTER OF:)	ADMINISTRATIVE ORDER ON CONSENT
)	
AK Steel Corporation)	U.S. EPA Docket No:R3013-5-03-001
1724 Linden Avenue)	
Zanesville, Ohio 43701)	
)	
EPA ID#: OHD 004 281 598)	Proceeding under Section 3013 of the Resource
)	Conservation and Recovery Act, as amended,
RESPONDENT.)	42 U.S.C. § 6934.

I. JURISDICTION

1. This Administrative Order on Consent (Order) is issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency (EPA) by Section 3013 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6934 (RCRA). The authority to issue this Order has been delegated to the Regional Administrator by EPA Delegation No. 8-20 dated May 11, 1994, and further delegated to the Chief, Enforcement and Compliance Assurance Branch, Waste Pesticides and Toxics Division, Region 5 (Branch Chief) by Region 5 Delegation No. 8-20, dated April 24, 1996.

2. AK Steel Corporation ("AK Steel") owns and operates a speciality flat-rolled steel finishing mill at 1724 Linden Avenue, Zanesville, Ohio 43701 (the "facility").

3. AK Steel agrees not to contest EPA's jurisdiction to issue this Order, EPA's jurisdiction to enforce its terms, or EPA's jurisdiction to impose sanctions for violations of the Order.

II. DEFINITIONS

4. This Order incorporates the definitions in RCRA, 42 U.S.C. §§ 6901 - 6922k, and the regulations promulgated under RCRA unless otherwise specified.

III. PARTIES BOUND

5. This Order applies to and binds EPA, AK Steel, its successors, assignees, and its trustees and receivers in their representative capacities. AK Steel will be responsible for and liable for any violations of this Order, regardless of AK Steel's use of employees, agents, contractors, or consultants to perform work required by this Order.

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6. No change in ownership or corporate or partnership status relating to the facility will alter AK Steel's obligations under this Order. Any conveyance of title, easement, or other interest in the facility, or a portion of the facility, will not affect AK Steel's obligations under this Order. AK Steel will give written notice of this Order to any successor in interest before transferring ownership or operation of the facility, or a portion thereof, and will notify EPA in writing 30 days prior to the transfer. This written notice will describe how AK Steel has assured that, despite the transfer, all institutional controls required now or in the future for the facility will be implemented and maintained. This Paragraph will not apply if EPA and AK Steel agree that this Order has terminated as to the facility or, in the event of a transfer of a portion of the facility, as to the relevant portion of the facility.

IV. DETERMINATIONS

Pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), EPA makes the following determinations:

7. AK Steel owns and operates an approximately 92- acre facility located at 1724 Linden Avenue, Zanesville, Muskingum County, Ohio.

8. The facility is bordered by the Muskingum River to the east, Linden Avenue to the west and industrial areas to the north and south. A residential area is located west of the facility.

9. The facility was formerly operated by Armco, Inc. AK Steel represents that it merged with Armco, Inc. in September 1999.

10. Wastes generated currently or in the past at the facility include spent pickle liquor (RCRA regulatory waste code K062), corrosives (D002), chromium (D007), lead (D008), benzene (D018), tetrachloroethylene (D039), spent solvents (D001, F001, F003 and F005), and used oil. Spent pickle liquor (K062) may contain elevated levels of lead, hexavalent chromium, and other toxic metals such as cadmium, and is acidic. See 40 CFR §§ 261 and 268.

11. Ignitable liquids, as defined in the regulations promulgated under RCRA (regulatory waste code D001), include those liquids that contain less than 24 percent alcohol by volume and have a flash point less than 140°F. See 40 CFR § 261.21.

12. Corrosive liquids, as defined in the regulations promulgated under RCRA (regulatory waste code D002), include those aqueous liquids which have a pH less than or equal to 2 or greater than or equal to 12.5. See 40 CFR § 261.22.

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13. The regulations promulgated under RCRA identify a solid waste as displaying the characteristic of toxicity when, using the Toxicity Characteristic Leaching Procedure, the extract from a representative sample of the waste contains any of the contaminants listed in Table 1 of 40 CFR § 261.24 at the concentration equal to or greater than the respective value given in that Table. AK Steel has identified wastes having the characteristic of toxicity for chromium (regulatory waste code D007), lead (regulatory waste code D008), benzene (regulatory waste code D018), methyl ethyl ketone (regulatory waste code D035), and tetrachloroethylene (regulatory waste code D039).

14. AK Steel identified paint-related solvent waste as being listed hazardous wastes from non-specific sources (regulatory waste codes F003 and F005).

- a. F003 waste may be one or more of the following non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol.
- b. F005 waste may be one or more of the following non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, e-ethoxyethanol, and nitropropane.

Reported Releases

15. AK Steel identified the following releases of hazardous waste, hazardous material, or hazardous constituents to the Ohio EPA and/or in response to a 2001 EPA information request issued under RCRA Section 3007, 42 U.S.C. § 6927:

- a. An unknown quantity of pickle liquor at the No. 4 hard pickle transfer station (SWMU 1) forming a solution cavity approximately 3 feet in diameter and 28 feet deep, reportedly occurring in or before 1995;
- b. 900 gallons of monoaluminum phosphate, pH of less than or equal to 2, to the solution cavity at the No. 4 hard pickle transfer station (SWMU 1), reportedly occurring June 19, 1996 (AKS 01355-67);
- c. 280-450 gallons of spent pickle liquor were released from the 40,000-gallon used acid tank secondary containment (SWMU 10), reportedly occurring March 3, 2000 (AKS 001147-8); and
- d. waste acid from the truck loading station (SWMU 2) for the 25,000-gallon waste acid tank (SWMU 3), reportedly occurring May 22, 1995 (AKS 01149).

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16. A 1993 Ohio EPA Director's Final Findings and Orders determined that tank number 4 (the 25,000-Gallon Spent Pickle Liquor Tank, SWMU 3) released spent pickle liquor into soils beneath it.

Observed Releases

17. During an October 2000 site visit, EPA observed the following releases potentially having hazardous constituents (see pictures attached in Appendix A):

- a. coal bottom ash from a bottom ash pile stored on the ground south of the manufacturing portion of the facility, potentially containing polynuclear aromatic hydrocarbons (PAHs) and metals;
- b. coal fines potentially containing PAHs and metals spread throughout the area of the coal pile;
- c. used oil at the 6,700-gallon used oil tank (SWMU 21)(which tank is referred to by AK Steel as the "oily sludge tank");
- d. sand blasting material at or near the paint building, potentially containing PAHs, lead from paint, and solvents from over-spray during painting; and
- e. releases to the ground outside the paint building near a waste paint solvent drum.

18. The material listed in Paragraph 17 is considered discarded material and therefore is solid waste.

Potential Releases

19. A 2000 Aerial Photograph Interpretation Report identified numerous areas of apparent stained soil, indicating potential releases from facility operations. The area south of the manufacturing buildings is a primary area of the potential releases. This report is attached as Appendix B.

Previous Investigation/ Site Data

20. ENSR on behalf of AK Steel submitted site data that reported:

- a. Tetrachlorethene at 11.9 micrograms per liter (ug/l) in Deep Well 3, (DW3);
- b. Chloroform at 6.1 ug/l in Monitoring Well 6 (MW6);

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- c. Bis(2-ethylhexyl)phthalate at 133 ug/l in Monitoring Well 7 (MW7), 67.1 ug/l in Monitoring Well 10 (MW10) and 12.4 ug/l in Monitoring Well 12 (MW12); and
- d. Hexavalent chromium at 29 ug/l in Monitoring Well 7 (MW7) and 20 ug/l in Monitoring Well 9 (MW9).

21. Light non-aqueous phase liquid was detected in Monitoring Well 8 (MW8). ENSR observed it to be similar to hydraulic oil.

V. CONCLUSIONS OF LAW

Pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), EPA makes the following conclusions of law:

22. AK Steel's facility is a "facility or site" within the meaning of Section 3013(a) of RCRA, 42 U.S.C. § 6934(a).

23. AK Steel is a "person" as defined in Section 1004(15) of RCRA, 42 U.S.C. §6903(15).

24. AK Steel is an "owner" and "operator" of the facility within the meaning of Section 3013(a) of RCRA, 42 U.S.C. § 6934(a).

25. Section 1004(27) of RCRA, 42 U.S.C. § 6903(27), defines the term "solid waste" to mean "any garbage, refuse . . . and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations . . ."

26. Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), defines the term "hazardous waste" to mean:

a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may-

(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

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(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

27. Section 1004(3) of RCRA, 42 U.S.C. § 6903(3), defines the term “disposal” to mean “the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.”

VI. FINDING OF SUBSTANTIAL HAZARD

Upon the basis of the foregoing Findings of Fact, and pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), EPA makes the following determinations:

28. Hazardous wastes within the meaning of Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), are present at the facility and were treated, stored or disposed there.

29. The presence of hazardous wastes at the facility and/or the release of hazardous wastes from the facility may present a substantial hazard to human health or the environment.

30. The actions required by this Order are reasonable to ascertain the nature and extent of such hazard.

VII. PROJECT MANAGER

31. EPA and AK Steel must each designate a Project Manager and notify each other in writing of the Project Manager selected within 14 days of the effective date of this Order. Each Project Manager will be responsible for overseeing the implementation of this Project. The parties must provide prompt written notice whenever they change Project Managers.

VIII. WORK TO BE PERFORMED

32. Pursuant to Section 3013 of RCRA, AK Steel agrees to and is hereby ordered to perform the actions specified in this Section VIII, in the manner and by the dates specified here. AK Steel represents that it has the technical and financial ability to carry out an investigation at the facility. AK Steel must perform the work undertaken pursuant to this Order in compliance with RCRA and other applicable federal and state laws and their implementing regulations, and consistent with all relevant EPA guidance documents as appropriate to the facility. This

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guidance includes, but is not limited to, EPA RCRA Facility Investigation and Region 5 Quality Assurance Project Plan guidance (Appendices C and D), the Documentation of Environmental Indicator Determination Guidance, and EPA's risk assessment guidance.

33. AK Steel submitted the document *Proposed Work Plan for Site Investigation, July 2001* (Work Plan) prepared by ENSR International to EPA in July 2001. AK Steel must revise this Work Plan per EPA's comments, and submit three copies of the revised document to EPA within 30 days of receiving the review comments. EPA may subsequently modify the Work Plan based on new information.

34. AK Steel is ordered to begin the activities identified in the revised Work Plan within 20 days of EPA's approval or approval with modifications.

35. AK Steel must carry out all Site Investigation activities, including monitoring, testing, analysis, and reporting activities so as to ascertain the nature and extent of any hazard posed by the hazardous wastes that are present at, or may have been released from, the facility.

36. AK Steel may proceed with remedial actions to limit site investigation or risk assessment activities to complete the work identified in Paragraphs 37 and 38 below.

37. After conducting the Site Investigation in accordance with Paragraphs 33 through 35 above, and performing any other necessary activities consistent with this Section, AK Steel must submit an Environmental Indicators Report by April 31, 2003, demonstrating that it has gathered sufficient information conclusively to determine whether:

- a. All current human exposures to contamination at or from the facility are under control. That is, AK Steel must demonstrate whether there are significant or unacceptable exposures for all media known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above risk-based levels, for which there are complete pathways between contamination and human receptors.
- b. Migration of contaminated groundwater at or from the facility is stabilized. That is, AK Steel must demonstrate whether the migration of all groundwater known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above acceptable levels (*Region 5 Risk Based Screening Levels*) is stabilized to remain within any existing areas of contamination as defined by monitoring locations designated at the time of the demonstration. In addition, AK Steel must determine whether any discharge of groundwater to surface water is either insignificant or currently acceptable according to an appropriate interim assessment. AK Steel must collect monitoring and measurement data in the future

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as necessary to verify that migration of any contaminated groundwater is stabilized.

38. To prepare for and provide the demonstrations required by Paragraph 37, above, AK Steel must:

- a. Determine appropriate risk screening criteria under current use scenarios and provide the basis and justification for the use of these criteria;
- b. Determine any current unacceptable risks to human health and the environment and describe why other identified risks are acceptable; and
- c. Conduct groundwater monitoring to determine whether any plume of contaminated groundwater is migrating.

39. Work under this Order must be consistent with EPA's policy, including EPA policies on community outreach, risk assessment and quality assurance, as follows:

- a. AK Steel must establish a publicly accessible repository for information regarding site activities.
- b. AK Steel must provide quarterly progress reports to EPA by the fifteenth day of the month after the end of each quarter. The report must list work performed to date, data collected, problems encountered, project schedule, and the percentage of the project completed.
- c. The parties will communicate frequently and in good faith to assure successful completion of this Order's requirements, and will meet on at least a semi-annual basis to discuss the work proposed and performed under this Order.
- d. Any risk assessments AK Steel conducts must estimate human health risk under reasonable maximum exposure for both current and reasonably expected future land use scenarios. In conducting the risk assessments, AK Steel will follow the Risk Assessment Guidance for Superfund (RAGS) or other appropriate EPA guidance. AK Steel will use appropriate, conservative screening values when screening to determine whether further investigation is required. Appropriate screening values include those derived from Federal Maximum Contaminant Levels, EPA Region 9 Preliminary Remediation Goals, EPA Region 5 Risk-Based Screening Levels, or RAGS.

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- e. All sampling and analysis conducted under this Order must be performed in accordance with the Region 5 RCRA Quality Assurance Project Plan Policy (April 1998) as appropriate for the site, and be sufficient to identify and characterize the nature and extent of any and all releases as required by this Order. EPA may audit laboratories AK Steel selects or require AK Steel to purchase and have analyzed any performance evaluation samples selected by EPA which are compounds of concern. AK Steel must notify EPA in writing at least 14 days before beginning each separate phase of field work performed under this Order. At the request of EPA, AK Steel will provide or allow EPA or its authorized representative to take split or duplicate samples of all samples AK Steel collects under this Order.

IX. ADDITIONAL WORK / AGENCY REVIEW

40. Based on work performed as described above, EPA may determine that additional investigation, analysis, and/or reporting is necessary to meet the purposes of this Order. If EPA determines that AK Steel shall perform additional work, EPA will notify AK Steel in writing and specify the basis for its determination that additional work is necessary. Within fifteen (15) days after the receipt of such determination, AK Steel shall have the opportunity to meet or confer with EPA to discuss the additional work. If required by EPA, AK Steel shall submit for EPA approval a work plan for the additional work. EPA will specify the contents of such work plan. Such work plan shall be submitted by AK Steel within forty-five (45) days of receipt of EPA's determination that additional work is necessary, or according to an alternative schedule established by EPA.

41. EPA will review all work plans, reports, or other submittals required by this Order. EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct AK Steel to resubmit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the work and require AK Steel to reimburse it for the costs of that activity. As used in this Order, the terms "approval by EPA," "EPA approval," or a similar term means the action described in (a) or (b) of this Paragraph.

