Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

April 13, 2010

RE: GROUNDWATER MONITORING ELKEM METALS COMPANY - ASHTABULA NOTICE OF VIOLATION

CERTIFIED MAIL

Geir Kvernmo
Elkem Metals Company - Ashtabula LP
P.O. Box 266
Pittsburgh, PA 15230-0266

and

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

Dear Mr. Kvernmo:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the Ground Water Monitoring Program Plan (GWMPP) for the Elkem Metals Facility in Ashtabula County. The document is dated July 24, 2009, and it was received by Ohio EPA on August 4, 2009. The report was submitted by David Garrett on behalf of Elkem Metals Company (Elkem). The GWMPP was submitted as part of the facility's Final Closure Plan in accordance with the Director's Final Findings and Orders (DFFO), effective January 10, 2005, and with Ohio Administrative Code (OAC) Rule 3745-27-10 (effective June 1, 1994) for the purpose of developing the GWMPP and implementing the ground water monitoring program.

Upon review of the GWMPP, Ohio EPA identified that Elkem is in violation of **Order Number 5** of the January 10, 2005 DFFOs that states, in part, "*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 ... 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 May 1, 2005.*"

Elkem is in violation of Order Number 5 of the January 10, 2005 DFFOs for failure to submit a ground water detection monitoring plan that meets the requirements of OAC 3745-27-10 (effective June 1, 1994) on or before May 1, 2005. Elkem missed the May 1, 2005 deadline set in the orders and the GWMPP did not meet the requirements of OAC Rule 3745-27-10 (effective July 1, 1994).

Pursuant to OAC Rule 3745-27-10, Ohio EPA identified the following deficiencies of the GWMPP and Elkem must revise the GWMPP and ensure that it meets all the requirements of the rule:

1. **The GWMPP is required by OAC 3745-27-09(I) and 10(A)(5) to be signed, notarized, and certified by a qualified ground water scientist. The signature shall also constitute a personal affirmation that the document is true and complete, and complies with all applicable rules.**

   The GWMPP does not contain the signed, notarized, and certified signature of a qualified ground water scientist. Elkem needs to revise the GWMPP to meet the requirements OAC Rule 3745-27-09(I) and 10(A)(5).

2. **OAC 3745-27-10(A)(1) implies that specific terminology be used when describing the monitoring system.**

   The GWMPP states that two zones, shallow and deep, will be sampled as part of the detection monitoring program. However, the terminology is not consistent with that of OAC 3745-27-10. It appears that the deeper zone should be referred to as the uppermost aquifer system (UAS) and the shallow zone would be referred as a significant zone of saturation (SZS). The correct designation of the two zones offers clarification as to what parameters are being analyzed on a semi-annual basis, since the requirements are different. Elkem should revise the GWMPP to be consistent with the language in OAC 3745-27-10.

3. **OAC 3745-27-10(B)(4) requires that the monitoring system be capable of detecting a release of leachate from the landfill.**

   Section 1.3 indicates that regional ground water flow is to the northwest, however, no potentiometric maps were provided to illustrate site specific ground water flow direction. Therefore, Ohio EPA is unable to verify if the requirements of OAC 3745-27-10(B)(4) are being met. Elkem needs to include in the revised GWMPP potentiometric maps, including ground water elevations, for both the UAS and the SZS.

4. **OAC 3745-27-10(B)(4) requires that the monitoring system be capable of detecting a release of leachate from the landfill.**

   Section 1.4 indicates that two monitoring wells would be used as background, B-7s (MW-7s) and B-7d (MW-7d). However, according to Table 9-1, five wells are described as Facility Background Wells, and without potentiometeric maps, the agency

was unable to determine the proper identification of background wells. Elkem needs to revise the GWMPP to clearly indicate which wells would be used as background for the purpose of statistical analysis.

5. **OAC 3745-27-10(B)(1) and (B)(2) requires that the monitoring system be comprised of a sufficient number of SZS zones to be monitored above the UAS to be capable of detecting a release of leachate from the landfill.**

   Section 1.4 includes a description of an intermediate-depth zone, which conflicts with the rest of the plan that describes the presence of two zones. If a third zone exists, it would be required by OAC 3745-27-10(B)(1) and (B)(2) to be included in the ground water monitoring program. Elkem needs to revise the GWMPP to clearly indicate which zones will be included in the monitoring program.

