

**BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the Matter Of:

Elkem Metals Company - Ashtabula LP : Director's Final Findings
1013 Centre Road : and Orders
Wilmington, DE 19805 :

and

Elkem Metals, Inc. :
Airport Office Park Building 2 :
400 Rouser Road :
Moon Township, PA 15108 :

Respondents

PREAMBLE

It is hereby agreed by and between the parties hereto as follows:

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are hereby issued to Elkem Metals Company - Ashtabula LP and Elkem Metals, Inc. ("Respondents") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under sections 3734.13 and 3745.01 of the Ohio Revised Code ("ORC").

II. PARTIES

These Orders shall apply to and be binding upon the Respondents and their successors in interest liable under Ohio law. No changes in ownership relating to Respondent Elkem Metals Company - Ashtabula LP, or to its calcium carbide production plant property, located at 2700 Lake Road East in Ashtabula, Ohio, will in any way alter the Respondents' responsibilities under these Orders. The Respondents' obligations under these Orders may be altered only by the written approval of the Director of Ohio EPA.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as used in ORC Chapter 3734. and the rules promulgated thereunder.

IV. FINDINGS OF FACT

The Director has determined the following:

Corporate Information

1. Respondent Elkem Metals Company - Ashtabula LP ("Respondent Elkem - Ashtabula") is a foreign limited partnership with a mailing address of 1013 Centre Road in Wilmington, Delaware. Respondent Elkem - Ashtabula owns and operates a calcium carbide production plant located at 2700 Lake Road East in Ashtabula, Ohio ("Ashtabula Plant").

Respondent Elkem Metals, Inc. ("Respondent Elkem, Inc.") is a general partner of Elkem Ashtabula with a mailing address of Airport Office Park, Building 2, 400 Rouser Road in Moon Township, Pennsylvania.

Respondent Elkem - Ashtabula and Respondent Elkem, Inc. may be collectively referred to within the Orders as "Respondents". Respondents are "persons" as defined under ORC Section 3734.01(G) and Ohio Administrative Code ("OAC") Rule 3745-27-01(B)(27), as effective January 28, 2002.

2. Following World War II and until June 30, 1981, Union Carbide Corporation ("Union Carbide") owned an industrial complex on a 673-acre site in Ashtabula County. Three divisions of Union Carbide were located on this 673-acre site. Each division had its own corporate management. Union Carbide Corporation's Linde Air Products Division (a.k.a. Linde Gas Division) operated an air reduction plant, the Linde Welding Products Division manufactured welding wire, and the Metals Division manufactured ferroalloys, calcium carbide and lime using submerged arc electric furnaces. The ferroalloys production ceased in the mid 1990s. Lime was primarily used internally as a raw material in the carbide furnaces.
 3. Union Carbide sold the Metals Division and approximately 300 acres to Elkem Metals Company, L.P. on June 30, 1981. At the time of the sale, Union Carbide continued to own the Linde Air Products Division and the Linde Welding Products Division.
 4. Elkem Metals Company, L.P. transferred the property it purchased from Union Carbide to Respondent Elkem Metals Company - Ashtabula, LP during September of 1999.
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History of Solid Waste Disposal

5. The Ashtabula Plant has a series of wastewater treatment ponds located on-site. Ponds 3 and 3A cover approximately 66.1 acres and have been filled with a significant amount of waste material, including solid waste.
6. In a letter dated April 16, 1979, Ohio EPA requested, pursuant to Section 4005(b)

of the Resource Conservation and Recovery Act ("RCRA"), that Union Carbide provide a detailed description of all waste materials generated at the Union Carbide Metals Division, including the volume of waste material generated on a monthly/yearly basis. The letter also requested a detailed description of on-site storage and/or disposal practices, and a listing of all waste removed from the property for ultimate disposal.

7. OAC Rule 3745-27-09, as effective July 29, 1976, required the operator of any active solid waste disposal facility to submit an operational report or detail plans to Ohio EPA. In a letter to Union Carbide dated June 28, 1979, Ohio EPA stated that "due to the nature of some materials which are being disposed at this site, this Agency is requiring the submittal of detailed plans." Ohio EPA enclosed a Permit to Install (PTI) application, an Appendix "F" document, and leachate analysis procedures with the letter. The requested detailed plans were not submitted to Ohio EPA in accordance with OAC Rule 3745-27-09, as effective July 29, 1976.
8. In a letter dated May 21, 1979, Union Carbide summarized the various solid waste streams that went into the "solid waste disposal site."
9. In a letter dated August 20, 1979, Union Carbide gave a history of the construction of Ponds 3 and 3A. The letter stated that, "The UCC Metals Division plant in Ashtabula has used on-site waste water treatment ponds for the disposal of solid waste and wa[s]tewater solids generated by the facility since 1956. Pond No. 3 was constructed in 1956 and was utilized for this purpose until 1967. In 1967 Pond No. 3A was constructed to allow for additional disposal and treatment volume."
10. Union Carbide submitted a proposal dated October 18, 1979, to Ohio EPA that summarized the work that it was going to perform to evaluate the short and long-term management of its wastes. The proposal referenced "existing disposal sites (lagoons)," the "inventory of wastes currently being disposed on [the] landfill by type and quantity," and the "history of existing landfill."
11. In a letter dated November 8, 1979, Union Carbide summarized the measures that the "plant in Ashtabula has taken to bring [its] solid waste disposal practices into compliance with the OEPA regulations."

12. In a letter dated December 27, 1979, Ohio EPA memorialized a discussion with Union Carbide's representatives held on December 26, 1979. The letter stated "you asked how this office [Ohio EPA] would consider Union Carbide waste ponds #3 and #3A if no additional solid wastes were to be disposed in those ponds." In light of Ohio EPA's understanding that Union Carbide intended to use Ponds 3 and 3A only in conjunction with an approved wastewater treatment operation, Ohio EPA stated that "[t]his office would not require a [solid waste] Permit to Install for those waste ponds since they would be controlled under Union Carbide's NPDES permit." The letter confirmed that Union Carbide would further examine the possibilities of developing an on-site landfill or entering a private contract to dispose of solid wastes

generated by Union Carbide.