42. Prior to approval in writing, or approval with modifications in writing, no plan, report, or other submittal shall be construed as approved and final. Oral advice, suggestions, or comments given by EPA representatives will not constitute approval, nor shall any oral approval or oral assurance of approval be considered as binding.

43. Upon receipt of a notice of disapproval in Paragraph 41 (c) above, or a request for a modification, AK Steel shall, within thirty (30) days, or such time as EPA specifies in its notice

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of disapproval or request for modification, correct the deficiencies and resubmit the plan, report, schedule, or other item for approval. Notwithstanding the notice of disapproval, or approval with modifications, AK Steel shall proceed, at EPA's direction, to take any action required by any non-deficient portion of the submission.

44. In all instances in which this Order requires written submissions to EPA, each submission must be accompanied by the following certification signed by a "responsible official":

I certify after my diligent review and to the best of my knowledge, information, and belief that the information contained in or accompanying this submission is true, accurate, and complete.

For the purpose of this certification, a "responsible official" means a person in charge of a principal facility function, or any other person who performs similar decision-making functions for the facility.

X. EXTENSIONS OF TIME

45. Project Managers can agree in writing to extend, for 90 days or less, any deadline in Sections VII and VIII. However, the Chief of the Enforcement and Compliance Assurance Branch; Waste, Pesticides and Toxics Division, must approve extensions greater than 90 days.

XI. ACCESS

46. Upon reasonable notice, and at reasonable times, EPA, its contractors, employees, and any designated EPA representatives may enter and freely move about the facility escorted by representatives of AK Steel to, among other things: interview facility personnel and contractors; review AK Steel's progress in carrying out the terms of this Order; conduct tests, sampling, or monitoring as EPA deems necessary; use a camera, sound recording, or other documentary equipment applying Confidential Business Information protocols as appropriate; and verify the reports and data AK Steel submits to EPA, applying Confidential Business Information protocols as appropriate. AK Steel will permit such persons to inspect and copy all non-privileged photographs and documents, including all sampling and monitoring data, that pertain to work under this Order and that are within AK Steel or its contractors or consultants' possession or control. AK Steel may request split samples, or copies of all photographs, tapes, videos or other recorded evidence that EPA creates and which is releaseable under the Freedom of Information Act. EPA intends to observe its policy of following, where practicable and consistent with

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EPA's information-gathering authority, AK Steel's safety requirements and safety training polices when at the facility, within reasonable safety practices.

47. If AK Steel must go beyond the facility's boundary to perform work that this Order requires, AK Steel must use its best efforts to obtain the necessary access agreements from the present owner(s) of such property within 30 days after AK Steel knows of the need for access. Any such access agreement must provide for access by EPA and its representatives. AK Steel must submit a copy of any access agreement to EPA's Project Manager. If it does not obtain agreements for access within 30 days, AK Steel must notify EPA in writing within 14 additional days of both the efforts undertaken to obtain access and the failure to obtain access agreements. EPA may, at its discretion, assist AK Steel in obtaining access.

48. Nothing in this Section limits or otherwise affects EPA's right of access and entry under applicable law, including RCRA and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675.

XII. DISPUTE RESOLUTION

49. The parties will use their best efforts to informally and in good faith resolve all disputes or differences of opinion.

50. If either party disagrees, in whole or in part, with any decision made or action taken under this Order, that party will notify the other party's Project Manager of the dispute. The Project Managers will attempt to resolve the dispute informally.

51. If the Project Managers cannot resolve the dispute informally, either party may pursue the matter formally by placing its objections in writing. A written objection must state the specific points in dispute, the basis for that party's position, and any matters which it considers necessary for determination.

52. EPA and AK Steel will in good faith attempt to resolve the dispute through formal negotiations within 21 days, or a longer period if agreed in writing by the parties. During formal negotiations, either party may request a conference with appropriate senior management to discuss the dispute.

53. If the parties are unable to reach an agreement through formal negotiations, within 14 business days after any formal negotiations end, AK Steel and EPA's Project Manager may submit additional written information to the Director of the Waste, Pesticides and Toxics Division, EPA Region 5. EPA will maintain a record of the dispute, which will contain all statements of position and any other documentation submitted pursuant to this Section. EPA will

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allow timely submission of relevant supplemental statements of position by the parties to the dispute. Based on the record, EPA will respond to AK Steel's arguments and evidence and provide a detailed written decision on the dispute signed by the Director of the Waste, Pesticides and Toxics Division, EPA Region 5 ("EPA Dispute Decision").

54. If, at the conclusion of the Dispute Resolution process, AK Steel notifies EPA that it refuses to implement the Director's written decision, EPA will endeavor to pursue the action(s) it deems necessary, if any, within a reasonable period of time.

XIII. RECORD PRESERVATION

55. AK Steel must retain, during the pendency of this Order and for at least six years after the Order terminates, all data and all final documents now in its possession or control or which come into its possession or control which relate to this Order. AK Steel must notify EPA in writing 90 days before destroying any such records, and give EPA the opportunity to take possession of any non-privileged documents. AK Steel's notice will refer to the effective date, caption, and docket number of this Order and will be addressed to:

Director
Waste, Pesticides and Toxics Division
U.S. EPA, Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

AK Steel will also promptly give EPA's Project Manager a copy of the notice.

56. Within 30 days of retaining or employing any agent, consultant, or contractor ("agents") to carry out this Order's terms, AK Steel will enter into an agreement with the agents to give AK Steel a copy of all data and final non-privileged documents produced under this Order.

57. AK Steel will not assert any privilege claim concerning any data gathered during any investigations or other actions required by this Order.

XIV. STIPULATED PENALTIES

58. AK Steel must pay the following stipulated penalties to the United States for violations of this Order:

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- a. For failure to submit quarterly progress and final reports by dates scheduled, \$500 per day (1-30 days) and \$750 per day (>31 days);
- b. For failure to implement the approved work plan within 20 days, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);
- c. For failure to perform work in the approved work plan in accordance with the schedules set forth therein, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);
- d. For failure to submit the Site Investigation Report on the scheduled date described in the revised Work Plan described in Paragraph 34, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);
- e. For failure to submit a work plan for additional work as required in Paragraph 40 within 45 days of an EPA request or alternative EPA specified schedule, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);
- f. For submitting a Site Investigation Report that fails to meet the requirements of the revised work plan, \$750 per day (1-30 days) and \$1,500 per day (>31 days);
- g. For failure to adequately demonstrate whether current human exposures are under control by August 1, 2003, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);
- h. For failure to adequately demonstrate whether groundwater migration is stabilized by August 1, 2003, \$1,000 per day (1-30 days) and \$2,500 per day (>31 days);

59. Whether or not AK Steel has received notice of a violation, stipulated penalties will begin to accrue on the day a violation occurs, and will continue to accrue until AK Steel complies, except that for items 58.c., 58.f., 58.g, and 58.h, stipulated penalties shall not accrued during the period, if any, beginning 31 days after the required report is due until the date EPA notifies AK Steel in writing of any deficiency in the required demonstration(s) that it views as triggering stipulated penalties. Separate stipulated penalties for separate violations of this Order will accrue simultaneously.

60. AK Steel must pay any stipulated penalties owed to the United States under this Section within 30 days of receiving EPA's written demand to pay the penalties, unless AK Steel invokes the dispute resolution procedures under Section X: Dispute Resolution, and prevails in the dispute resolution process, or unless AK Steel invokes the *Force Majeure* and Excusable Delay provisions of Section XV and EPA concludes that a *force majeure* event has occurred. A

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written demand for stipulated penalties will describe the violation and will indicate the amount of penalties due.

61. Interest will begin to accrue on any unpaid stipulated penalty balance beginning 31 days after AK Steel receives EPA's demand letter. Interest will accrue at the current value of funds rate established by the Secretary of the Treasury. Under 31 U.S.C. § 3717, AK Steel must pay an additional penalty of six percent per year on any unpaid stipulated penalty balance more than 90 days overdue.

62. AK Steel must pay all penalties by certified or cashier's check payable to the United States of America, and will send the check to:

U.S. Department of the Treasury
Attention: U.S. EPA Region 5, Office of the Comptroller
P.O. Box 70753
Chicago, Illinois 60673.

A transmittal letter stating the name of the facility, AK Steel's name and address, and the EPA docket number of this Order must accompany the payment. AK Steel will simultaneously send a copy of the check and transmittal letters to the EPA Project Manager. Alternatively, upon EPA's concurrence, AK Steel may pay any penalties by wire transfer, and confirm completion of such payment by that method in a letter to the EPA Project Manager.

63. Neither invoking dispute resolution nor paying penalties will affect AK Steel's obligation to comply with the terms of this Order not directly in dispute.

64. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA for AK Steel's violation of any terms of this Order. However, EPA will not seek both a stipulated penalty under this Section and a statutory penalty for the same violation.

XV. FORCE MAJEURE AND EXCUSABLE DELAY

65. *Force majeure*, for purposes of this Order, is any event arising from causes not reasonably foreseen and beyond AK Steel's control that delays or prevents the timely performance of any obligation under this Order despite AK Steel's best efforts. *Force majeure* does not include plant shutdowns or work stoppages due to strikes or labor disputes.

66. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a *force majeure* event, AK Steel must notify EPA

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within three business days after learning that the event may cause a delay. If AK Steel wishes to claim a *force majeure* event, within 15 business days thereafter AK Steel must provide to EPA in writing all relevant information relating to the claim, including a proposed revised schedule.

67. If EPA determines that a delay or anticipated delay is attributable to a *force majeure* event, EPA will extend in writing the time to perform the obligation affected by the *force majeure* event for such time as EPA determines is necessary to complete the obligation or obligations.

XVI. MODIFICATION

68. This Order may be modified only by mutual agreement of EPA and AK Steel, except as provided in Section VIII - Work to be Performed. Any agreed modifications will be in writing, will be signed by both parties, will be effective on the date of signature by EPA, and will be incorporated into this Order.

XVII. RESERVATION OF RIGHTS

69. Nothing in this Order restricts EPA's authority to seek AK Steel's compliance with the Order and applicable laws and regulations. For violations of this Order, EPA reserves its rights to bring an action to enforce the Order, to assess penalties under Section 3013 of RCRA, 42 U.S.C. § 6934, and to issue an administrative order to perform other response measures. In any later proceeding, AK Steel shall not assert or maintain any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon a contention that the claims raised by the United States in the later proceeding were or should have been raised here. This Order is not a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, or authorities of EPA, and operates without prejudice to whatever authority the State of Ohio may have to collect penalties, require closure and otherwise to implement its authorized hazardous waste program.

70. EPA reserves all of its rights to perform any portion of the work consented to here or any additional site characterization, feasibility study, and remedial work as it deems necessary to protect human health or the environment.

71. If EPA determines that AK Steel's actions related to this Order have caused or may cause a release of hazardous waste or hazardous constituent(s), or a threat to human health or the environment, or that AK Steel cannot perform any of the work ordered, EPA may order AK Steel to stop implementing this Order for the time EPA determines may be needed to abate the release or threat, and to take any action that EPA determines is necessary to abate the release or threat.

72. AK Steel does not admit any of EPA's factual or legal determinations, nor does AK Steel admit to any liability by entering into this Order. Except for the specific waivers in this Order, AK Steel reserves all of its rights, remedies and defenses, including, but not limited to, all rights and defenses it may have: (a) to challenge EPA's performance of work; (b) to challenge EPA's stop work orders; and (c) regarding liability or responsibility for conditions at the facility, except for its right to contest EPA's jurisdiction to issue or enforce this Order. AK Steel has entered into this Order in good faith without trial or adjudication of any issue of fact or law.

XVIII. OTHER CLAIMS

73. AK Steel waives any claims or demands for compensation or payment under Sections 106(b), 111, and 112 of CERCLA against the United States or the Hazardous Substance Superfund established by 26 U.S.C. § 9507 for, or arising out of, any activity performed or expense incurred under this Order. Additionally, this Order is not a decision on preauthorization of funds under Section 111(a)(2) of CERCLA.

XIX. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

74. AK Steel indemnifies, saves and holds harmless the United States, its agencies, departments, agents, and employees, from all claims or causes of action arising from or on account of acts or omissions of AK Steel or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Order. This indemnification will not affect or limit the rights or obligations of AK Steel or the United States under their various contracts. This indemnification will not create any obligation on the part of AK Steel to indemnify the United States from claims arising from the acts or omissions of the United States.

XX. SEVERABILITY

75. If any judicial or administrative authority holds any provision of this Order to be invalid, the remaining provisions will remain in force and will not be affected.

XXI. TERMINATION AND SATISFACTION

76. AK Steel may request that EPA issue a determination that AK Steel has met the requirements of the Order for all or a portion of the facility. AK Steel may also request that EPA

Matter of AK Steel Corporation, Zanesville, Ohio
RCRA Section 3013 Order on Consent

issue a "no further interest" or "no further action" determination for all or a portion of the facility.

77. The provisions of the Order will be satisfied upon AK Steel's and EPA's execution of an "Acknowledgment of Termination and Agreement on Record Preservation and Reservation of Rights," consistent with EPA's Model Scope of Work.

78. AK Steel's execution of the Acknowledgment will affirm its continuing obligation to preserve all records as required by Section XIII, to maintain any necessary institutional controls or other long-term measures, and to recognize EPA's reservation of rights as required in Section XVII.