6. **OAC 3745-27-10(D)(5) outlines what parameters are to be sampled for the UAS and SZS and the frequency of which they are to be sampled.**

   Section 1.5 describes the detection monitoring parameters and refers to Table 3, which contains the full Appendix I list from OAC 3745-27-10. The section appears to infer that all the wells and surface water would be sampled for all 78 parameters semi-annually. This narrative conflicts with the requirements of OAC Rule 3745-27-10(D)(5) that outlines what parameters are to be sampled semi-annually at each well.

   Elkem needs to revise the GWMPP to describe the monitoring parameters, frequency, and location in accordance with OAC 3745-27-10(D)(5).

7. **OAC 3745-27-10(C)(1), (C)(2)(c)(i), and (C)(2)(c)(ii) requires there be a written sampling and analysis plan that documents the specific procedures to be used during semi-annual sampling at the site.**

   Section 2.3 indicates that disposable bailers will be used for purging, however, a review of the baseline sampling report indicates that dedicated bailers were used for purging. Therefore, Elkem needs to revise the GWMPP to clearly define what site specific procedures are to be used.

8. **OAC 3745-27-10(B)(3) and (D)(5) require that the wells be designed, installed, and developed in a manner that allows for the collection of the required parameters at the required frequency.**

   Section 2.4 indicates that wells that fail to produce an adequate sample volume within 24 hours of purging will not be sampled. This would not meet the requirements of

OAC 3745-27-10(B)(3) and (D)(5) which outlines the required monitoring parameters, frequency and location. However, if a well, not screened in the UAS, does not produce a sufficient volume to collect the required parameters via bailing then Elkem is obligated to attempt a low flow, or passive method. If this should fail, then Elkem may request an alternative parameter list in accordance with OAC 3745-27-10(D)(4). The GWMPP should be revised accordingly.

9. **OAC 3745-27-10(C)(2)(h) requires the plan to include appropriate QA/QC.**

   Section 3.4 indicates that duplicate samples are not required. However, OAC 3745-27-10(C)(2)(h) states that the plan includes a detailed description of the equipment, procedures, and techniques for the collection of replicate samples (i.e., duplicates). Elkem needs to revise the GWMPP accordingly.

10. **OAC 3745-27-10(C)(2) requires a detailed description of the equipment and procedures to be used on site.**

    Section 3.5 provides a brief discussion of field equipment, however, OAC 3745-27-10(C)(2) requires a detailed description of the equipment and procedures to be used on site. Elkem needs to revise the GWMPP to include a detailed description of the equipment and procedures to be used on site during sampling events (e.g., specific meters and their specific calibration requirements, use procedures, etc.).

11. **OAC 3745-27-10(C)(2)(d) and (C)(2)(g) requires that certain procedures and forms be included in the plan.**

    The plan describes chain-of-custody, field forms, shipping labels, etc. in sections 4.0 and 5.0, however, the plan does not include copies of the forms to be used during sampling events. Elkem needs to revise the GWMPP to include copies of all forms, labels, etc., and associated procedures that will be used during sampling events.

12. **OAC 3745-27-10(C)(1) and (C)(2)(c)(iv) requires preservation of the samples that will provide an accurate representation of ground water quality.**

    Section 4.0 indicates that chemical ice packs will be used during shipping. Ohio EPA requires that only ice be used for sample shipping to eliminate potential contamination from broken packs and to ensure a consistent temperature (4 degrees Celsius) of the samples. Elkem should revise the GWMPP accordingly.

13. **OAC 3745-27-10(C)(1)(e) and (C)(10) requires that reports of ground water quality be submitted with all data generated from the sampling event.**

Section 5.0 indicates that a field logbook will be maintained but does not state that copies of all field notes would be submitted with the reports of ground water quality. Elkem needs to revise the GWMPP to state that all data generated from the sampling event will be included in the reports of ground water quality.

14. **OAC 3745-27-10(A)(1)(a)(iv), (D)(1), and (D)(5) require that the plan include specific monitoring parameters and frequency for each well in each zone being monitored.**

    Section 6.0 states that "The ground water parameters to be analyzed will be those specified in the sanitary landfill permit, and/or the Ohio EPA Solid Waste Management Rules". The GWMPP is intended to be a stand-alone document specific to the site, therefore, it should include specific parameters to be analyzed for each monitoring well in each zone being monitored, in accordance with OAC 3745-27-10(A)(1)(a)(iv), (D)(1), and (D)(5). Elkem needs to revise the GWMPP to include the specific description of the monitoring parameters, frequency, and location in accordance with OAC 3745-27-10(D)(5).