13. In a Preliminary Assessment application that was completed by Ohio EPA dated January 28, 1980, the application stated that, "Union Carbide has been notified that they are in violation of Ohio Solid Waste Laws. Ohio EPA is awaiting submission of plans for this disposal site."
14. In a letter dated March 31, 1980, Union Carbide informed Ohio EPA of "the status of the study of [its] solid waste disposal site."
15. In response to Ohio EPA's June 28, 1979 request for detail plans, Union Carbide submitted a "May 1980 Solid Waste Disposal Investigation Report" on August 21, 1980 ("1980 Report"). The document stated that Union Carbide Metals Division, Linde Air Products Division, and Linde Welding Products Division used portions of the 673-acre site for disposal of the liquid and solid waste generated by all three operations. Section 2.1 of the report stated that ponds 1, 1A and 2 were abandoned and that "Ponds 3 and 3A receive all solid waste materials which are disposed on site from all three facilities." These ponds were used for the ultimate disposal of solid and semi-solid wastes, including wastewater treatment sludges generated at the plants. Section 2.1 of the report stated that "the general on-site disposal strategy involves two workers who collect and dump materials into the ponds in a random fashion employing bulldozers and dump trucks. The various component wastes are neither systematically segregated, compacted, or covered." The report also described the results of ground water sampling performed by Union Carbide and concluded in Section 5.1 that "[I]eachate from the wastes deposited in Ponds 3 and 3A appears to be migrating through the containment dike into the local groundwater."
16. In a letter dated December 10, 1980, Ohio EPA commented on the 1980 Report and indicated that "[a]dditional details are needed on the disposal of solid wastes. Please refer to the operational report preparation section of the Regulations (OAC 3745-27-09 (J))."
17. In a February 24, 1981, letter and corresponding February 6, 1981, interoffice communications memo, Ohio EPA identified ground water monitoring concerns with the May 1980 Solid Waste Disposal Investigation Report.
18. Representatives from Union Carbide Metals Division, Engineering-Science, Ltd., Acres Canada (consulting company), and Ohio EPA met on March 24, 1981, to discuss the May 1980 Solid Waste Disposal Investigation Report. One of the agenda items for this meeting was entitled "Chronology of Solid Waste Disposal Project." This meeting was documented in two letters. A March 27, 1981, letter from Ohio EPA to Union Carbide stated that the purpose of the meeting was to discuss options for solid waste disposal at the Union Carbide Metals Division. The letter documents that lime waste has been disposed of in lagoon 3 (Pond 3) and wastewater treatment plant sludge has been disposed of in lagoon 3A (Pond 3A). It also stated

that lime waste could be disposed off-site at considerable cost savings and that "Lagoon 3 should be closed in an approved manner." It did not approve of the 1980 Report or exempt Union Carbide from any applicable requirements. In addition to Ohio EPA's letter, a March 27, 1981, letter from Union Carbide to Ohio EPA discussed disposal of solid waste, including carbide shot, lime fines, and non-hazardous refuse, in areas described as "the present pond and landfill area" and as Ponds 3 and 3A. The letter discussed Union Carbide's position that it would not be necessary to place a clay-lined cell on top of Pond 3, and that dredgings from Ponds 4A and 4B would continue to be deposited on Pond 3A. The letter concludes with Union Carbide's position that "no solid waste disposal permit will be needed for pond 3." Union Carbide arrived at its position because it concluded that the costs associated with enhanced solid waste disposal practices "would be prohibitive for the purpose to be served."

19. In a follow-up to the March 27, 1981, letter from Ohio EPA to Union Carbide, Union Carbide stated in a letter dated April 6, 1981, that Ohio EPA should understand that "other manufacturing refuse had been disposed of in the Pond 3 site."
20. In a letter dated April 21, 1981, Union Carbide represented to the United States Environmental Protection Agency ("USEPA") that "[d]uring the past two (2) years, the Ashtabula plant has been working in collaboration with Ohio EPA in securing a state solid waste disposal license."
21. Union Carbide stated in a letter, dated June 25, 1981, that the owner of the Geneva landfill (f.k.a. Doherty Landfill) needed a letter from Ohio EPA allowing the landfill to accept the solid waste, such as fines from the dust collector cleanouts, lime fines, coke fines, floor sweepings from packing operations, fire brick from ladles, and furnace rebuilds. This waste material, which was formerly sent to Pond 3, would be disposed at the Geneva landfill, which was a licensed municipal solid waste landfill. According to a handwritten note on the bottom of the June 25, 1981 letter, Ohio EPA spoke to the owner of Geneva landfill. The owner of the landfill objected to accepting the lime dust unless it was watered down.
22. In a letter dated August 24, 1981, Elkem Metals Company, L.P. informed Ohio EPA that it had purchased the Metals Division from Union Carbide and that as a result, Union Carbide's Linde Air Products Division and the Linde Welding Products Division trash was not being accepted for disposal in Pond 3 or 3A at the Ashtabula Plant. The letter also indicated the following:
 - Ferrosilicon alloy shot containing small amounts of calcium carbide was being recycled and no longer sent to the on-site landfill.
 - Leachate samples were taken from Russell Road ditch and results sent to Ohio EPA.
 - Elkem had stopped Union Carbide's practice of dumping in Pond

3. Pond 3 was being phased out as an active industrial waste site and a clay-organic soil cap was being placed on it.

- A leachate collection system around the Pond 3 and 3A complex that was being installed was about 75% complete.
- A large portion of the solid waste from the plant was being stored at a collection point in the plant, and then taken to the Geneva landfill. The letter stated, however, that Geneva landfill would not accept the baghouse dust since it caused a dust problem.

Elkem proposed to dispose of the baghouse dust, which Ohio EPA has determined to be a solid waste, into Pond 3A, since lime, coke dust and silica, which are ordinarily part of the waste water stream, are collected from the baghouse during the time of maintenance. The letter stated that no solid wastes, other than those described, would be put in Pond 3A and argued that Ohio EPA's solid waste rules exempted from solid waste regulation ponds and lagoons regulated under ORC Section 6111. Elkem requested written authorization from Ohio EPA to dispose of the waste material under their National Pollution Discharge Elimination System ("NPDES") permit. The company did not want to "undergo the expense and effort to license Pond 3A as a solid waste disposal facility."