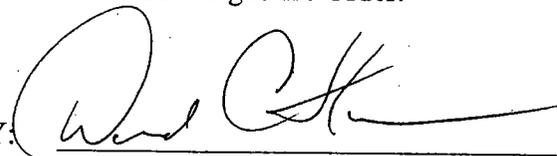
XXI. EFFECTIVE DATE

79. This Order is effective on the date that EPA signs the Order.

IT IS SO AGREED:

DATE: 9/27/02

BY:

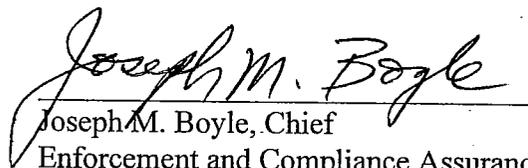


Authorized Representative of
AK Steel Corporation

IT IS SO ORDERED:

DATE: October 9, 2002

BY:



Joseph M. Boyle, Chief
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
U.S. Environmental Protection Agency
Region 5

Matter of AK Steel Corporation, Zanesville, Ohio
RCRA Section 3013 Order on Consent

Appendix A

Photographs

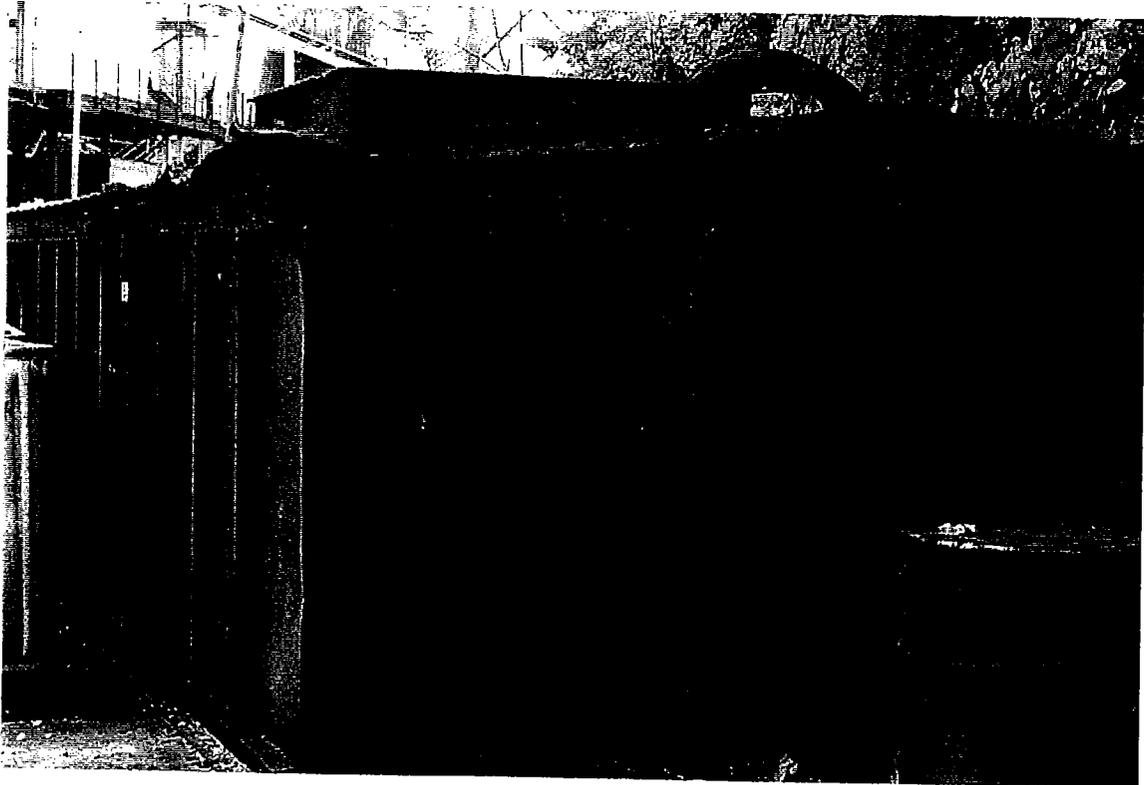
October 2000

U.S. EPA Site Visit

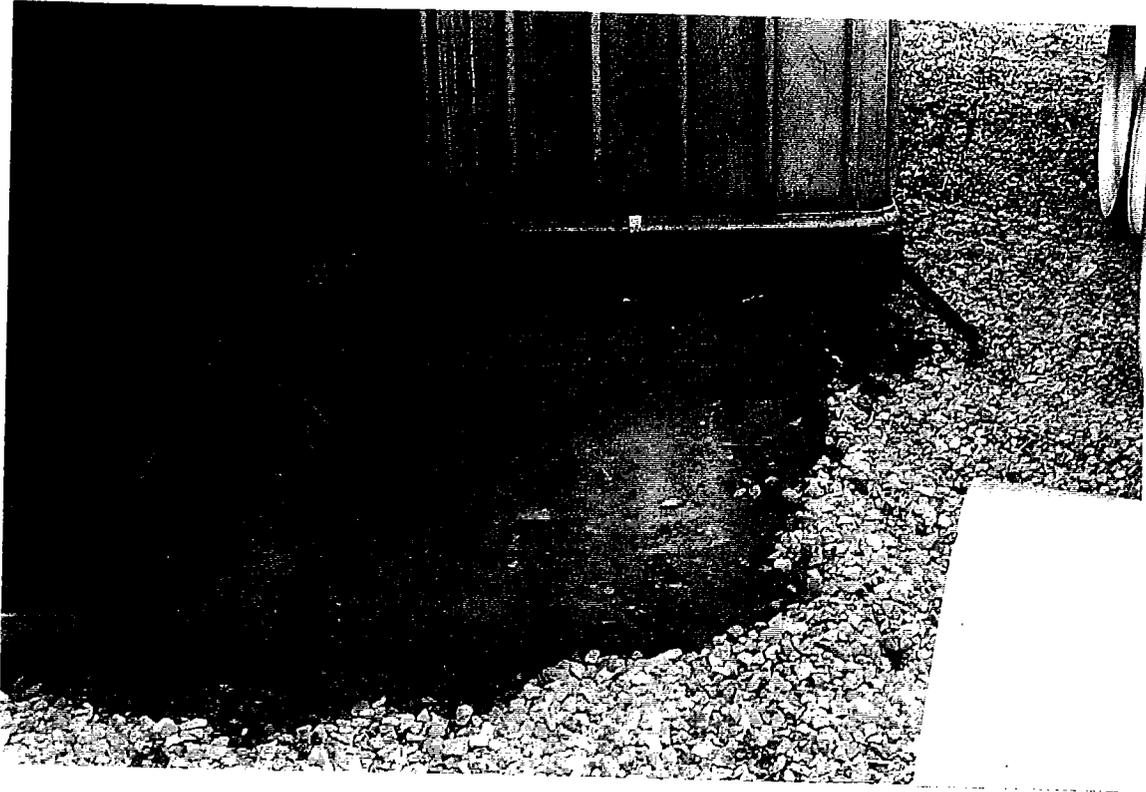
Photo 1 Driveway north side of facility .



Photo 2 Oil Tank



Photograph 3 Oil Tank Area



Photograph 4 Oil Tank Area



Photograph 5 Tote near Oil Tank



Photograph 7 drum outside Paint Building



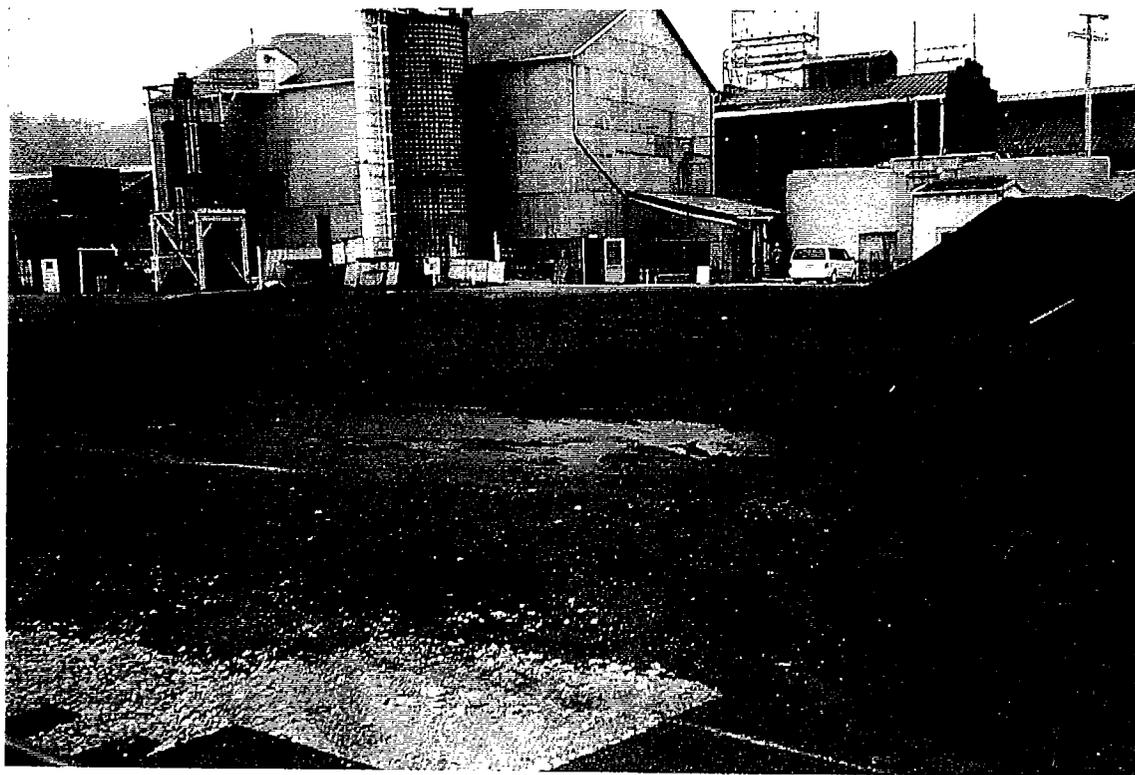
Photograph 7 drum outside paint building and sand blasting area



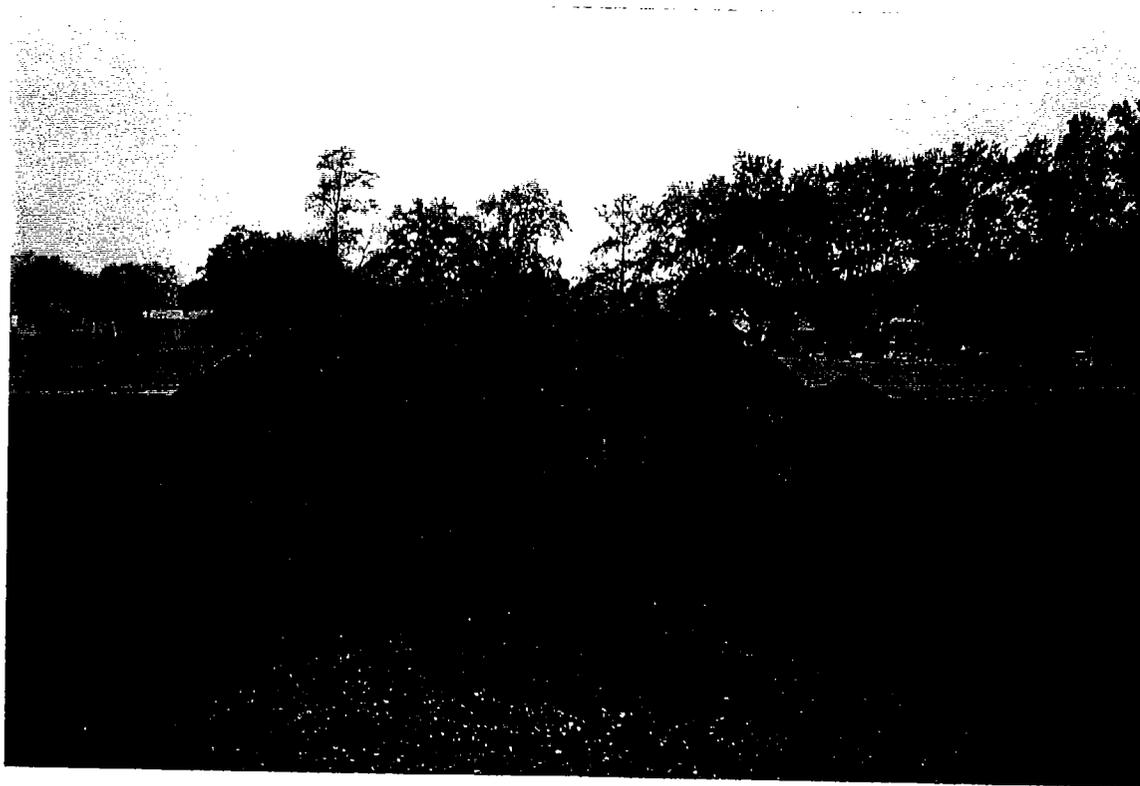
Photograph 8 Sand Blasting Area



Photograph 9 Coal pile and coal fines released



Photograph 10 Coal bottom ash pile



Matter of AK Steel Corporation, Zanesville, Ohio
RCRA Section 3013 Order on Consent

Appendix B

Aerial Photograph Interpretation Report

October 2000

U.S. EPA Site Visit

SITE STUDY

**AK STEEL
(Formerly ARMCO)
ZANESVILLE, OHIO**

Prepared for

**U.S. Environmental Protection Agency Region V
Enforcement and Compliance Assurance Branch (DE-9J)
Chicago, Illinois 60604**

Prepared by

**TETRA TECH EM INC.
330 South Executive Drive, Suite 203
Brookfield, Wisconsin 53005**

Date Prepared	:	October 16, 2000
Contract No.	:	68-W-99-018
Work Assignment No.	:	R05805
Tetra Tech Project Manager	:	Mary Wojciechowski
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1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech) analyzed the AK Steel (formerly Armco) facility located in Zanesville, Ohio. The U.S. Environmental Protection Agency (EPA) Region 5 Enforcement and Compliance Assurance Branch requested this analysis to identify and document potential historical disposal areas and spill locations of hazardous substances in support of a Resource Conservation and Recovery Act enforcement action. This study was conducted by Tetra Tech under EPA Contract No. 68-W-99-018, Work Assignment No. R05805.

Figure 1 shows the location of the study area on a U. S. Geological Survey topographic map. The study area is bounded to the north by the approximate northern property line of the AK Steel facility, to the east by a major rail line and the Muskingum River, to the west by residential areas and Linden Avenue, and to the south by a highway and bridge that crossed the river generally from west to east, which was located one block north of present Interstate Highway 70. Land use in and adjacent to the study area has been generally a mixture of industrial (at the facility and to the north), agricultural (to the south of the facility), and residential (to the west of the facility).