15. **OAC 3745-27-10(A)(1)(a)(iii), (C)(1)(b), (C)(6), and (C)(7) require that within 90 days of completing background sampling the plan shall specify a specific statistical analysis method.**

    Section 7.0 states that a statistical analysis will be performed on the data, but does not specify the specific method to be used at the site, as required by OAC 3745-27-10(C)(6). Furthermore, the plan was submitted 128 days past the 90 day deadline. Elkem needs to revise the GWMPP to include the specific statistical analysis method to be used on the data.

16. **OAC 3745-27-10(D)(5) requires that the owner/operator statistically analyze the results from the second semi-annual sampling event, whereas the first four data sets (background) are considered the first semi-annual event and the fifth is considered the second semi-annual event.**

    The GWMPP does not contain details on the statistical analysis of the data. The first statistical analysis would have been required to be conducted on the second semi-annual monitoring results. Elkem needs to revise the plan to clearly indicate how the monitoring program will meet the requirements of OAC 3745-27-10(D)(5) and include specific details.

17. **OAC 3745-27-10(D)(3) requires the owner/operator to propose an alternative inorganic parameter to the Director.**

The list of Appendix I parameters contains potassium (#66) opposed to COD, which is on the June 1, 1994 list. Ohio EPA assumes this is just a case of copying the wrong list. Although Ohio EPA is not opposed to substituting potassium for COD, Elkem must make a request, in writing, pursuant to OAC 3745-27-10(D)(3) to substitute COD with potassium. The request, however, should consider factors (a) through (d) in OAC 3745-27-10(D)(3). In the interim, Elkem should revise the GWMPP to monitor the constituents in accordance with the OAC 3745-27-10(D)(3).

18. **OAC 3745-27-10(C)(1)(f) and (C)(7)(e) require that the plan contain techniques to be used for sample analysis that are protective of human health and the environment and provide for the lowest PQL's possible.**

    Table 3 in the plan lists the parameters and their associated target PQL's. Several of them are above what is considered appropriate, as specified in DSIWM Guidance Document #406. Specifically, antimony is listed in the plan as n/a and arsenic is listed at 50 ug/L, whereas the guidance has the target PQL listed at 3 ug/L for both. The plan lists bromoform at 4.43 ug/L while the guidance lists it at 1 ug/L, and cyanide is listed in the plan as 20,000 ug/L when it should be 20 ug/L. Elkem needs to revise the GWMP, accordingly.

In addition, Ohio EPA has the following recommendations to avoid confusion and to assure uniformity and completeness:

19. Section 1.4 indicates that the ground water monitoring network consists of 13 wells, labeled B-1s, B-1d, B3s, B-3d, etc. However, the remainder of the plan refers to them as MW-1s, MW-2s, MW-3s, MW-4d, etc. To avoid confusion, the wells should be labeled consistently throughout the plan. Elkem should revise the GWMPP accordingly.

20. Section 8.0 indicates that Ohio EPA would be notified within 14 days, not 75 days, of a statistically significant increase per the requirements of OAC 3745-27-10(D)(7)(b). However, 14 days may not be feasible and it may be in the best interest to allow 75 days for the notification. Ohio EPA recommends that Elkem revise the GWMPP to change the notification deadline.

21. Section 8.4 indicates that Elkem will implement the plan upon approval from Ohio EPA. Approval is not necessary from the agency since Order #5 of the DFFO required Elkem to implement a ground water monitoring program on, or before, May 1, 2005. Therefore, this language should be removed from the GWMPP.

Please respond within 30 days of the date of this letter addressing how Elkem will address the violation and corresponding deficiencies. Also note that this letter only pertains to the review of the GWMPP. There will be a separate correspondence from this office in regards to Ohio EPA's review of the monitoring reports that were included in the GWMPP.

Nothing in this letter shall be construed to authorize any waiver from the requirements of any applicable state or federal laws or regulations. This letter shall not be interpreted to release the Entity from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water or Comprehensive Environmental Response, Compensation, and Liability Acts for remedying conditions resulting from any release of contaminants to the environment.

If you have any technical questions regarding this review, please contact Russ Kocher at (330) 963-1203. Please submit all correspondence to Colum McKenna, Division of Solid and Infectious Waste Management, Northeast District Office, Ohio EPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,

Colum McKenna
Environmental Specialist
Division of Solid and Infectious Waste Management

CM:cl

cc: John Hujar,DSIWM-NEDO
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Jeff Hurdley, Legal-CO
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Elkem Metals Company-Ashtabula LP
P.O. Box 266
Pittsburgh, PA 15230-0266

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