23. Ohio EPA never provided written authorization to Respondents to dispose of solid waste in Ponds 3 and 3A either under ORC Chapter 3734. or ORC Chapter 6111., nor did Ohio EPA approve of the closure procedures employed by Elkem with respect to Pond 3.
24. In a January 13, 1983 letter from Elkem Metals Company to Ohio EPA, Elkem indicated that USEPA had allowed it to withdraw its RCRA Part A hazardous waste permit to install (PTI) application and further stated that USEPA had instructed Elkem to "comply with any applicable State and local requirements" with regard to its waste disposal practices. Therefore, Elkem asked Ohio EPA in the January 13, 1983, letter what steps would be necessary "to obtain a Permit to Operate an Industrial Land-fill."
25. In 1989-1990, Ohio EPA and the Ashtabula County Health Department wrote letters to Elkem requesting that an explosive gas monitoring plan be submitted for Ponds 3 and 3A. Elkem responded in two letters dated March 10, 1989, and January 7, 1991. The letters stated that Pond 3 was closed in 1982, that the waste was non-putrescible, that the remaining ponds were regulated under an NPDES permit, and that no landfill has operated since July 1, 1970. The March 10, 1989, letter stated that the pond systems are used for "treatment of phenol and cyanide and/or storage of non-combustible, inorganic materials associated with the production of ferroalloys and calcium carbide. These materials are limited to hydrated lime, limestone, slags, and emission control dusts and fumes."
26. Ohio EPA-Division of Hazardous Waste Management ("DHWM") received a

complaint of open dumping on the Elkem property. In a letter from Ohio EPA to Elkem dated September 22, 1993, Elkem was cited in violation of OAC Rule 3745-27-05(C), as effective July 29, 1976, for open dumping of three 55-gallon drums containing an unknown material, a large amount of trash, scrap materials, and garbage along a small unpaved road off Middle Road. Elkem was required to document compliance by submitting the analytical results, manifest, bill of lading, or other documentation demonstrating the lawful and proper disposal of the drums and various waste material to Ohio EPA Northeast District Office by October 29, 1993. Elkem was further advised to take measures to avoid further open dumping on its property.

27. In response to the notice of violation, Elkem stated in an October 8, 1993, letter that the three drums were part of the Fields Brook cleanup. Furthermore, the solid waste which consisted of golfing equipment, truck seat, toys, scrap wood, carpeting, coffee cans, empty pails, roofing material, tires, stereo cabinet, mattress, and other miscellaneous household goods were from the local residents illegally dumping at the Ashtabula Plant. The trash was going to be cleaned up and sent to a local landfill for proper disposal. The letter also stated that Elkem was investigating the possibility of fencing the site and/or patrolling the property.
28. In a follow-up letter dated October 13, 1993, Ohio EPA documented that Elkem had not addressed the outstanding OAC Rule 3745-27-05(C) violation for open dumping. Ohio EPA stated that Elkem must abate the violation by disposing of the trash and other solid waste in accordance with all applicable rules. In addition, Ohio EPA requested that Elkem respond to the notice of violation by November 15, 1993.
29. Elkem responded to the October 13, 1993, letter from Ohio EPA in a letter dated November 15, 1993. Elkem represented that the trash had been collected and taken to Geneva landfill and the tires had been picked up by Firestone Tire and Service Center. Elkem attached copies of invoices from Geneva Landfill and Firestone. Elkem also stated that they created a physical barrier to prevent further illegal dumping.
30. Based on the documentation provided, Ohio EPA stated in a letter dated November 22, 1993, that the facility had demonstrated the lawful and proper disposal of this material.
31. In May 2000, Respondents submitted a document titled "Pond 3A Vertical Expansion with Geotextile Containment Tubes" to Ohio EPA Division of Surface Water ("DSW"). DSW forwarded the document to the Division of Solid and Infectious Waste Management ("DSIWM") to review. Upon reviewing the document, DSIWM became concerned that Respondents had been open dumping industrial solid waste or potentially hazardous waste into pond 3A. Page 5 of the document stated: "Dry solids from the packing house are handled like soil after conditioning (slaking) in bunkers, then applied to Pond 3A. Past practice has been to remove accumulated wastes from the bunker area in large volumes, once or twice per year, and piling these materials along a 25 to 30-foot high berm at the west edge of Pond

- 3A.” These dry solids are “conditioned” by reacting with moisture in the atmosphere. Once these solids have reacted, the waste is dumped in Pond 3A.
32. On June 6, 2000, Ohio EPA conducted an inspection of Respondents’ wastewater treatment system, specifically Pond 3A. In response to DSIWM’s concerns regarding the stock piling and handling of waste material, Respondents indicated that the waste material was “reactive” and must be exposed to atmospheric moisture to allow it to react prior to placement into pond 3A. This reaction releases acetylene gas. DSIWM had concerns that the acetylene gas generated from the waste might be an indicator that the waste material is hazardous. DSIWM observed piles of light and dark dust-like material in the bunker area that Respondents identified as lime and calcium carbide. The bunker area is west of Pond 3. DSIWM also observed piles of light and dark dust-like material, mixed with other waste material, which covered an approximate area the size of a football field between Ponds 3 and 3A. DSIWM observed a few large mounds of metal and plastic southeast of a building complex.
 33. On May 4, 2001, Ohio EPA met with Respondents to exchange information and determine if there were compliance issues with the waste being dumped into Pond 3A. Respondents agreed to submit analytical data to DHWM to determine if the calcium carbide waste is hazardous when first stockpiled outside to react. Ohio EPA informed Respondents that the waste material that was being disposed of in Pond 3A should be taken to an appropriate waste disposal facility. Ohio EPA advised Respondents to discontinue dumping this waste material into the waste water treatment pond. Ohio EPA also informed Respondents that their past practices have created an illegal dump.
 34. On May 22, 2001, Ohio EPA and ACHD conducted a comprehensive inspection of the facility to determine compliance with the solid waste rules. Ohio EPA and ACHD were given a tour of the facility operations and inspected the same waste piles as identified during the June 6, 2000 inspection. The waste material in the area between Ponds 3 and 3A contained lime fines, calcium carbide, refractory brick, metal rods and wires, a ladder, fabric bags, rubber hoses, a broom, and metal slag.
 35. As a follow up to Ohio EPA’s inspection, Ohio EPA issued a June 15, 2001, notice of violation to Respondents. Ohio EPA cited Respondents in violation of ORC Section 3734.02(C) and OAC Rule 3745-27-05(C), as effective July 29, 1976, for open dumping of solid waste. Respondents were instructed to remove the waste and properly dispose of it at an appropriate landfill. The letter requested that Respondents respond in writing within thirty days outlining the steps to return to compliance.
 36. In a letter dated September 7, 2001, Respondents replied by stating that “Elkem has stopped the practice of depositing separately collected plant solid wastes into our NPDES permitted facility, referred to as Pond 3A. Wastes that are described in our