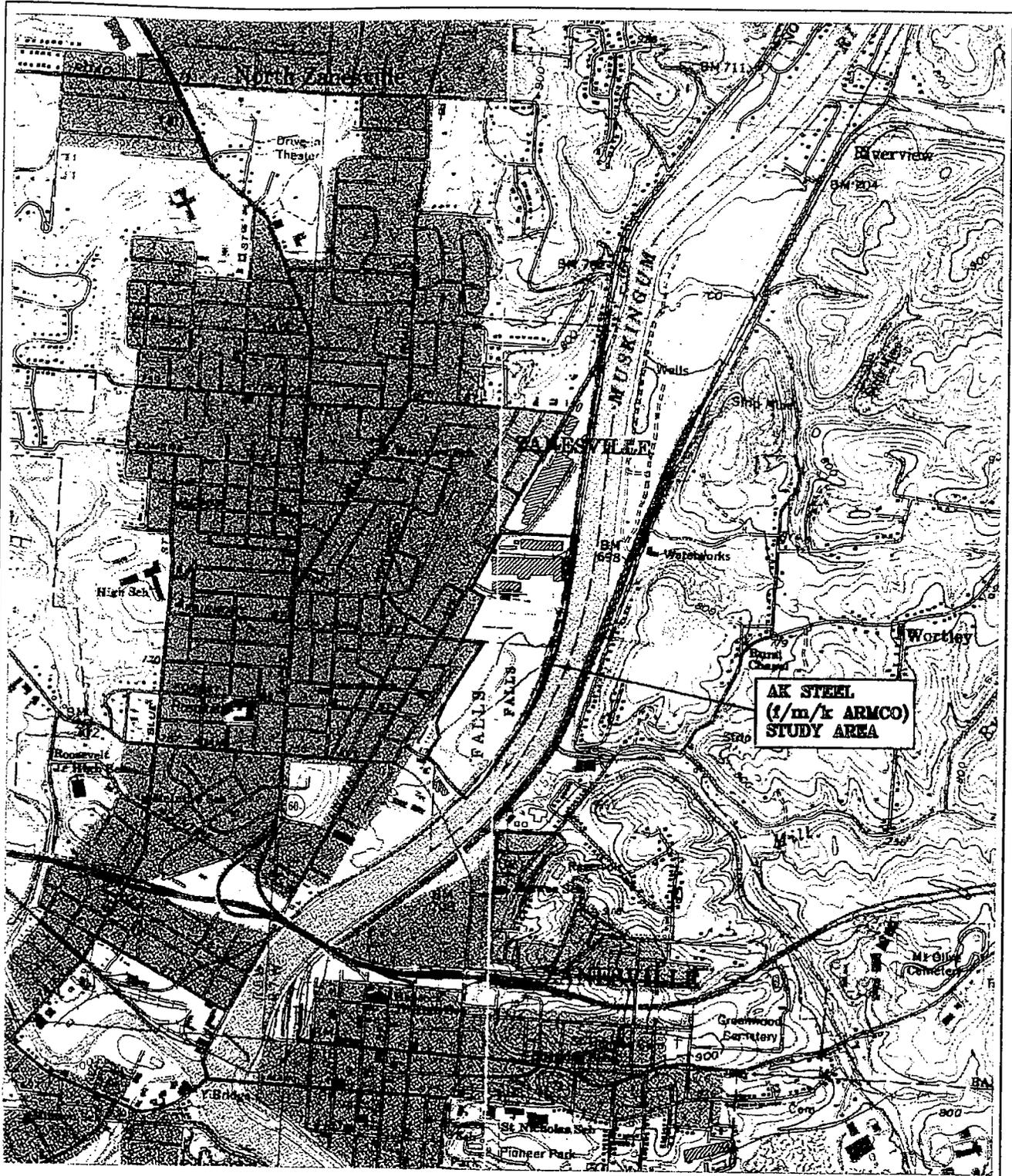
Through time, activities at the AK Steel facility have expanded at the original site of the facility and south into the agricultural area. Certain residential activities have also expanded into the agricultural area, including the development of recreational facilities and other small industrial activities in the southern portion of the site. However, these activities have little interaction or relationship with activities of AK Steel and will be discussed only briefly in this report.

The AK Steel property consists of several buildings that house the manufacturing facilities, a

yard area adjacent to the southern margins of the buildings, and a buffer area to the south and southeast of the plant itself. Many railroad features were also part of the site from time to time, including numerous railroad spurs and a roundhouse. These features will be discussed further below during the photograph interpretation.

Tetra Tech investigated the potential availability of other historic aerial photographs of the facility. This investigation led to the acquisition of 14 stereoscopic pairs of photographs, covering the period from 1942 to 1994. A complete list of all aerial photography used in the analysis is presented in the Reference section at the end of this report.

Tetra Tech's analysis focused on stains, surface impoundments, standing liquid, drum storage areas, stockpiles, tanks and tank farms, excavations, and other areas where disturbed ground is visible in the study area for photographs dated from 1942 to 1994. To provide a unique identifier to each site feature observed and to track changes in the study area over time, an alphanumeric code was assigned to each activity. The first two digits of the code represent the year the feature was first identified. The following alpha-character describes the type of activity (for example, DG is used to indicate disturbed ground). The next numerical character is the assigned number of that activity. The legend accompanying each photograph describes all identifiers used.



0 1000 2000
 SCALE IN FEET



AK STEEL
 (f/m/k ARMCO)
 ZANESVILLE, OHIO

FIGURE 1
 SITE LOCATION MAP

SOURCE: MODIFIED FROM USGS, ZANESVILLE
 EAST, OHIO QUADRANGLE, 1961, PHOTOREVISED,
 1987, AND ZANESVILLE WEST, OHIO QUADRANGLE,
 1992.

PREPARED FOR:



BY:



Tetra Tech EM Inc.

2.0 METHODOLOGY

Tetra Tech conducted a search of government and commercial sources to obtain the best available historical aerial photography of the AK Steel Site in Zanesville, Ohio, for the longest period of record attainable. The intent of this search was to provide the most accurate characterization of significant historical changes occurring at the site from the earliest time available. In total, 14 stereoscopic pairs of aerial photographs were obtained from a commercial source and used in this analysis.¹ Photographic and other sources of information are listed in the Reference section at the end of this report.

Subsequent to acquisition and prior to analysis, one photograph from each stereoscopic pair was digitized at the highest practicable resolution. Each of the digitized photographs was then registered, using readily identifiable and fixed landmarks, in order to place the facility and attendant features and artifacts within a geographic information system coordinate system. The digitized and registered photographic files were then compressed in "Mr. Sid" format and transmitted electronically to the photograph-analyst (analyst). The analyst conducted the evaluation principally from the digitized files supplemented, where necessary, by examining the aerial photographs with a stereoscopic viewer.

The analyst viewed the digitized aerial photographs and conducted the interpretive effort using ArcView[®]. The use of ArcView[®] enabled the analyst to magnify the area of study to better identify observed artifacts and to electronically label each feature, as discussed in the previous

¹ An additional 10 stereoscopic pairs of photographs were obtained from the Ohio Department of Transportation, but arrived too late to be included in this analysis.

section. The analyst's findings are digitized on the photographs and described in the accompanying text.

The site study boundary used in this analysis was determined from observations made from the aerial photography, in consultation with technical staff from EPA Region V. The boundary of the study area, as defined herein, does not necessarily denote legal property lines or ownership.

Because it was necessary to delineate and label every feature and artifact observed in each photograph, some detail visible on the original print may be obfuscated. Therefore, some features identified from the aerial photograph may not be clearly discernible, or in some cases even visible, on the photographic prints presented in this report. Every effort has been made in the display of the observed features and artifacts, however, to avoid a profusion of unnecessary labels.

The terms "possible" and "probable" are used to indicate the degree of certainty of feature identification. "Possible" is used when only a few characteristics are discernible or their characteristics are not unique to a particular feature. "Probable" is used when incrementally more characteristics are discernible. No qualifying terms are used when the characteristics of a feature allow for definite identification.

3.0 AIR PHOTOGRAPH INTERPRETATION

Aerial photograph interpretation was performed for the site area from 14 sets of photographs dated from 1942 through 1994. Discussion of the interpretation follows, including an assessment of the limitations of each photograph caused by image quality.

Photographic quality is defined as poor, fair, good, or excellent, with appropriate grades between classifications. Poor photographs are too dark, too light, grainy, or flown at too high of an altitude to allow for high precision in the interpretation. Fair photographs have quality that is better than poor, but still contain variations in texture, brightness, or contrast or limitations of altitude that make interpretation of large-scale features possible, but small-scale features remain marginally identified. Good photographs are those of adequate quality and reasonably low altitude to make interpretation of many features possible, including some small-scale features. Excellent photographs are those where images are crisp and features are readily identifiable and sufficiently detailed to allow for identification of most features.

In 1998 EPA contracted for a Preliminary Assessment/Visual Site Inspection (PA/VSI) at the AK Steel (Armco) Zanesville, Ohio plant. This PA/VSI concentrated on solid waste management units (SWMUs) proximate to the main production facilities. Figure 2 indicates the location of the SWMUs identified during that site inspection.

Figure 2

Flown:
3/20/1994



A.K. STEEL, Zanesville, OHIO

Explanation

-  Solid Waste Management Units (SMU)
-  Tank (T)
-  Site Boundary



3.1 INTERPRETATION OF 1942 AERIAL PHOTOGRAPH

The earliest photograph available for the site was dated October 8, 1942. The photographic quality was fair. The 1942 photograph and interpreted features are shown as Figure 3.

The 1942 photograph provides the basis for interpretation of many early site features and was used to establish site boundaries for the body of the photograph interpretation work contained herein. The photograph shows the plant itself, the buildings, surrounding features, and other items of interest, including many railroad spurs and a railroad roundhouse southwest of the plant buildings, near the eastern edge of the residential area.

The plant buildings are generally oriented east to west, with a major building oriented north to south, located at the eastern side of the plant (easternmost building). Railroad spurs heavily intersect the site, with track switches located on the eastern side of the facility to allow train car movement to the north and south. Several of the railroad spurs appear to be functional, while others serve as roadbeds for traffic around the plant site.

The 1942 photograph was taken at a time when the plant would have been producing steel during World War II. Large plumes of smoke are seen coming from smokestacks atop the buildings, and large piles of coal (presumably) are apparent in the yard of the plant.

The plant yard is separated from the rail line leading to the roundhouse by an earthen berm. Rail traffic in the area appears to be intensive.

Disturbed Ground

Areas of disturbed ground (DG) were observed to the northeast of the buildings, near the railroad tracks (1942DG4), and southeast of the buildings, including the plant yard and the area between the plant and the agricultural land (1942DG1), subsequently referred to as the industrial buffer area. Small areas of disturbed ground are also seen adjacent to the residential area, south of the roundhouse (1942DG2) and east of the roundhouse (1942DG3).

Excavation

A linear excavated area (EX) is shown in the area of DG southeast of the plant (1942EX1). The excavation trends from the northwest to the southeast.

Stains

Several stained areas (S) were present associated with stockpiles. Additional stains were noted in the disturbed soil area southeast of the plant and yard (1942S2, 1942S3, and 1942S4) and south of the southwestern plant building (1942S1).

Tanks

Tanks (T) were also noted in two areas in the air photograph. One area was to the northwest of the plant buildings (1942T2), while another was south of the southwesternmost building and east of the roundhouse (1942T1).

Other Features

The plant yard area, immediately adjacent to and south of the buildings, shows several stockpiles (SP) of dark material that may have been coal used in the steel manufacturing process (1942SP1 and 1942SP2). To the east of the eastern plant building, adjacent to the Muskingum River, was a small, light-colored feature that protruded into the river. This may have been a sewer outfall (1942SO1) that discharged to the river.

Figure 3

Flown:
10/08/1942



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



3.2 INTERPRETATION OF 1947 AERIAL PHOTOGRAPH

The photograph available for the site was dated November 19, 1947. The photographic quality was good. The 1947 photograph and interpreted features are shown as Figure 4. Many of the features identified in 1942 were still apparent, including the rail lines and the berm to the south of the plant yard. Smoke coming from the building stacks was no longer apparent. However, the berm to the south of the yard area was still in place, as was the roundhouse. The system of railroad spurs and rail lines is more clearly seen in the 1947 photograph than the 1942 image.

Disturbed Ground

The area of disturbed ground identified in the industrial buffer area in 1942 had expanded to the southwest (1947DG2).

Excavation

Additional excavation was also noted in the vicinity of 1947DG2 (1947EX3, 1947EX4, and 1947EX5) and in two small areas (1947EX6 and 1947EX7) in the agricultural field south of the roundhouse. One of these excavations was in an area identified as disturbed ground in 1942.

Stains

Two new areas of stained soil (1947S1 and 1947S2) were apparent on the southern side of the yard area. However, two other areas of stained soil identified in 1942 (1942S1 and 1942S2) were no longer apparent.

Tanks

Tanks were also noted for the first time in three locations (1947T1, 1947T2, and 1947T3); within the building complex on the western side of the plant, in the yard area between the 1942 and 1947 stockpile areas and in the northeastern yard area, adjacent to the buildings.

Other Features

Most features described for 1942 were still present in 1947. Two additional stockpiles (1947SP3 and 1947SP4) were present to the east of the stockpiles identified in 1942. However, by 1947, the stockpiles identified in 1942 had grown much smaller. The sewer outfall identified in 1942 (1942SO1) also was not apparent in 1947.

Figure 4

Flown:
11/19/1947



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.3 INTERPRETATION OF 1958 AERIAL PHOTOGRAPH

The photograph available for the site was dated January 10, 1958. The photographic quality was generally fair to good. The 1958 photograph and interpreted features are shown as Figure 5. In 1958, the rail lines and spurs are still present, but appear to be used less than in previous years. The roundhouse is still present as is the berm separating the rail yard from the plant yard area.

Disturbed Ground

The areas of disturbed ground south of the plant (1958DG4) had grown significantly by 1958, as seen in Figure 5. The disturbed ground industrial buffer area had expanded to the west and south. A new area of disturbed ground (1958DG5) was also observed adjacent to and southwest of the roundhouse.

Excavation

New areas of excavation (1958EX1, 1958EX2, 1958EX3, 1958EX4, and 1958EX5) were also noted in the industrial buffer near the areas of disturbed ground. 1947EX6 was no longer visible in 1958.

Stains

New stained soil features were seen adjacent to the eastern side of the southwestern building (1958S2) and along the former rail spur southeast of the yard area (1958S1). Except for the stained soil seen in 1947S1, areas that were identified on the 1947 photograph were still seen in the 1958 photograph.

Tanks

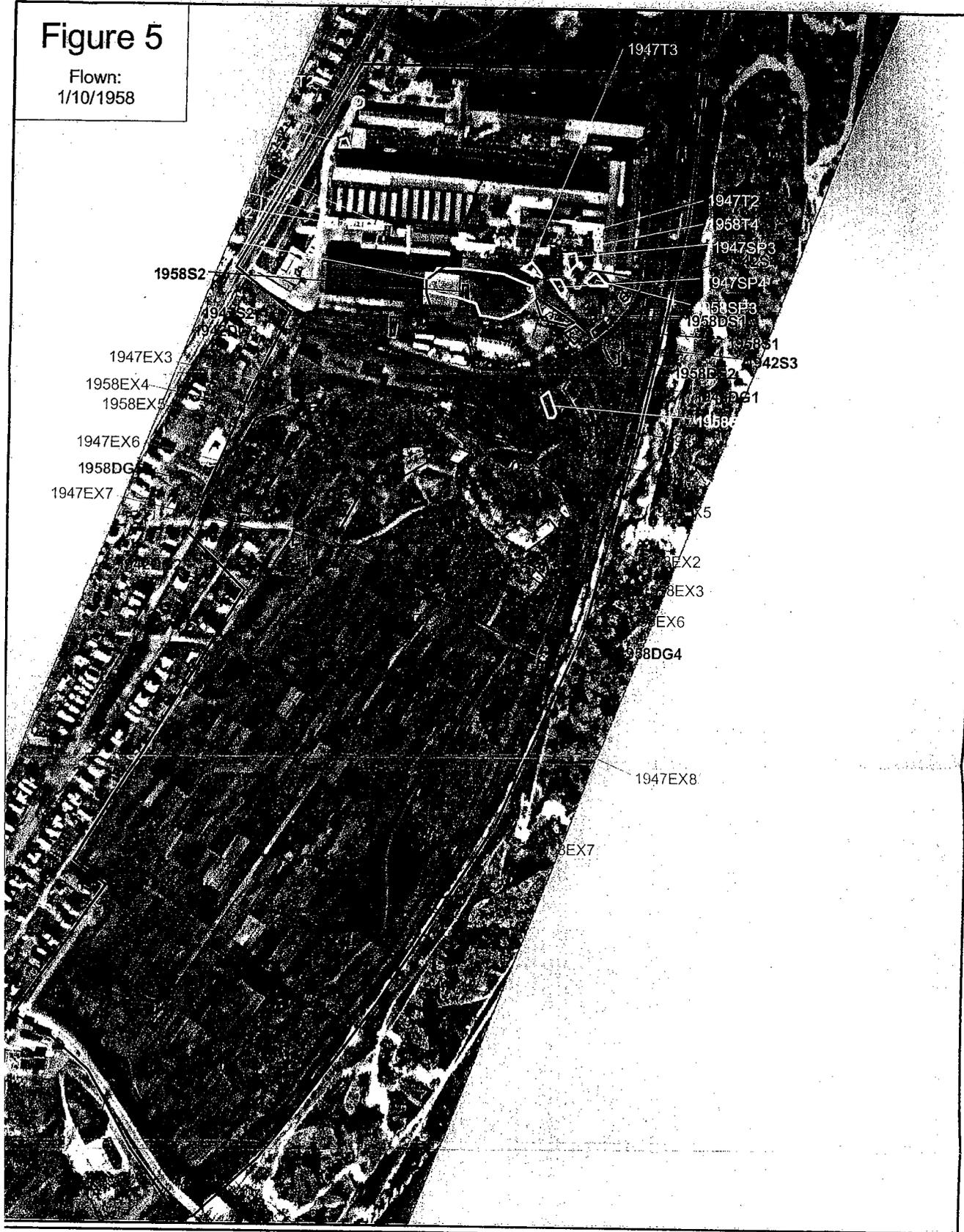
Tanks identified in 1947 were still present, and additional tanks (1958T1, 1958T2, and 1958T3) were now visible on the western side of the plant building area, and tank 1958T4 was now visible on the western side of the easternmost building, in the yard area. Tank 1942T1 was no longer present.

Other Features

For the first time, a possible drum storage area (DS) was identified in the southeastern section of the yard area (1958DS1, and 1958DS2). A building now covered one of the stockpiles identified in 1942 (1942SP2), while the other stockpile (1942SP1) was still present in the yard, although smaller than in 1947 and also partially covered by a new building. Other stockpiles included those identified in 1947 and two new stockpiles located south of the easternmost building (1958SP3) and in the industrial buffer area (1958SP4), respectively.

Figure 5

Flown:
1/10/1958



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.4 INTERPRETATION OF 1960 AERIAL PHOTOGRAPH

The photograph available for the site was dated April 12, 1960. The photographic quality was generally poor. The 1960 photograph and interpreted features are shown as Figure 6.

By 1960, the roundhouse was gone, with only a scar in the ground left behind. Accordingly, less railroad traffic is seen in 1960 than in prior years, which is a trend that continues throughout the rest of the assessment. The berm that separated the rail yard from the plant yard is giving way to site redevelopment by 1960. Several building additions have also appeared on the plant site.

Disturbed Ground

Disturbed ground was observed across the entire industrial buffer area south of the plant yard (1960DG5), effectively joining the disturbed ground identified in previous photographs (1947DG2, 1958DG4, and 1958DG5).

Excavation

Excavation had also expanded in areas identified as excavated in the industrial buffer in previous photographs (1960EX3) and in a new location in the industrial buffer, just south of the yard area (1960EX1). Changes were noted in excavated areas 1942EX1, 1947EX1, 1947EX3, 1947EX4, 1947EX5, 1947EX7, 1958EX2, 1958EX3, 1958EX5, and 1958EX6.

Stains

Large stains in the yard area (1960S1, 1960S2, and 1960S3) were now visible near the central stockpile site. Some old stains persist, but some, such as 1947S1 and 1958S2, have disappeared by 1960. A new stain (1960S4) was also observed in the industrial buffer area.

Tanks

Tanks 1942T1 and 1947T1 were no longer present on the site.

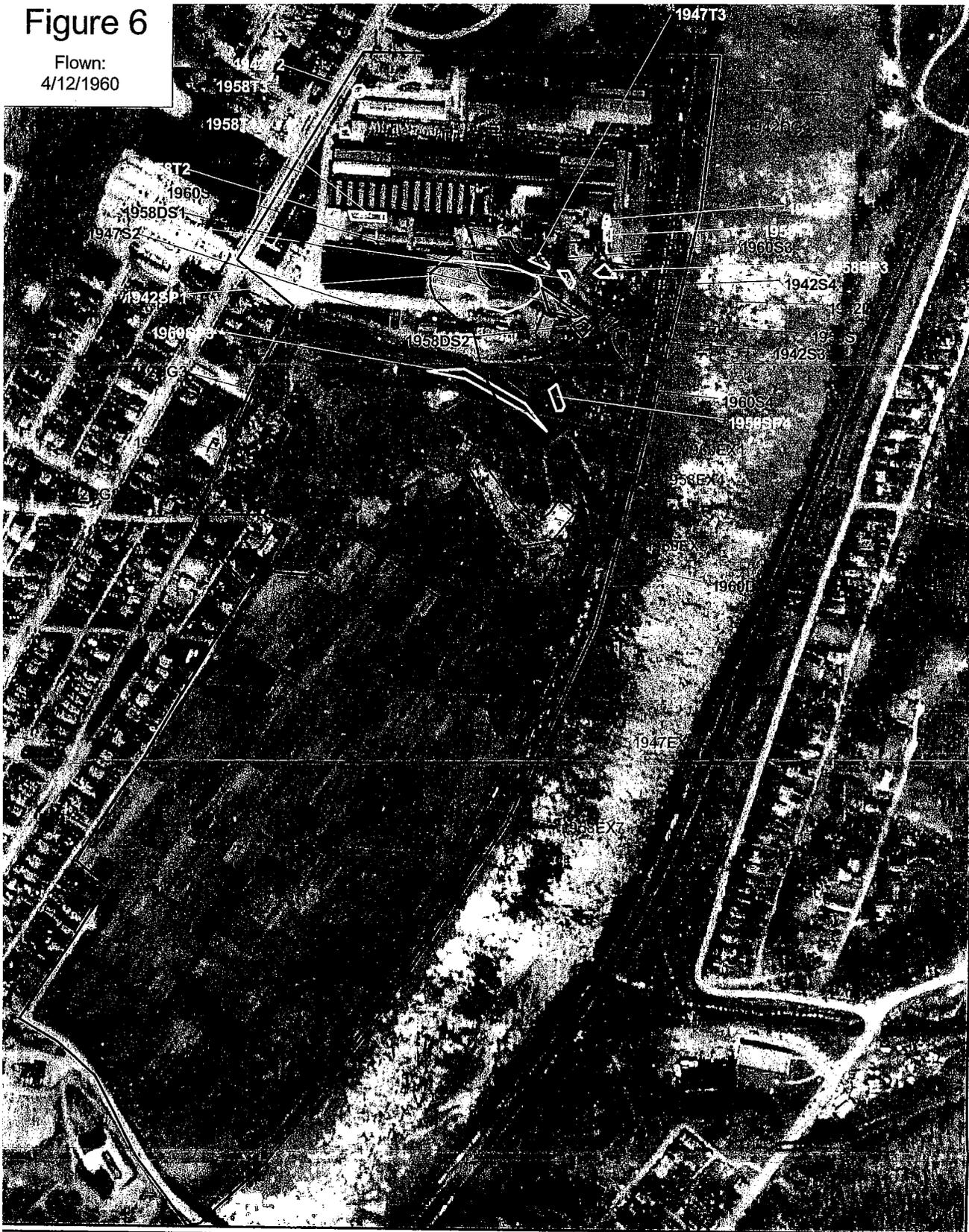
Other Features

A new stockpile (1960SP3) was observed in the northern area of the industrial buffer, just south of the yard. New buildings now covered the old stockpile from 1947 (1947SP3), which was located near the easternmost plant building. A building also covered a stockpile site from 1942 (1942SP2).

Residential development from the west into northwestern agricultural land was also observed; this development extended into the predefined study area for the first time. However, because of the poor quality of the photograph, drum storage areas were not observed.

Figure 6

Flown:
4/12/1960



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.5 INTERPRETATION OF 1966 AERIAL PHOTOGRAPH

The photograph available for the site was dated March 9, 1966. The photographic quality was generally good. The 1966 photograph and interpreted features are shown as Figure 7. By 1966, the roundhouse seems to have been physically excavated from its former location. Building additions also are seen between the buildings to the northwest of the plant facility.

Disturbed Ground

Disturbed ground was noted in an area adjacent to the road at the southern study area boundary (1966DG11, and 1966DG13). Later photographs show this area developed as a sports complex with three baseball diamonds. New disturbed ground was also seen in the agricultural land just to the south of the industrial buffer area (1966DG8), associated with road building activities in agricultural land area (1966DG9), and elsewhere in the southern half of agricultural land area (1966DG10, 1966DG12, and 1966DG14). Overall, disturbed ground in the industrial buffer area seems to have decreased when compared to previous years (1942DG2, 1942DG3, and 1942DG4) and may indicate that significant regrading and seeding had occurred.

Excavation

Also, several new excavated areas were observed in the industrial buffer area (1966EX1) and in the agricultural land (1966EX2). One new group of excavations in the agricultural land toward the south of the study area (1966EX7) is visible in future photographs and appears to be gravel mining operations. Several old excavations that had been seen in earlier photographs

(1947EX8, 1958EX4, 1958EX5, 1958EX6, 1958EX7, 1960EX1, and 1960EX3) were no longer visible in the industrial buffer area. These excavations may have been filled.

Stains

An additional small stockpile seen in the industrial buffer area in 1958 (1958SP4) was now only stained soil (1966S6) and standing liquid. Similarly, a stockpile seen in the 1960 photograph and located in the industrial buffer area (1960SP3) was now only stained soil (1966S4, 1966S5, and 1966S7). Many newly stained areas were observed in the industrial buffer area (1966S10, 1966S11, 1966S12, 1966S13, 1966S14, 1966S15, 1966S16, and 1966S17) and in the yard area (1966S2, 1966S3, and 1966S8). Several older stained soil areas identified in prior years were still apparent in 1966. Stained area 1947S2 was no longer seen by 1966.

Tanks

By 1966, tank 1958T1, seen next to the western side of the plant area in earlier photographs, had been replaced by a building, while the tanks seen previously to the northwest of the buildings and in the yard area west of the easternmost plant building were no longer present in 1966 (1942T2, 1947T2, 1958T1, and 1958T4).

Other Features

New stockpiles (1966SP3, 1966SP4, 1966SP5, and 1966SP6) were present south of the railroad spur that forms the southern plant yard boundary. Two additional stockpiles (1966SP2 and 1966SP9) were also observed in the yard area, while a building now covered a small stockpile observed in the plant yard area in 1947 (1947SP2). Three material stockpiles (1966SP10,

1966SP12, and 1966SP12) were also evident near and northwest of the gravel mining operation. A possible sewer outfall (1966SO1), first seen in the 1942 photographs, was seen again in 1966. A second possible sewer outfall (1966SO2) to the Muskingum River was also observed. Three areas of standing liquids (1966SI1, 1966SI2, and 1966SI3) were seen for the first and only time during this assessment in the industrial buffer area. Because these features were not noted in either earlier or later photographs, we assumed that the standing liquid could be casual water. New drum storage areas were seen toward the northeast (1966DS1 and 1966DS2), east (1966DS4), and northwest (1966DS3) of the easternmost plant building and on the southern side of the plant yard (1966DS6 and 1966DS7).

Figure 7

Flown:
3/9/1966



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.6 INTERPRETATION OF 1968 AERIAL PHOTOGRAPH

The photograph available for the site was dated March 27, 1968. The photographic quality was generally poor. The 1968 photograph and interpreted features are shown as Figure 8. More additions to the buildings have occurred since 1966.

Disturbed Ground

The area of disturbed ground within the industrial buffer area was smaller and coincided with the margins of excavation present in 1966 in the eastern half of the industrial buffer area. However, additional disturbed ground (1968DG5) was seen in the agricultural field to the southwest and appeared as a scraped area.

Excavation

New excavations were occurring in the area of the former roundhouse (1968EX6) and the industrial buffer area (1968EX2), and an old excavation in the southeastern industrial buffer area (1947EX8) was expanded to combine with a smaller excavation identified in 1966 (1966EX7) to form a new excavation (1968EX1, 1968EX3, and 1968EX5). A new excavated area (1968EX4) was also identified in the agricultural land south of the industrial buffer.

Stains

Changes were seen in previously identified stained soils at 1942S3, 1958S1, 1960S1, 1960S3, 1960S4, 1966S4, 1966S12, 1966S14, 1966S15, 1966S16, and 1966S17. New stains were identified at locations 1968S1, 1968S2, 1968S3, 1968S4, 1968S5, 1968S6, and 1968S7.

Tanks

New tanks were observed in the plant yard area, adjacent to the western side of the easternmost building (1968T3) and at the western side of the plant buildings (1968T1). Tanks 1947T3 and 1958T4 were no longer present.