NPDES application continue to be managed in Pond 3.” Respondents requested to meet with Ohio EPA to discuss a cost-effective means to resolve the “solid waste issues” described in the June 15, 2001 notice of violation.

37. On October 19, 2001, Ohio EPA met with representatives of Respondents. During the meeting, Ohio EPA addressed the past violations of open dumping and Respondents’ failure to obtain a PTI and license. Ohio EPA inquired as to how the newly generated waste is being handled. Respondents stated that the newly generated waste is being “temporarily stored” for future beneficial use. Ohio EPA requested additional information concerning the volume and type of waste being open dumped.
38. In a November 13, 2001 letter, Respondents replied to Ohio EPA’s request for additional information made in the October 19, 2001 meeting. The letter stated that approximately 100,000 cubic yards of waste are in the “cut” and “bunker” areas. Respondents indicated that the accumulation of waste in the “cut” area started 1980/1981 and continued until 1990/1992. They further indicated that the storage of waste in the bunker area began in the mid to late 1940s and has continued to the present.
39. On December 5, 2001, Ohio EPA met with Respondents. Respondents discussed their proposal for Pond 3A expansion. Ohio EPA again informed Respondents of the violations of open dumping, failure to obtain a PTI and license.
40. On December 18, 2001, Ohio EPA and ACHD conducted a comprehensive inspection of the Respondents’ Metals facility to determine whether the facility was in compliance with the solid waste rules. Ohio EPA observed piles of light and dark dust-like material in the bunker area that Respondents’ Metals facility personnel identified as lime and calcium carbide. The bunker area is west of Pond 3 and Ohio EPA noted that the piles of waste in this bunker area were smaller than previously observed. Ohio EPA also observed piles of light and dark dust-like material, mixed with other waste material, that covered an approximate area the size of a football field between Ponds 3 and 3A. Ohio EPA also observed a few large mounds of metal and plastic southeast of a building complex.
41. In addition, Ohio EPA also observed an area west of Pond 3 where Respondents’ Metals facility is “temporarily storing” the newly generated waste. Ohio EPA also observed previously unseen, unnamed piles of dark ash-like material west of Pond 3A. The approximate size of this unnamed area was approximately three-fourths the size of a football field. Ohio EPA also observed a previously unseen “cut” area. The cut area contained various piles of mixed waste material approximately 8 to 20 feet in height. Respondents’ Metals facility estimated that slightly more than 100,000 cubic yards of mixed waste material had been placed in the cut and bunker areas.
42. After the December 18, 2001 inspection, Ohio EPA and ACHD verbally notified Respondents that they were in violation of open dumping and a notice of violation would be forthcoming. In addition, Ohio EPA requested that Respondents do the

following: prepare a flow diagram of all plant processes and illustrate where the waste streams are generated, list the chemicals used and where the chemicals are introduced, describe the waste products, describe where the waste products are generated, and where the waste products are being disposed.

43. On January 23, 2002, Ohio EPA issued a notice of violation to Respondents regarding the December 18, 2001, inspection of the Ashtabula Plant. Ohio EPA informed Respondents that they were in violation of ORC Section 3734.02(C), ORC 3734.03, 3734.11(A), and OAC Rule 3745-37-01(A), as effective September 30, 1996, as a result of the open dumping of solid waste at the Ashtabula Plant without a permit or license.
44. On October 25, 2002 and March 27, 2003, Ohio EPA received Respondents' sampling and analysis results for the solid waste in the cut area. The highest values of selected parameters were as follows:

Parameter	Result	Units	Pile #
pH	12.44	units	27A
Arsenic	550	mg/kg	Composite C2
Barium	1400	mg/kg	25B
Cadmium	2.5	mg/kg	8A
Chromium	490	mg/kg	Composite C3
Lead	820	mg/kg	Composite C4
Selenium	1600	mg/kg	Composite C3

45. Respondents disposed of "solid wastes" as that term is defined in ORC 3734.01(E) and OAC Rule 3745-27-01(B)(43), as effective January 28, 2002, at the Ashtabula Plant without a permit or license issued under ORC 3734.
46. Union Carbide and Respondents have created an unlicensed, unpermitted "solid waste disposal facility" as defined in OAC Rule 3745-27-01(C)(11), as effective January 28, 2002, in violation of ORC Sections 3734.02(C), 3734.05(A), 3734.03 and 3734.11(A), and OAC Rule 3745-37-01(A), as effective September 30, 1996, OAC Rule 3745-31-02(A), as effective November 30, 2001, and OAC Rule 3745-27-05(C), as effective July 29, 1976.