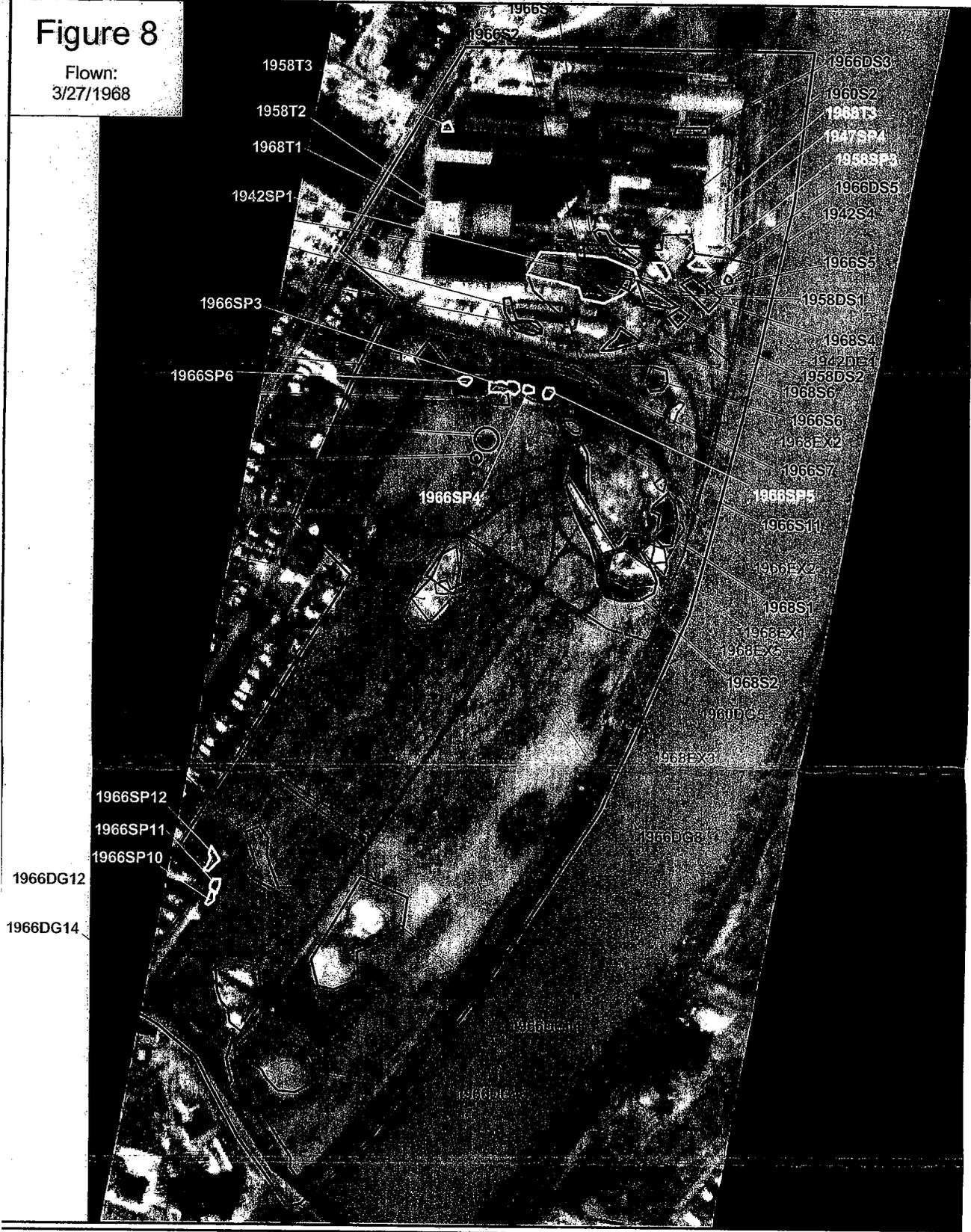
Other Features

By 1968, the sewer outfalls identified previously (1966SO1 and 1966SO2) were no longer evident. The areas identified as standing liquid in 1966 (1966S11, 1966S12, and 1966S13) appeared as stains 1968S6, 1968S9, and 1968S10.

Two small stockpiles identified in 1966 (1966SP2 and 1966SP9) were now gone and were covered by buildings. The main stockpile in the plant yard (1942SP1) was still present, but had grown noticeably smaller. No new stockpiles were observed in 1968. Drum storage areas 1966DS1, 1966DS2, 1966DS4, 1966DS6, and 1966DS7 were no longer apparent.

Figure 8

Flown:
3/27/1968



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.7 INTERPRETATION OF 1972 AERIAL PHOTOGRAPH

The photograph available for the site was dated May 9, 1972. The photographic quality was generally fair to good. The 1972 photograph and interpreted features are shown as Figure 9.

The rail spurs south of the plant yard have been largely obscured by plant activity.

Additional construction has occurred along the northern side of the plant.

Disturbed Ground

Disturbed ground identified in the plant yard and the industrial buffer area was still evident, while some of the disturbed ground in the agricultural areas that was previously identified (1966DG8, 1966DG9, 1966DG10, 1966DG11, 1966DG12, 1966DG13, and 1968DG5) was no longer apparent. However, a large scraped area (1972DG5) was now seen in the agricultural area to the south of the former roundhouse, while 1972DG9 was seen in the gravel pit area, near the southern study area boundary.

Excavation

The excavation in the agricultural area that had been identified in 1968 (1968EX1 and 1968EX2) was no longer evident. However, a new excavation (1972EX3) was seen in the gravel pit area on the southern side of the study area.

Stains

Stained soil seen in 1966 and in previous years was still present, but appeared to be smaller, in general. However, many new stains were evident and were extensive, and several overlapped

older stained areas. Most of the plant yard area (1972S2, 1972S2, and 1972S3) and the southeastern industrial buffer (1972S4, 1972S6, 1972S10, and 1972S11) area now had stained soil. Other areas south of plant buildings (1972S7, 1972S8, and 1972S10) and northeast of the easternmost building (1972S12) also showed significant soil staining. Accordingly, new areas of stained soil were developed for display purposes to combine previously identified stains with several of the newly identified stained areas, and areas 1960S2, 1966S1, 1966S2, 1966S3, 1966S6, 1966S7, 1968S2, 1968S4, 1968S5, and 1968S6 were no longer shown on the overlay.

Tanks

A new tank (1972T1) appeared to the north of the northwestern plant building.

Other Features

By 1972, the stockpile in the center of the plant yard area (1942SP1) was still present, and new stockpiles were seen the southern side of the yard (1972SP2) and in the industrial buffer area to the southeast (1972SP3). A new drum storage area (1972DS2) was also seen in the industrial buffer to the southeast of the plant. Drum storage area 1966DS3 was no longer evident.

3.8 INTERPRETATION OF 1975 AERIAL PHOTOGRAPH

The photograph available for the site was dated April 13, 1975. The photographic quality was generally poor. The 1975 photograph and interpreted features are shown as Figure 10. The 1975 photographs showed many of the same old features, but the image quality was so poor that it was not possible to log detailed changes in the site when compared to previous years.

Disturbed Ground

Disturbed ground moved to the south of the industrial buffer area (1975DG1). This activity may be caused by construction of a new tank farm, consisting of four aboveground tanks and associated pipeline and structures. 1942DG1 was removed from the overlay for display purposes and was combined with other areas of disturbed ground.

Excavation

Excavations in the gravel pit on the southern side of the site had expanded (1975EX1).

Stains

No additional soil staining was observed in the industrial buffer area.

Tanks

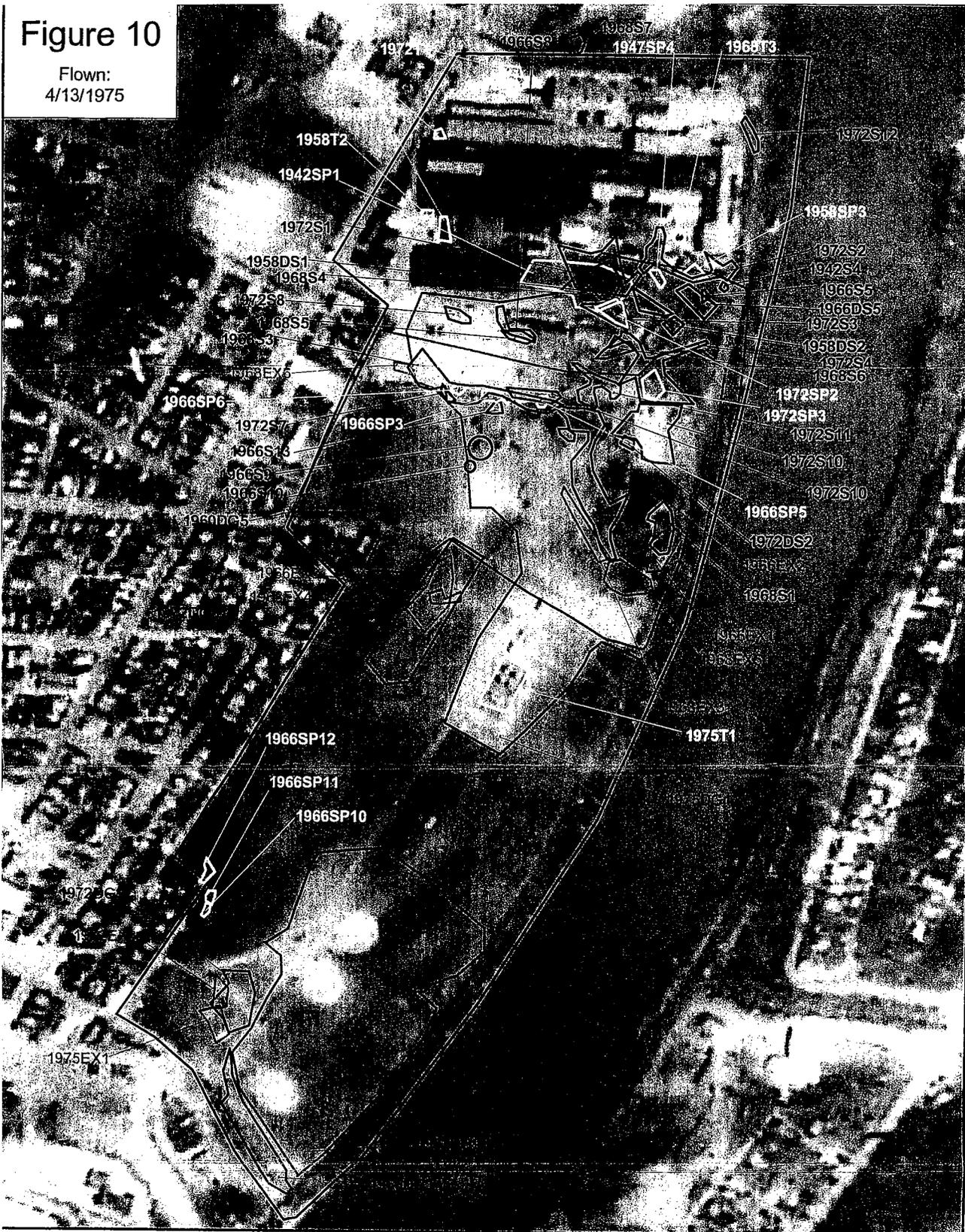
Tank 1975T1 was seen for the first time in 1975.

Other Features

The old road and bridge at the southern side of the site boundary had been replaced. The bridge for Interstate Highway I-70 now spanned the Muskingum River.

Figure 10

Flown:
4/13/1975



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|---|--|
|  Disturbed Ground (DG) |  Standing Liquid (SL) |
|  Drum Storage Area (DS) |  Stockpile (SP) |
|  Excavations (EX) |  Tank (T) |
|  Stains (S) |  Tank Farm (TF) |
|  Sewer Outfall (SO) |  Site Boundary |



300 0 300 600 Feet



3.9 INTERPRETATION OF 1977 AERIAL PHOTOGRAPH

The photograph available for the site was dated March 21, 1977. The photographic quality was generally good to excellent. The 1977 photograph and interpreted features are shown as Figure 11.

A major building addition had occurred at the southwestern side of the plant by 1977. Also, the parking area to the west of this addition appears to have been paved. Several other structures are new in the yard area, too. The long sweeping roadway that had previously extended along the old railroad spur east and south of the plant, into the old roundhouse area, had moved to the south. As part of this reconstruction, the berm that had been to the south of the plant yard was not seen in the 1977 and likely had been removed.

Disturbed Ground

Disturbed ground in the scraped area of the agricultural land (1972DG5) had been graded and seeded. Disturbed ground in some of the yard area south of southwestern building had also been paved or graded. Portions of the industrial buffer area (1960DG5) had also been graded and seeded, resulting in an apparent decrease in overall disturbed ground in the area.

Excavation

Old excavations in the plant area and the industrial buffer area (1966EX2 and 1968EX3) appear to have been graded. The gravel excavation in the southern agricultural field is smaller, perhaps coinciding with completion of the Interstate Highway 70 corridor to the south of the study area.

A new linear excavation (1977EX5) was observed in the industrial buffer area. This excavation may have been a trench. In addition to this possible new trench excavated in the industrial buffer area, a somewhat circular area of excavation (1977EX7) also was observed as a new excavation in the industrial buffer area.

Stains

By 1977, many older areas of stained soil previously identified in the industrial buffer area were no longer apparent and may have been graded. Stained soil seen to the northeast of easternmost building (1972S12) was gone. Stained soil was also covered by the liquefied gas tank farm (TF) and a building addition at the southwestern corner of plant. Stained areas that were no longer evident included 1966S5, 1966S9, 1966S10, 1966S11, 1966S13, 1968S1, 1968S2, 1968S4, 1968S5, and 1968S6. However, several newly stained soil areas were observed (1977S5, 1977S8, 1977S9, 1977S10, 1977S13, and 1977S17), including an apparent spill (1977S5 in the yard area west of the easternmost building).

Another apparent spill (1977S15) was seen in the industrial buffer, crossing a new linear excavation.

Tanks

The tank farm that had been under construction during the 1975 photograph was now complete (1977TF1). Also, a new tank farm (1977TF2) was constructed by 1977 in the industrial buffer area south of the easternmost building. This tank farm appears to be group liquefied gas tanks

and associated structures. Tank 1977T3 was also observed. Other tank features identified in 1975 remained in 1977, except for tank 1968T3.

Other Features

By 1977, the stockpiles in the industrial buffer area southeast of the plant yard (1958SP3, 1966SP3, 1966SP4, 1966SP5, 1966SP6, and 1972SP3) had been removed. The drum storage area (1972DS2), identified previously in the vicinity of the new tank farm (1977TF2), was no longer present. Similarly, the drum storage areas seen in the yard area in previous years were no longer observed. Two new stockpiles (1977SP2 and 1977SP3) were also evident in the industrial buffer area. A football field and associated building and stands were also seen to the northeast of the baseball field, northeast of 1972DG9.

Figure 11

Flown:
3/21/1977



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



3.10 INTERPRETATION OF 1981 AERIAL PHOTOGRAPH

The photograph available for the site was dated November 13, 1981. The photographic quality was generally poor to fair. The 1981 photograph and interpreted features are shown as Figure 12. Some changes have occurred to the plant buildings, and additional small structures have been constructed in the plant yard area since 1977.

Disturbed Ground

Except for the disappearance of disturbed ground area 1972DG5, other areas of disturbed ground remained as previously described.

Excavation

The excavation in the gravel pit near the southern boundary of the site is smaller and nearly gone. However, a new excavation (1981EX4) was seen in the industrial buffer area west of the trench identified in 1977.

Stains

Areas of stained soil had changed by 1981. Previously identified stains at locations 1966S8, 1972S10, 1975S1, 1977S9, and 1977S11 were no longer seen.

Tanks

No changes in tank features were observed in the 1981 photographs.

Other Features

Since 1977, one of stockpiles in the plant yard (1972SP3) had been removed. The main stockpile in the plant yard remains, but is smaller than before. A new stockpile (1981SP2) was present in the industrial buffer area to the west of the trench excavation that was described with the 1977 photograph. Drum storage area 1972DS2 was no longer apparent.

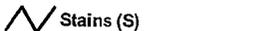
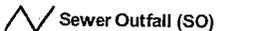
Figure 12

Flown:
11/13/1981



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|---|--|
|  Disturbed Ground (DG) |  Standing Liquid (SL) |
|  Drum Storage Area (DS) | Stockpile (SP) |
|  Excavations (EX) | Tank (T) |
|  Stains (S) | Tank Farm (TF) |
|  Sewer Outfall (SO) |  Site Boundary |



300 0 300 600 Feet



3.11 INTERPRETATION OF 1983 AERIAL PHOTOGRAPH

The photograph available for the site was dated April 25, 1983. The photographic quality was generally poor. The 1983 photograph and interpreted features are shown as Figure 13.