Nordic Transaction

47. On December 11, 2001, Respondents contacted Ohio EPA to discuss removing and relocating the solid waste in the cut and bunker areas. Respondent Elkem - Ashtabula represented to the Director of Ohio EPA that it desired to engage in a real estate transaction with Nordic Energy, L.L.C. and Nordic Biofuels, L.L.C., ("Nordic") for the sale of approximately 70 acres of Respondent Elkem - Ashtabula's Ashtabula

- Plant property. Respondent Elkem - Ashtabula estimated that the 70 acre property subject to the Elkem/Nordic real estate transaction contained an estimated 100,000 cubic yards of non-homogenous waste material which resulted from Respondent Elkem - Ashtabula's and Union Carbide's industrial calcium carbide production process, ferro alloy and lime production processes.
48. Respondent Elkem - Ashtabula represented to Ohio EPA that it desired to remove the waste material located on the 70 acre property subject to the Elkem/Nordic real estate transaction and temporarily store the waste material on another area of Respondent Elkem - Ashtabula's Ashtabula Plant property. Furthermore, Respondent Elkem - Ashtabula represented that such waste material movement and subsequent temporary storage would timely facilitate the real estate transaction with Nordic.
 49. Ohio EPA determined that Respondent Elkem - Ashtabula's estimated 100,000 cubic yards of solid waste had been disposed in a manner inconsistent with Ohio's solid waste disposal laws and rules.
 50. Respondent Elkem - Ashtabula represented that movement and temporary storage of the estimated 100,000 cubic yards of waste material would not endanger human health, safety or the environment.
 51. On December 14, 2001, Respondents were informed by phone that Ohio EPA's position was that moving this solid waste to another part of Respondents' property without first receiving authorization was open dumping of solid waste and was not a legal option. Respondents could remove the solid waste and dispose of it in an appropriate permitted and licensed waste disposal facility.
 52. On December 20, 2001, a conference call was held between Respondents and Ohio EPA, to further discuss the approximate 70-acre parcel of land that Nordic proposed to purchase. Respondents provided additional information about this 70-acre parcel of land where an estimated 100,000 cubic yards of waste material had been open dumped. The estimated volume of waste material was provided by representatives of Respondents and the figure had not been confirmed by Ohio EPA. The open dump on the 70-acre parcel of land appears to consist of various waste streams, such as refractory brick, filter bed media, wood, metals, residual ash, empty and partially filled drums of unknown waste, railroad ties, fabric, plastic pipes, wood pallets, metal parts, calcium carbide, and various unknown substances. Ohio EPA previously told Respondents that the waste on this property must be removed and taken to an appropriate authorized disposal facility.
 53. During the conference call, Respondents discussed a proposal to dispose of all of the estimated 100,000 cubic yards of waste material and other waste as an alternative to soil, into an existing railroad cut that is located adjacent to the open dump. The railroad cut, which is below the existing grade, served the First Energy Plant C located across the street from the Ashtabula Plant. After filling the cut with

the waste, the railroad tracks would be replaced with a new line.

54. On January 10, 2002, Ohio EPA met with Respondents to discuss the solid waste violations and the pending sale of a portion of the property to Nordic.
55. On January 24, 2002, Ohio EPA sent a letter to Respondents listing the following waste material management options with regard to the estimated 100,000 cubic yards of solid waste in the cut and bunker areas:
 1. *Removal and disposal of the waste material at a licensed waste disposal facility.*
 2. *Removal and disposal at licensed captive industrial waste disposal facility with director's authorization.*
 3. *Waste movement and temporary storage pursuant to a director's interim authorization per ORC Section 3734.13.*
 4. *Successful demonstration by Respondents and/or Nordic to obtain Integrated Alternative Waste Management Program (IAWMP) authorization from director to utilize waste as construction material.*
 5. *Seek director's authorization to construct a permitted and licensed waste disposal facility.*
56. On January 25, 2002, representatives of the Ohio EPA, Respondents, Nordic, the Ohio Department of Development, the Ohio House of Representatives, and Growth Partnership for Ashtabula County ("Growth Partnership") met to discuss Respondents' options as proposed in the January 24, 2002, letter from Ohio EPA. Respondents indicated that they would pursue option 3. Respondents were to get back with Ohio EPA, in writing, stating what course of action the company would take.
57. On January 30, 2002, Ohio EPA conducted a technical visit of the Ashtabula Plant. Representatives of Respondents and Growth Partnership were present to discuss potential areas where solid waste could be temporarily stored. Respondents had considered using the cap of Pond 3 as a temporary storage area pursuant to option 3 of the January 24, 2002, letter from Ohio EPA. Ohio EPA requested that Respondents respond in writing if they were going to pursue option 3.
58. In a letter dated February 4, 2002, Respondents outlined steps necessary to implement options 3 and 4 as described in Ohio EPA's January 24, 2002 letter. In a second letter dated February 4, 2002, Respondents proposed using Pond 3 as a storage and staging area for the solid waste presently located on the property which was eventually sold to Nordic.
59. In a letter from Ohio EPA dated March 13, 2002, the Director offered to enter into proposed orders with Respondents authorizing option 3 (moving the solid waste

from the future Nordic property to Pond 3 for temporary storage).

60. On April 30, 2002, the Director issued Director's Interim Final Findings and Orders ("Interim Orders") to Respondents allowing for the movement and temporary storage of the waste materials in the property subject to the Nordic sale. The Interim Orders had an expiration date of September 15, 2003.
61. Respondents completed the real estate transaction with Nordic on December 27, 2002.
62. Representatives from DSIWM met with Respondents' representatives on August 20, 2003, to discuss a request by Respondents to extend the Interim Orders. During this meeting, DSIWM agreed to recommend to the Director of Ohio EPA that the Interim Orders be modified and extended until March 1, 2004, to allow time for the parties to engage in discussions regarding a comprehensive resolution of all outstanding solid waste violations at Ashtabula Plant.
63. On September 15, 2003, the Director issued revised Director's Interim Final Findings and Orders extending the time frame for Respondents to move and temporarily store the solid waste which is located on the property subject to the Nordic sale until March 1, 2004. Subsequent to the September 15, 2003 Director's Interim Final Findings and Orders, the parties have mutually agreed to extend the time frames of the Interim Orders until August 1, 2004.
64. In correspondence dated November 14, 2003, attached to these Orders as Attachment A, Respondents submitted information to Ohio EPA in response to Order No. 6 of the September 15, 2003 Director's Interim Final Findings and Orders. That Order No. 6, among other things, required Respondents to submit to Ohio EPA a description of the location, estimated quantity, nature and origin of all solid waste which has been open dumped at the Ashtabula Plant.
65. In correspondence dated June 30, 2004, Respondents submitted a Hydrogeological Site Characterization report and a Conceptual Closure Plan for Ponds 3 and 3A to Ohio EPA for review.
66. In correspondence dated November 29, 2004, Respondents submitted information demonstrating an inability to pay a civil penalty for the past violations of law noted in these Orders. Respondents provided additional information regarding their inability to pay a civil penalty in a meeting with Ohio EPA held on December 16, 2004.

V. ORDERS

The Director's Interim Final Findings and Orders issued to Respondents on April 30, 2002, September 15, 2003, February 27, 2004 and May 28, 2004 are no longer in effect. Respondents shall comply with the following requirements:

1. Immediately upon the effective date of these Orders, Respondents shall not dispose

of solid waste at the Ashtabula Plant without authorization from the Director of Ohio EPA.

2. Immediately upon the effective date of these Orders, Respondents may begin:

A. removing the solid waste which has been open dumped at the Ashtabula Plant as referenced above in Section IV., Finding of Fact 64, of these Orders, and solid waste subject to the Nordic real estate transaction referenced above in Finding of Fact 61 of these Orders; and

B. relocating such solid waste as described in Order No. 2A to Pond 3 and/or 3A for subsequent closure in accordance with these Orders provided Respondents:

perform sampling and analysis of their NPDES outfall 3IN00036001 or runoff from the area of where the solid waste is stored atop Pond 3 and/or 3A for all metals using methods 6010 and 9013 down to the relevant method detection limit and/or NPDES permitted limit if one exists, and the results of such sampling and analysis do not reveal a violation of Respondents' NPDES permit or detection under methods 6010 or 9013 of chemical constituents which are not otherwise permitted under Respondents' NPDES permit. Respondents shall perform the sampling required under this paragraph on a quarterly basis beginning with the quarter during which solid waste is placed atop Pond 3 and/or 3A, and Respondents may cease such sampling once Respondents certify the completion of closure of Ponds 3 and 3A in accordance with these Orders. The violation of Respondents' NPDES permit and/or detection of chemical constituents under methods 6010 or 9013 which are not otherwise permitted under Respondents' NPDES permit shall render Pond 3 and/or 3A unavailable for solid waste disposal unless Respondents revise their NPDES permit application and monitor outfall 3IN00036001 for the newly identified constituents no less than once per month until the NPDES permit has been renewed or revised. Samples shall be collected and analyzed according to 40 CFR 136.

Respondents shall complete the removal and relocation of all solid waste which has been open dumped at the Ashtabula Plant as referenced above in Section IV., Finding of Fact 64, of these Orders, and solid waste subject to the Nordic real estate transaction referenced above in Finding of Fact 61 of these Orders, in accordance with Order No. 6 of these Orders.

3. Respondents shall eliminate the flow of wastewater to Pond 3A by no later than October 1, 2004. Respondents shall complete the dewatering of Pond 3A before the completion of closure activities for Ponds 3 and 3A pursuant to Order No. 13 of these Orders.
4. Before February 1, 2005, Respondents shall submit to Ohio EPA for review and comment a hydrogeologic and geotechnical site investigation report which has been prepared in accordance with OAC Rule 3745-27-06(C)(3).
5. Beginning on or before May 1, 2005, and continuing until the termination of these Orders, Respondents shall implement a ground water monitoring program for Ponds 3 and 3A in accordance with OAC Rule 3745-27-10 (effective June 1, 1994), except that :
 - A. Respondents shall substitute thallium, parameter thirteen in Appendix I, with cyanide, parameter 58 in Appendix II, for the purpose of detection monitoring as required by OAC Rule 3745-27-10(D) (effective June 1, 1994). Should Respondents be required to comply with OAC Rule 3745-27-10(E) (effective June 1, 1994), cyanide, parameter 58 in Appendix II, shall be substituted with thallium, parameter thirteen in Appendix I, for the purpose of assessment monitoring.
 - B. Respondents shall not be required to collect the minimum of four independent samples from each monitoring well within one hundred and eighty days after implementing the ground water detection monitoring program, as otherwise required by OAC Rule 3745-27-10(D)(5)(a)(ii)(a) and (D)(5)(b)(ii)(a) (effective June 1, 1994). Respondents shall collect the required minimum of four independent samples from each monitoring well within three hundred and sixty five days after implementing the ground water detection monitoring program.
 - C. Respondents may propose an alternative sampling frequency and/or monitoring parameters, provided Respondents demonstrate to Ohio EPA's satisfaction that the proposed alternative complies with applicable requirements under OAC Rule 3745-27-10 (effective June 1, 1994).

Respondents shall submit to Ohio EPA for review and comment the Ground Water Detection Monitoring Plan which has been prepared in accordance with OAC Rule 3745-27-10 (effective June 1, 1994) before March 1, 2005.

6. On or before July 15, 2005, Respondents shall remove all solid waste which has been open dumped at the Ashtabula Plant as referenced above in Section IV., Finding of Fact 64 of these Orders, and all solid waste subject to the Nordic real estate transaction referenced above in Finding of Fact 61 of these Orders, and relocate such solid waste to Ponds 3 and 3A for subsequent closure in accordance with these Orders, and/or dispose of the waste material in a licensed and permitted

disposal facility which is authorized to receive the waste material for disposal if the waste material cannot appropriately be disposed on Ponds 3 and 3A.