Disturbed Ground

The 1983 photograph showed essentially the same areas of disturbed ground that were described previously.

Excavation

The linear trench excavation described in 1977 (1977EX5) appears to have been filled and graded by 1983. However, a new linear excavation (1983EX4) was seen in this area and has a west-northwest to east-southeast trend. Further, another excavation in this same vicinity (1981EX4) is no longer apparent in this photograph.

Stains

The easternmost building has been extended to the south and now covers stained soil that was identified in prior years (1977S8 and 1977S13).

Tanks

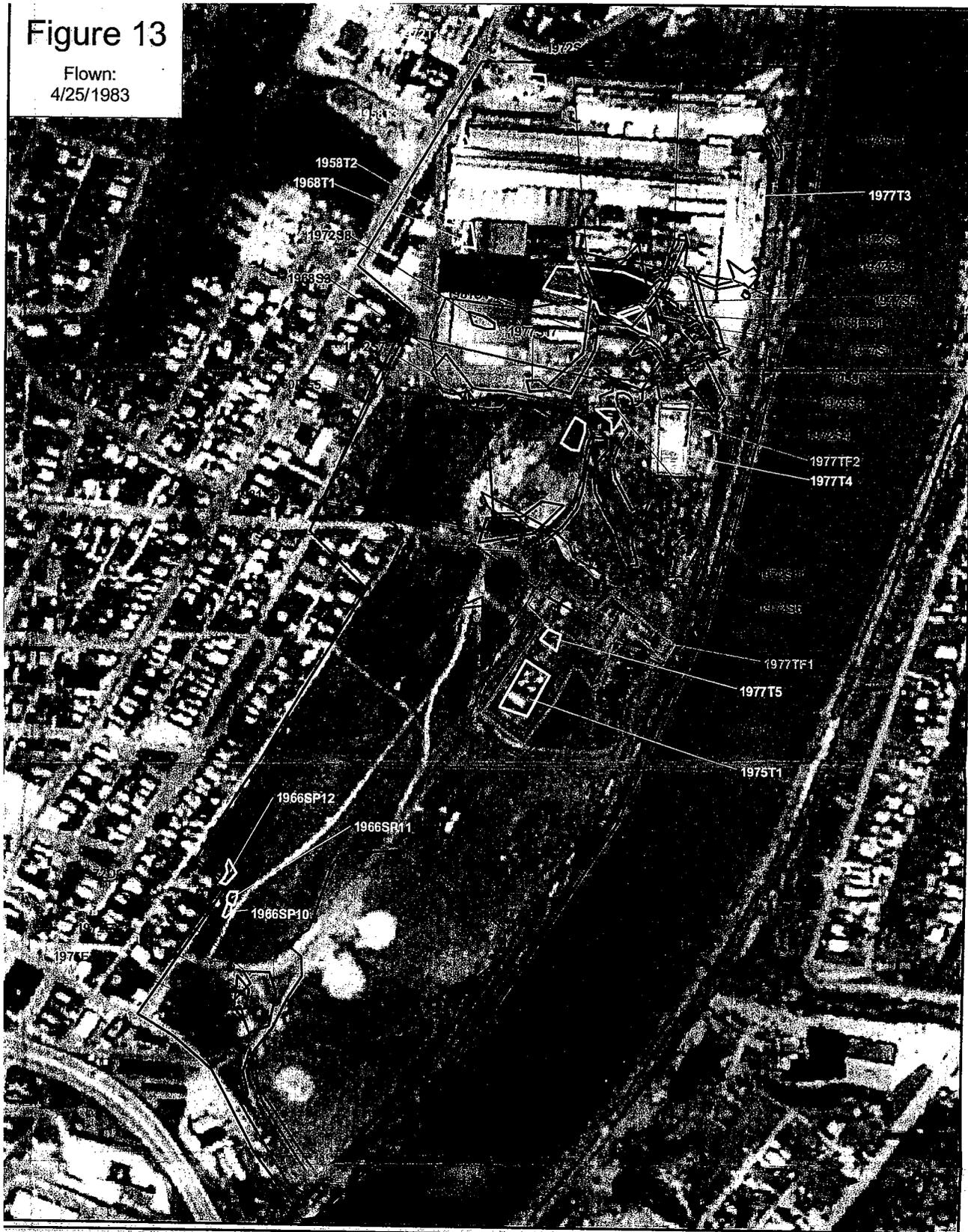
No new tank features or changes to existing tank features were observed.

Other Features

The stockpiles appear to have remained in the same locations as in 1981. The area south of the easternmost building also appears to have been paved or graded. Drum storage area 1966DS5 is no longer apparent.

Figure 13

Flown:
4/25/1983



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|--|--|
|  Disturbed Ground (DG) |  Standing Liquid (SL) |
|  Drum Storage Area (DS) |  Stockpile (SP) |
|  Excavations (EX) |  Tank (T) |
|  Stains (S) |  Tank Farm (TF) |
|  Sewer Outfall (SO) |  Site Boundary |



300 0 300 600 Feet



3.12 INTERPRETATION OF 1988 AERIAL PHOTOGRAPH

The photograph available for the site was dated April 17, 1988. The photographic quality was very poor, and the photograph apparently was taken just after sunrise. The 1988 photograph and interpreted features are shown as Figure 14.

Disturbed Ground, Excavation, Stains

Disturbed ground, excavations, and stained soil identified in earlier photographs generally appear to be located in the same areas as previously described.

Tanks

By 1988, the tank farm to the south of the industrial buffer area (1977TF1) and associated tanks (1975T1 and 1975T5) appears to be gone.

Other Features

Because the photographic image from 1988 was very poor, identification of both new and previously existing features was difficult; therefore, no additional changes were noted.

Figure 14

Flown:
4/7/1988



A.K. STEEL, Zanesville, OHIO

Explanation

- | | |
|------------------------|----------------------|
| Disturbed Ground (DG) | Standing Liquid (SL) |
| Drum Storage Area (DS) | Stockpile (SP) |
| Excavations (EX) | Tank (T) |
| Stains (S) | Tank Farm (TF) |
| Sewer Outfall (SO) | Site Boundary |



300 0 300 600 Feet



3.13 INTERPRETATION OF 1993 AERIAL PHOTOGRAPH

The photograph available for the site was dated May 7, 1993. The photographic quality was generally good to excellent. The 1993 photograph and interpreted features are shown as Figure 15. Compared to 1983, some small structures were constructed to the south of the plant yard sometime during the prior 10 years.

Disturbed Ground

The scraped area of disturbed ground previously described in the former agricultural land area had expanded to the southwest (1993DG7). New areas of disturbed ground appeared to the south of 1993DG7 and to the northeast of the easternmost building at 1993DG2.

Excavation

The 1993 photograph showed that an excavation identified in 1983 (1983EX4) was no longer visible. A new excavation (1993EX1) was also seen adjacent to the liquefied gas tank farm in the industrial buffer area.

Stains

Additional stained soil areas (1993S2 and 1993S4) appeared in the plant yard area and overlapped previously identified stained areas. Accordingly, several older stains were combined with these new areas and were removed from the overlay to simplify the displayed interpretation. Those locations included 1968S3, 1972S2, 1972S3, 1972S6, 1972S7, 1972S8, 1972S11, 1972S12, 1981S1, and 1981S6.

Tanks

A new, long horizontal tank (1993T3) was observed west of the easternmost building in the plant yard area. Tanks 1975T1 and 1977T5 were no longer apparent.

Other Features

The stockpile that had been present in the industrial buffer area (1981SP2) was now gone.

Drum storage areas 1958DS1 and 1958DS2 were not observed in 1993.

Figure 15

Flown:
5/7/1993



A.K. STEEL, Zanesville, OHIO

Explanation

- | | | | |
|--|------------------------|--|----------------------|
| | Disturbed Ground (DG) | | Standing Liquid (SL) |
| | Drum Storage Area (DS) | | Stockpile (SP) |
| | Excavations (EX) | | Tank (T) |
| | Stains (S) | | Tank Farm (TF) |
| | Sewer Outfall (SO) | | Site Boundary |



300 0 300 600 Feet

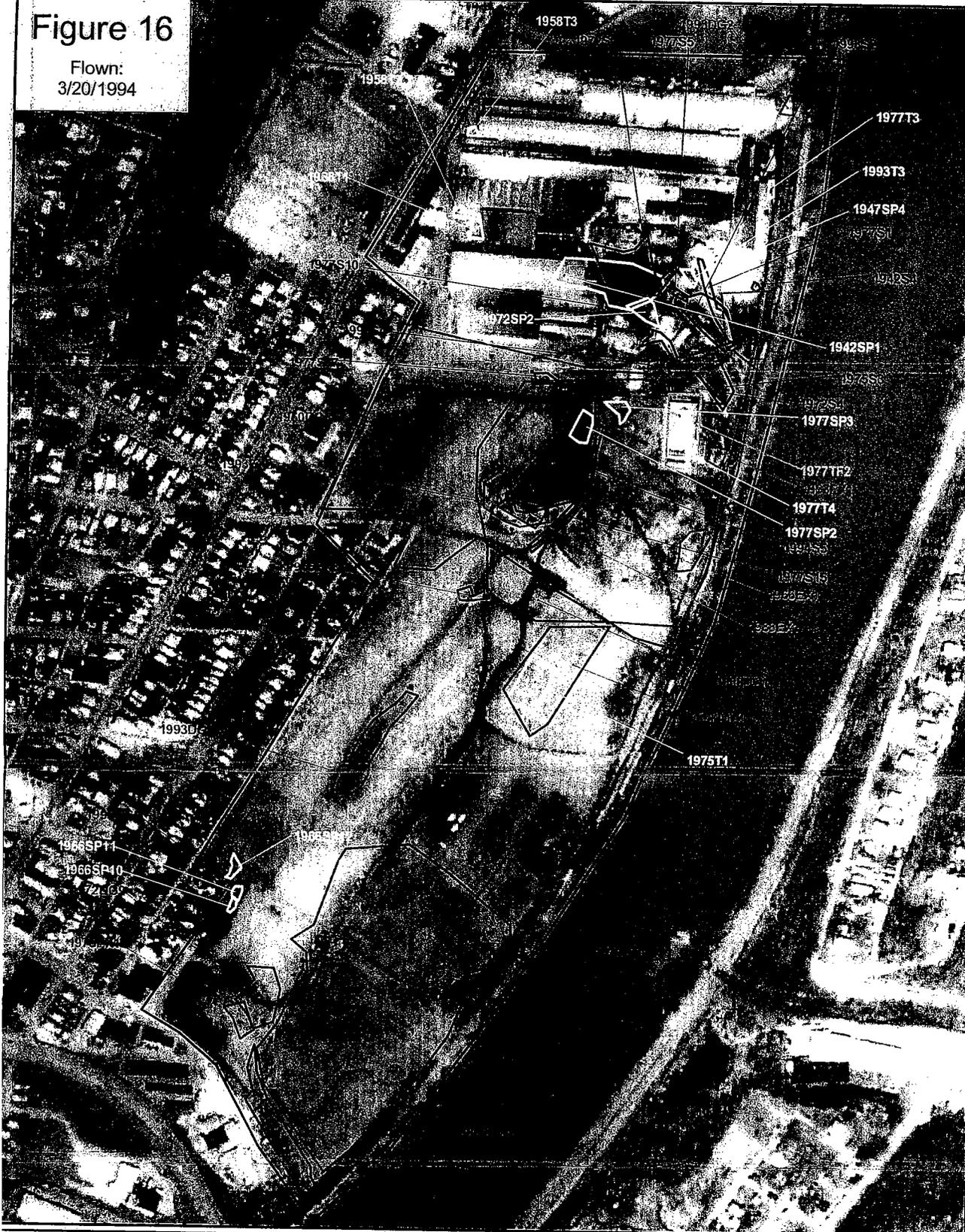


3.14 INTERPRETATION OF 1994 AERIAL PHOTOGRAPH

The photograph available for the site was dated March 20, 1994. The photographic quality was generally fair to good. The 1994 photograph and interpreted features are shown as Figure 16. No major changes to previously identified features were seen in the 1994 photograph. However, possible recent snowfall may have obscured some features. A large stained area (1994S5) was now present in the industrial buffer area south of the plant yard and may have been discoloration on top of snowfall.

Figure 16

Flown:
3/20/1994



A.K. STEEL, Zanesville, OHIO

Explanation

- Disturbed Ground (DG)
- Drum Storage Area (DS)
- Excavations (EX)
- Stains (S)
- Sewer Outfall (SO)
- Standing Liquid (SL)
- Stockpile (SP)
- Tank (T)
- Tank Farm (TF)
- Site Boundary



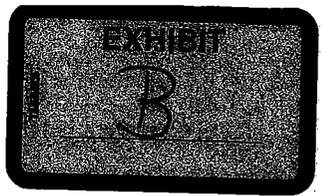
300 0 300 600 Feet



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February 6, 2004

**For Settlement Purposes Only
Inadmissible as Evidence**

Via Regular Mail

Lori A. Massey, Esq.
Assistant Attorney General
Ohio Attorney General's Office
Environmental Enforcement Section
30 East Broad Street, 25th Floor
Columbus, Ohio 43215-3428

Re: AK Steel Corporation, Zanesville Works – SEP Drawings and Cost Estimate

Dear Lori:

Enclosed are the drawings and cost estimate that you requested for the SEP that AK Steel has proposed for its Zanesville Works. In response to the remaining information that you asked for, please note the following:

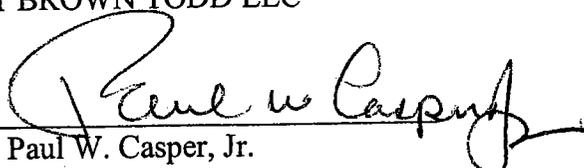
- 1) Tanks, piping, and secondary containments will be visually inspected daily by a department foreman to identify leaks or equipment issues. This is currently done daily and will continue after the project.
- 2) Most of the raw materials are off-loaded by pressurizing the tanker truck to push the material to the storage tank. The only exceptions to this are koliquid and lime slurry, which are off-loaded using a pump on the delivery truck. All materials currently have "their own dedicated piping" and this will remain true if the proposed project is implemented. No waste minimization is really expected. The benefit of the project is providing containment in the areas where AK Steel receives these raw materials. If there is a tanker/hose/connection failure, all of the material would be contained rather than entering a storm sewer or reaching soil. Any waste that would have been generated from a spill outside of containment would be reduced or eliminated.

I look forward to hearing from you.