7. Before July 31, 2005, Respondents shall submit a Closure/Post Closure Plan to Ohio EPA for review and comment for all solid waste in Ponds 3 and 3A, all other solid waste which has been open dumped at the Ashtabula Plant as referenced above in Section IV., Finding of Fact 64 of these Orders, and all solid waste subject to the Nordic real estate transaction referenced above in Finding of Fact 61 of these Orders. The Closure/Post Closure Plan shall include schedules for the performance of work and a stability analysis for the interim and final configuration of Ponds 3 and 3A, and comply with OAC Chapter 3745-27 including OAC Rule 3745-27-10 (effective June 1, 1994) in lieu of OAC Rule 3745-27-10 (effective August 15, 2003), except that :
 - A. Respondents shall not be required to remove the wastes located in Ponds 3 and 3A and construct a composite liner system in accordance with OAC Rule 3745-27-08(B)(1)(c);
 - B. To the extent that Respondents propose to deviate from the closure requirements of OAC Rules 3745-27-08, 11 (A), (C)-(G), and (I), and 12, Respondents shall include in the Closure/Post Closure Plan a specific description of any deviation from the closure requirements of OAC Rules 3745-27-08, 11(A), (C)-(G), and (I), and 12 that are permitted for consideration under these Orders, the rationale for the deviation and a demonstration of how the deviation is technically feasible and will not result in any adverse impact to public health or safety of the environment. Respondents shall not deviate from the closure requirements of OAC Rules 3745-27-08, 11(A), (C)-(G), and (I), and 12 unless the deviations are technically feasible, will not result in any adverse impact to public health or safety or the environment, and do not involve the use of solid waste or other waste materials as engineered components;
 - C. To the extent Respondents propose to deviate from the closure requirements of OAC Rules 3745-27-08, 11(A), (C)-(G), and (I), and 12 in the Closure/Post Closure Plan, Respondents are limited to considering: a cap system that consists of a GundSeal or 40-mil FML for a 61 acre cap area, a drainage system consisting of an aggregate and perforated pipe, and eighteen inches of soil as cover material; maintaining the current configuration of the existing side slopes and vegetative cover without installing additional final cover on the side slopes ; a leachate collection system around Ponds 3 and 3A, which may include the perimeter canal system without an additional liner, that is capable of collecting and conveying all leachate to a treatment system and the sewer line extension required under Order No. 7(D) of these Orders; and either a modified or nonexistent explosive gas monitoring system depending on the nature of the waste materials in Ponds 3 and 3A. Respondents shall not include in

the Closure/Post Closure Plan any deviations from the requirements of OAC Chapter 3745-27 except those which are permitted for consideration under this Order No. 7(B) and (C) of these Orders; and

- D. Respondents shall include in the Closure/Post Closure Plan a sewer line extension to be constructed during closure of Ponds 3 and 3A that is capable of conveying leachate from Ponds 3 and 3A to the local POTW. Respondents shall apply for all necessary permits for the sewer line extension, and assuming all necessary permits have been obtained for the sewer line extension, Respondents shall send leachate from Ponds 3 and 3A to the local POTW to the extent that Respondents are not treating or managing the leachate in an alternative manner approved by Ohio EPA.
8. Respondents shall maintain the existing financial assurance instrument attached to these Orders as Attachment B, which shall be applied to the total final closure costs for Ponds 3 and 3A as well as for the removal and relocation of solid wastes and/or waste materials pursuant to Order No. 6 of these Orders; and within forty-five (45) days after the effective date of these Orders, Respondents shall increase the amount of financial assurance by an additional \$2,500,000.00 for a total amount of \$5,000,000.00, and shall amend the wording of Attachment B so that it is identical to the wording of Attachment C of these Orders. Respondents shall maintain Attachment B, as amended pursuant to this Order No. 8, unless otherwise amended pursuant to these Orders.
9. After the completion of final closure of Ponds 3 and 3A, Respondents shall maintain the financial assurance instrument attached to these Orders as Attachment B in the amount of \$5,000,000.00, which shall be applied to the total post closure care and potential corrective measures costs for Ponds 3 and 3A; and Respondents shall amend the wording of Attachment B so that it is identical to the wording of Attachment D of these Orders. Respondents shall maintain Attachment B, as amended pursuant to this Order No. 9, unless otherwise amended pursuant to these Orders.
10. The amount of financial assurance for post closure care and potential corrective measures for Ponds 3 and 3A shall be adjusted downward during the post closure care period:
- A. To \$4,233,251 if Respondents submit a final closure certification report pursuant to Order No. 14 of these Orders certifying that the closure was performed as proposed in the Closure/ Post Closure Plan without the need for substantial upgrades, improvements or deviations; and/or
- B. If Ohio EPA agrees to reduce the financial assurance because Respondents demonstrate to the reasonable satisfaction of Ohio EPA that all or a portion of the monies are no longer needed to address the post

closure care and/or potential corrective measures costs for Ponds 3 and 3A, and/or the costs of post closure should be reduced as provided for under OAC Rule 3745-27-16. If Ohio EPA determines that the financial assurance should not be reduced under this paragraph, Ohio EPA will notify Respondent of its determination in writing.

11. With respect to the adjustment of the amount of financial assurance upward, the parties agree that OAC Rules 3745-27-15 through 18 apply to the closure, post closure and corrective measures for Ponds 3 and 3A. However, the amount of financial assurance required by these Orders will be adjusted upward pursuant to these rules if Ohio EPA requests that the amount be adjusted upward and Respondent agrees to the adjustment. In the event Respondents do not agree to adjust the amount of financial assurance upward, Ohio EPA reserves the right to initiate an administrative and/or judicial action against Respondents to seek an increase in financial assurance amounts provided for in these Orders. In the event Ohio EPA initiates an administrative and/or judicial action against Respondents to seek an increase in the financial assurance amounts provided for in these Orders, Respondents reserve the right to appeal and defend against such an administrative and/or judicial action by Ohio EPA in order to assert that an increase in the amount of financial assurance provided for in these Orders would not be required under OAC Rules 3745-27-15 through 18 for Ponds 3 and 3A.
12. Respondents shall begin closure of Ponds 3 and 3A pursuant to OAC Rule 3745-27-11, or the final Closure/Post Closure Plan required pursuant to these Orders, by no later than March 31, 2006, except as otherwise extended by Ohio EPA in writing.
13. Respondents shall complete closure of Ponds 3 and 3A pursuant to OAC Rule 3745-27-11, or the final Closure/Post Closure Plan required pursuant to these Orders, by no later than December 31, 2009, except as otherwise extended by Ohio EPA in writing.
14. Within ninety days (90) days after the completion of closure of Ponds 3 and 3A, Respondents shall submit a written closure certification report in accordance with OAC Rule 3745-27-11.
15. Respondents shall conduct post-closure care of Ponds 3 and 3A in accordance with OAC Rule 3745-27-14, upon completing closure of Ponds 3 and 3A.
16. In the event Ohio EPA notifies Respondents that any documents submitted to Ohio EPA pursuant to these Orders are unsatisfactory in whole or in part, Respondents shall, within thirty (30) days after the date of Ohio EPA's notice of deficiency, except as otherwise extended by Ohio EPA in writing, submit to Ohio EPA a written response that fully addresses all of the deficiencies noted by Ohio EPA.

VI. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a signatory to these Orders, for any liability arising out of or relating to the Ashtabula Plant.

VII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable federal, state, and local laws and regulations. Nothing in these Orders shall be construed as waiving or compromising in any way the applicability and enforcement of any other statutes or regulations applicable to the Ashtabula Plant. These Orders are not, and shall not be construed to be, a permit or license issued pursuant to any statute or regulation. Ohio EPA reserves all rights and privileges except as specified herein.

VIII. NOTICE

All documents demonstrating compliance with these Orders and all other documents required under these Orders to be submitted to Ohio EPA shall be addressed to:

Ohio Environmental Protection Agency
Northeast District Office
Division of Solid and Infectious Waste Management
Attn: Supervisor, DSIWM
2110 East Aurora Road
Twinsburg, OH 44087

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

IX. RESERVATION OF RIGHTS

Ohio EPA reserves the right to seek legal and equitable relief to enforce the terms and conditions of these Orders, including penalties against Respondents for noncompliance with these Orders. Nothing herein shall restrict the right of Respondents to raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of Respondents.

Except for claims for civil penalties for the violations specifically cited herein, Ohio EPA reserves the right to take any action and pursue any claim against Respondents, and any other potentially liable parties, including but not limited to, any administrative, civil or criminal enforcement action or claim, pursuant to any available legal authority as a result of past, present or future violations of state or federal laws or regulations, as a result of the

common law and/or as a result of events or conditions arising from or related to the Ashtabula Plant. Ohio EPA expressly and specifically reserves the right to take any action and pursue any claim against Respondents, and other potentially liable parties, with respect to any activities performed by Respondents or other potentially liable parties pursuant to these Orders and/or in relation to Ponds 3 and 3A. In the event that Ohio EPA takes an administrative or judicial action or pursues any claim against Respondents regarding any of the closure activities performed by Respondents for Ponds 3 and 3A, Respondents reserve the right to appeal, defend a claim and defend against such an action by Ohio EPA in order to assert that the closure activities performed by Respondents are technically feasible and will not result in any adverse impact to public health or safety or the environment.

Ohio EPA expressly and specifically reserves the right to take any action and pursue any claim pursuant to any available legal authority to address violations of law which are not specifically cited in these Orders. Nothing herein shall restrict the right of Respondents to raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of Respondents, except that Respondents expressly waive any and all claims and defenses of res judicata, collateral estoppel, waiver, laches, statute of limitations, issue preclusion, claim splitting and other claims and defenses based upon any contention that the actions taken or claims raised by Ohio EPA or the State of Ohio in a subsequent proceeding were or should have been raised, brought or resolved in these Orders.

X. INDEMNIFICATION

Respondents agree to indemnify, save, and hold harmless Ohio EPA from any and all claims or causes of action arising from, or related to, any acts or omissions of Respondents and/or Ohio EPA, its officers, employees, agents, representatives, or assigns, in carrying out any "Discretionary Function" as defined pursuant to these Orders and/or any activities pursuant to the Interim Director's Final Findings and Orders issued to Respondents on April 30, 2002, and September 15, 2003, February 27, 2004 and May 28, 2004, including claims or causes of action that Ohio EPA exercised a Discretionary Function in a negligent manner. Except as provided above, nothing in these Orders shall render Respondents liable to indemnify Ohio EPA for any negligence, gross negligence or other tortuous act or omission of Ohio EPA occurring outside of the Ohio EPA's exercise of its Discretionary Function. For purposes of these Orders, "Discretionary Function" means Ohio EPA's review, approval or disapproval of the Closure/Post Closure Plan under these Orders and any oversight and/or performance of the closure, post closure care and/or corrective measures by Ohio EPA for Ponds 3 and 3A. Ohio EPA agrees to provide notice to the Respondents within thirty (30) days after receipt of any claim which may be the subject of indemnity as provided in this Section, and to cooperate with Respondents in the defense of any such claim or action against Ohio EPA. Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Respondents in carrying out the activities pursuant to these Orders.

XI. TERMINATION

Respondents' obligations under these Orders shall terminate when Respondents certify in writing and demonstrate to the satisfaction of Ohio EPA that Respondents have performed all obligations under these Orders and the Chief of Ohio EPA's Division of Solid and Infectious Waste Management acknowledges, in writing, the termination of Respondents' obligations under these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondents of the obligations that have not been performed, in which case Respondents shall have an opportunity to address any such deficiencies and seek termination as described above. The certification shall contain the following attestation: "We certify that the information contained in or accompanying this certification is true, accurate and complete."

This certification shall be collectively submitted by Respondents to Ohio EPA and shall be signed by a responsible official of each Respondent. For purposes of these Orders, a responsible official is a principal executive officer of at least the level of vice-president, or his duly authorized representative, if such representative is responsible for the overall operation of the facility.

The termination of Respondents' obligations under these Orders shall not terminate Respondents' obligations under Section X, Indemnification, of these Orders.

XII. MODIFICATION

These Orders may be modified by agreement of the parties hereto. Modifications shall be in writing and shall be effective on the date entered in the journal of the Director of Ohio EPA.

XIII. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, Respondents consent to the issuance of these Orders and agree to comply with these Orders. Compliance with these Orders shall be full accord and satisfaction of Respondents' liability, including for any and all civil penalties, for the violations specifically cited herein after termination of these Orders.

The Respondents hereby waive the right to appeal the issuance, terms and service of these Orders, and the Respondents hereby waive any and all rights they may have to seek administrative or judicial review of these Orders either in law or equity.

Notwithstanding the preceding, Ohio EPA and the Respondents agree that in the event that these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, the Respondents retain the right to intervene and participate in such appeal. In such an event, the Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed,

vacated, or modified.

XIII. SIGNATORIES

Each undersigned representative of a signatory to these Orders certifies that he or she is fully authorized to enter into the terms and conditions of these Orders and to legally bind such signatory to this document.

IT IS SO ORDERED AND AGREED:

Christopher Jones, Director
Ohio Environmental Protection Agency

Date

IT IS SO AGREED:

Elkem Metals Company - Ashtabula LP (Respondent Elkem - Ashtabula)

By: _____

Date

Title: _____

Elkem Metals, Inc. (Respondent Elkem, Inc.)

By: _____

Date

Title: _____