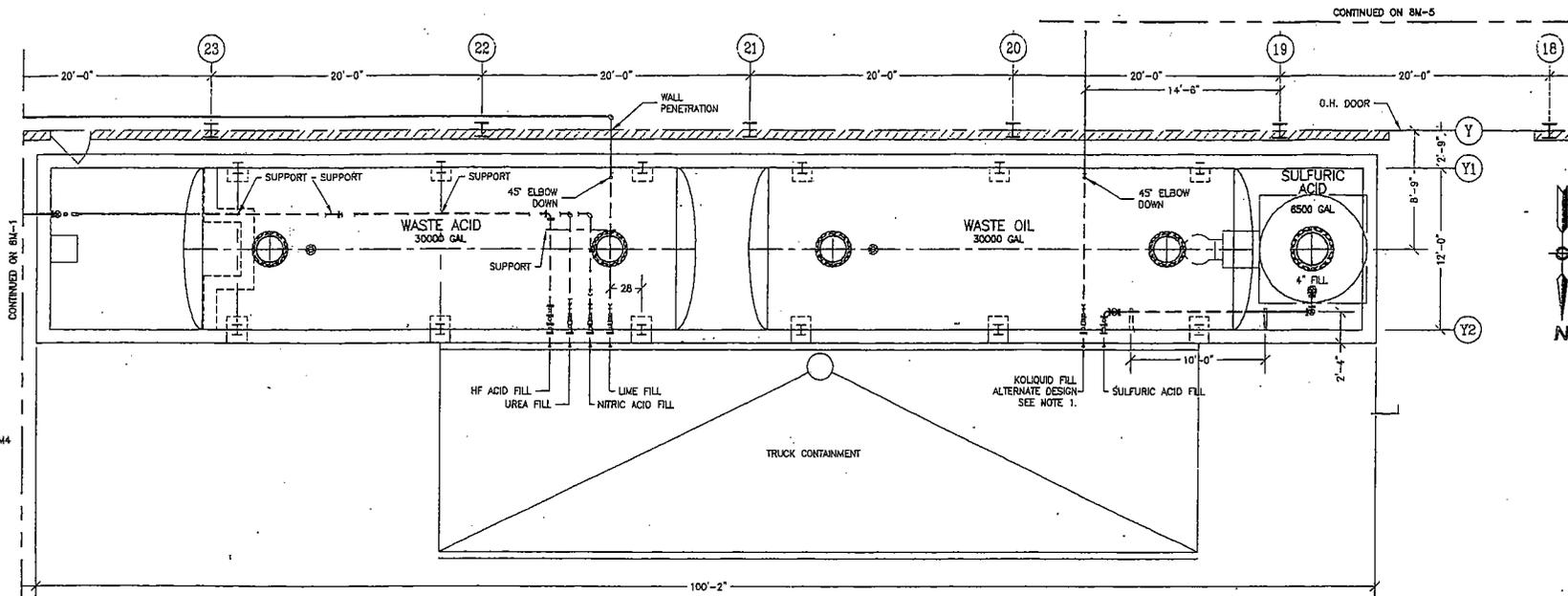
Very truly yours,

FROST BROWN TODD LLC

By: _____


Paul W. Casper, Jr.

PWC/prc
CinLibrary/1368392.1
0001590.0481976



PLAN VIEW
SCALE: 1/4" = 1'-0"

DRAFT

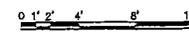
NOTES:

1. THE KOLLIQUID PIPING RUN SHOWN IN THIS DRAWING IS AN ALTERNATE TO A DESIGN SHOWN ON DRAWING 28M-1.

4					
3					
2					
1					
0					
FOR DISCUSSION					
REV	DATE	REV BY	APP BY	REVISION	
<p>mc Mech-Chem Associates, Inc. Norfolk, Massachusetts</p>					<p>DATE: 05/29/83 SCALE: 05/29/83</p>
<p>AK-STEEL Zanesville, OH</p>					<p>DATE: 05/29/83 SCALE: 05/29/83</p>
<p>#1AP LINE PIPING LAYOUT</p>					<p>DATE: 05/29/83 SCALE: 05/29/83</p>
REV	DATE	REV BY	APP BY	REVISION	
8M	NONE			1 OF 1	8M-2
					DATE LAST REVISED: 07/13/83

GRAPHIC SCALES:

SCALE: 1/4" = 1'-0"



CONTINUED ON 8M-1

CONTINUED ON 8M-5

SECTION SHOWN ON M4

Cost Breakdown for SEP

Description	Estimated Cost
Piping Project	
Demolition	\$7,500
Materials	\$44,500
Installation	\$20,000
Secondary Containment	
Cleanup & Prep	\$15,000
Coating Application	\$63,000
Total	\$150,000

Scope Of Work
#1 A&P Line Raw Material Storage Tank Fill Lines
AK Steel – Zanesville Works

Project Scope:

This project consists of re-routing all existing piping at the #1 Anneal & Pickle Line for the off-loading of raw materials to bulk storage tanks. The current off-loading areas have no secondary containment. The piping will originate from a central location – the existing used acid truck loading station which has a secondary containment. As part of the project, an acid resistant coating will also be applied to the truck secondary containment and an adjacent secondary containment which receives overflow from the truck secondary containment. Each raw material will be conveyed via it's own dedicated piping which will be routed over an existing containment or within a containment pipe. Approximately 650 linear feet of piping will be installed. The raw materials involved are as follows:

Hydrofluoric Acid
Koliiquid
Lime Slurry
Nitric Acid
Sulfuric Acid
Urea

Estimated Cost of Project: \$159,000

4.0 SUMMARY AND CONCLUSIONS

The AK Steel Site and vicinity have undergone significant changes over the period of study from 1942 to 1994. Major building additions, residential expansion, decreased use of rail systems, construction of local recreational facilities, and major new transportation routes were observed.

Many changes were also noted in the immediate vicinity of the plant itself. Significant alteration of the land surface through construction and other activities was apparent during the 51 years of study.

Certain material handling practices that may have contributed to observed discharge events also seem to have occurred. Large-scale excavations were performed in the industrial buffer area and were subsequently filled over time. Discharge of materials to the Muskingum River adjacent to the eastern side of the plant was likely. Large volumes of petroleum hydrocarbons were also likely used at the site in association with railroad activities and practices in the roundhouse and rail yard areas.

Drum storage, aboveground tanks, stained soil, and general activities in the plant vicinity and the industrial buffer to the south were described in this assessment and can present environmental concerns. Additional in-field investigation should be performed to further validate the observations made above. Specific attention should be paid to the industrial buffer area where large trench excavations were made and later covered and where significant disturbed ground, drum storage, and stained soil were noted. Additional investigation of possible sewer outfalls along the Muskingum River would also be appropriate.

Definitions of terms used in this interpretation

The following terms are used during the discussion of photograph interpretation results and are defined as follows:

Disturbed ground – land surface areas that have been altered because of cultural activity. For the purpose of this discussion, disturbed ground is divided into residential, agricultural, and industrial classifications. Further, residential and agricultural disturbances will not be discussed at length in this report. The focus of the report is on industrial land use practices at the subject industrial property.

Drum storage areas – locations where drummed materials have been identified or may occur.

Excavations – disturbed ground instances where earth materials have been removed and depressions remain in the ground surface after the removal activity.

Stains – areas of soil discoloration. Stains may be associated with spills, leaks, or leaching of non-native materials to the ground surface.

Standing liquid – areas of temporary standing liquid in uncontained areas, as opposed to persistent standing liquids in surface water bodies or standing liquids in manmade structures.

Stockpile – an elevated mound of material that is deposited by cultural activity, such as coal piles, waste piles, or excavated earth materials.

Tank – a manufactured structure primarily used for containment of liquids and slurries.

Tank farm – an area containing one or more tanks with associated piping or service structures.

Sewer outfall – a discharge location for conveyed liquids or slurries. Sewer outfalls typically occur to a surface water body or open containment unit such as a wastewater lagoon. Material conveyance is typically through a pipe or trench.

**AERIAL PHOTOGRAPH LOG
AK STEEL (f/k/a ARMCO)
PROJECT NO. G9001.0R058052501**

Date Received	Source	Photograph/ Tracking Number	Serial Number	Photograph Date	Scale	Stereo- scopic (Y/N)	Notes
10/10/00	NAR	00-7740D	228F	10/08/42	1"= 2,000'	Y	CLZ-9A-132
10/10/00	NAR	007740D	228F	10/08/42	1"= 2,000'	Y	CLZ-9A-133
09/21/00	NAR	00-7740B	241S	11/19/47	1"=1,000'	Y	MSN #102V; Roll 24; Frame 106, 107; 102V-5-106
09/21/00	NAR	00-7740B	241S	11/19/47	1"=1,000'	Y	102V-5-107
10/13/00	ODOT			11/47	1"=1,000'	Y	102-5-105; Roll 24
10/13/00	ODOT			11/47	1"= 1,000'	Y	102-5-106; Roll 24
10/13/00	ODOT			05/55	1"=800'	Y	622-2-8; Roll 286
09/21/00	NAR	00-7740B	241S	01/10/58	1"=800'	Y	MSN #1002; Roll 481; Frames: 14,15; 1002-2-14
09/21/00	NAR	00-7740B	241S	01/10/58	1"=800'	Y	1002-2-15
10/13/00	ODOT			01/58	1"=800'	Y	1002-2-13; Roll 481
10/13/00	ODOT			01/58	1"=800'	Y	1002-2-14; Roll 481
10/13/00	ODOT			01/58	1"=800'	Y	1002-2-15; Roll 481

**AERIAL PHOTOGRAPH LOG
AK STEEL (f/k/a ARMCO)
PROJECT NO. G9001.0R058052501**

Date Received	Source	Photograph/ Tracking Number	Serial Number	Photograph Date	Scale	Stereo-scopical (Y/N)	Notes
10/13/00	ODOT			04/59	1"=800'	Y	1193-2-14; Roll 561
09/08/00	NAR	00-7740B	122F	04/12/60	1"=2,417'	Y	2-118, GS-VABA
09/08/00	NAR	00-7740B	122F	04/12/60	1"=2,417'	Y	2-119, GS-VABA
10/13/00	ODOT			03/63	1"=800'	Y	2462-1-11; Roll 883
10/13/00	ODOT			03/63	1"=800'	Y	2462-1-12; Roll 883
10/13/00	ODOT			03/63	1"=800'	Y	2462-1-13; Roll 883
09/21/00	NAR	00-7740B	241S	03/09/66	1"=1,000'	Y	MSN #3255; Roll 1112; Frames 45, 46; 3255-3-45
09/21/00	NAR	00-7740B	241S	03/09/66	1"=1,000'	Y	3255-3-46
10/13/00	ODOT			03/66	1"=1,000'	Y	3255-3-45; Roll 1112
10/13/00	ODOT			03/66	1"=1,000'	Y	3255-3-46; Roll 1112
09/21/00	NAR	00-7740B	241S	03/27/68	1"=2,000'	Y	MSN #4740; Roll 1356; Frames 178, 179; 4740-3-14; 1-178; 2125

**AERIAL PHOTOGRAPH LOG
AK STEEL (f/k/a ARMCO)
PROJECT NO. G9001.0R058052501**

Date Received	Source	Photograph/ Tracking Number	Serial Number	Photograph Date	Scale	Stereo-scopie (Y/N)	Notes
09/21/00	NAR	00-7740B	241S	03/27/68	1"=2,000'	Y	4740-3-15; 1-179; 2125
10/13/00	ODOT			03/27/68	1"=2,000'	Y	4740-3-14; Roll 1356; 1-178; 2125; 472
10/13/00	ODOT			03/27/68	1"=2,000'	Y	4740-3-15; Roll 1356; 1-179; 2125; 473
09/08/00	NAR	00-7740B	122F	05/09/72	1"=2,000'	Y	I-453, GS-VCYF, 086
09/08/00	NAR	00-7740B	122F	05/09/72	1"=2,000'	Y	I-454, GS-VCYF, 087
09/08/00	NAR	00-7740B	122F	04/13/75	1"-6,500'	Y	4-53, GS-VDLT
09/08/00	NAR	00-7740B	122F	04/13/75	1"-6,500'	Y	4-52, H-40000, GS-VDLT, 1054, UAG245
09/21/00	NAR	00-7740B	241S	03/21/77	1"=1,000'	Y	MSN #6158; Roll 1561; Frames 10, 11; 6158-1-10; 100
09/21/00	NAR	00-7740B	241S	03/21/77	1"=1,000'	Y	6158-1-11; 101
10/13/00	ODOT			03/77	1"=1,000'	Y	6158-1-10; Roll 1561; 100

AERIAL PHOTOGRAPH LOG
AK STEEL (f/k/a ARMCO)
PROJECT NO. G9001.0R058052501

Date Received	Source	Photograph/ Tracking Number	Serial Number	Photograph Date	Scale	Stereo-scopical (Y/N)	Notes
10/13/00	ODOT			03/77	1"-1,000	Y	615801-11; Roll 1561; 101
09/13/00	NAR	00-7740C	313F	11/13/81	1"-3,300'	Y	USDA 40, 39119, 181-53
09/13/00	NAR	00-7740C	313F	11/13/81	1"=3,300'	Y	USDA 40, 39119, 181-54
09/08/00	NAR	00-7740B	122CIR	04/25/83	1"-4,833'	Y	Frame 523-157, 398216, HAP-81F, 168
09/08/00	NAR	00-7740B	122CIR	04/25/83	1"-4,833'	Y	Frame 523-158, 398216, HAP-81F, 169
10/13/00	ODOT			04/17/88	1"=3,333	Y	NAPP-582-117; Roll N8
10/13/00	ODOT			04/17/88	1"-3,333	Y	NAPP-582-118; Roll N8
09/08/00	NAR	00-7740B	138P	04/14/88	1"=1,000'	Y	Roll OH130, Frame 542-38
09/08/00	NAR	00-7740B	138P	04/17/88	1"-1,000'	Y	Roll OH130, Frame 582-117
09/21/00	NAR	00-7740B	241S	05/07/93	1"=2,000'	Y	MSN #9100; Roll 1981; Frames 28, 29; 9100-2-28
09/21/00	NAR	00-7740B	241S	05/07/93	1"=2,000'	Y	9100-2-29

AERIAL PHOTOGRAPH LOG
AK STEEL (f/k/a ARMCO)
PROJECT NO. G9001.0R058052501

Date Received	Source	Photograph/ Tracking Number	Serial Number	Photograph Date	Scale	Stereo-scopical (Y/N)	Notes
10/13/00	ODOT			05/93	1"=2,000'	Y	9100-2-27; Roll 1981; Strip 2
10/13/00	ODOT			04/93	1"=2,000'	Y	9100-2-29; Roll 1981; Strip 2
09/08/00	NAR	00-7740B	122F	03/20/94	1"=3,333'	Y	
09/08/00	NAR	00-7740B	122F	03/20/94	1"-3,333'	Y	

Notes: NAR National Aerial Resources
 ODOT Ohio Department of Transportation