Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

February 7, 2011

RE: ROSS COUNTY
FAC - MEAD DEPOT LANDFILL

MeadWestvaco Corporation
Corporate Safety, Health, and Environment
501 South Fifth Street
Richmond, Virginia 23219-0501

Attn.: Mr. David M. Bryer, Senior Environmental Consultant

RE: Corrective Measures Progress Report through June 2010

Dear Mr. Bryer:

On October 4, 2010, the Southeast District Office (SEDO) of the Ohio Environmental Protection Agency (Ohio EPA) received the Corrective Measures Progress Report (CMPR) through June 2010 for the Mead Depot Landfill. This was submitted by MeadWestvaco Corporation (MWV), owner of the closed facility, as required by Ohio Administrative Code (OAC) Rule 3745-27-10.

The approved Corrective Measures are being adequately operated and maintained by MWV per the approved Corrective Measures Plan (CMP), which was approved by the director on February 6, 2001. Between January 2010 and June 2010 an estimated 13.28 million gallons of water was pumped with the ground water pump and treat system removing 9.05 pounds of volatile organic compounds (VOCs) in that time frame. A total of 529 pounds of VOCs have been removed since 1994. One of the two recovery wells is being pumped at 58 gallons per minute (GPM). VOCs continue to exceed concentration limits in the lower aquifer and the silty clay units.

The reports submitted in 2010 have been written in a new style and format for the semiannual progress reports. Ohio EPA has reviewed the June 2010 CMPR to determine compliance with OAC 3745-27-10 and the approved CMP. Ohio EPA has substantial comments on the report and has determined that it does not meet the requirements of OAC 3745-27-10(F) and the approved CMP. The following are Ohio EPA comments on the June 2010 CMP progress report:

Comments - Violations

1. Section 5.2.3 Plume Monitoring - Lower Aquifer: The June 2009 Corrective Measures Progress Report (CMPR) included seven pages of text concerning VOCs in the Lower Aquifer. The June 2010 CMPR, under MWV's new format, provides four paragraphs that comprise barely half a page of text concerning VOCs in the Lower Aquifer. Ohio EPA finds this totally unacceptable and considers this lack of discussion of the VOC plume to be a violation of the approved CMP Section 5.2.5 Reporting, Item (v) and OAC Rule 3745-27-10(F)(1). Item (v) on page 58 of the approved CMP requires the semiannual report to evaluate the progress toward cleanup. The Plume Monitoring section is actually MWV's evaluation of monitored natural attenuation (MNA). MWV must include a detailed discussion of the VOC results in the Lower Aquifer and the trends of the VOC concentration in each well.

The CMPR must include concentration verses time graphs to demonstrate how the cleanup is progressing. Prior reports provided such graphs and were part of the discussion. The CMPR must include a discussion of how the western finger of the VOC plume has been significantly reduced. MWV will continue to be cited in violation of the approved CMP and OAC Rule 3745-27-10(F)(1) as long as MWV continues to minimize the discussion of VOCs in the Lower Aquifer.

2. Sections 5.4 Summary of Results, Section 6.1.2 GPCS Efficiency and Section 6.3 Monitored Natural Attenuation – The report states in several sections that the pump and treat system is effective at reducing VOCs within the capture zone. This would mislead the reader to assume that no reduction of VOCs has occurred outside of the capture zone. The VOC data clearly demonstrates that VOCs in the lower aquifer have been reduced within **and** outside of the capture zone. MWV must not submit any more documents to Ohio EPA stating that only **within** the capture zone has there been reduction of VOCs. Future reports with this statement will be deemed a violation of OAC Rule 3745-27-10(F)(1) and the approved CMP.

3. OAC Rule 3745-27-10(A)(5) requires that all plans submitted to Ohio EPA be certified by a qualified ground water scientist. The June 2010 report is lacking this certification. To meet this rule, please have a qualified ground water scientist certify all documents submitted to Ohio EPA. OAC Rule 3745-27-09(H)(2) states that a signature on a document constitutes a personal affirmation that the submitted documents are true and comply with the requirements of ORC 3734.

More Information Needed to Determine Compliance

4. Section 2.4.3 Phytoremediation, page 10 & Section 7.0 – The text states that plant tissue sampling has indicated that phytoremediation is effective at removal of VOCs from the subsurface. The past three sampling events have shown that total VOCs in the silty clay have ranged from 5900 ug/l to 15,000 ug/l. In 1995, the highest concentration of total VOCs in the silty clay was 15,593 ug/l. These results would seem to contradict MWV's conclusions. To address the requirement of evaluating progress toward cleanup in the CMP on page 58, please address this inconsistency between MWV's conclusions and the data presented.

5. Section 3.1 GW Monitoring Network – MWV proposes abandoning well D103-81 because a bailer has gotten stuck in the one-inch casing. MWV proposes using three other existing down gradient wells in lieu of D103-81 and abandoning this well. If this location is abandoned, then the next closest point to monitoring the landfill with the proposed existing wells would be D111-85, which is 600 feet from the limits of waste. OAC Rule 3745-27-10(B)(1)(b) specifies that the down gradient wells must be as close to the landfill limits of waste as possible. If D103-81 is abandoned, a new well must be installed at a location immediately down gradient of the limits of waste. Alternatively, MWV should take additional steps to remove the bailer, including possibly pushing the bailer down to the bottom of the well screen.

6. Section 5.2.2 Silty Clay Unit - Primary Category of Information – The report concludes that the VOC source within the silty clay has been depleted given that TCE is at 47 ug/l. There are still very high concentrations of cis and trans DCE and vinyl chloride in the silty clay wells. In addition to conclusions regarding source depletion, MWV also concludes that the plume is stable. If MWV wishes to make these conclusions about VOC's in the silty clay, then more information is needed.

To verify MWVs conclusions regarding the silty clay and VOC source, the following information is needed to determine compliance with OAC Rule 3745-27-10 (E)(4)(g) and the approved CMP:

a. Compare the VOC results in the 1990's to the present for the silty clay.
b. Ohio EPA is unaware of any investigation of the VOC source at this site other than ground water monitoring data. Please submit a proposal for an investigation of the source of the VOC contamination. Ohio EPA would assume this investigation would focus on the silty clay unit. Additional wells are needed to better characterize VOCs in ground water in the silty clay. Wells to the west, north, and east of well D505-11 are needed. Soil samples from multiple depths are needed to evaluate the adsorbed component of VOCs in the source. Thus, a mass of VOCs in the source can be more accurately estimated.
c. An evaluation of hydraulic connection between the silty clay and lower aquifer is needed.
d. MWV must include a potentiometric map for the silty clay.
e. To evaluate the impact of the phytoremediation of the silty clay, Ohio EPA would like to see monthly ground water samples collected in the contaminated silty clay wells from March through November 2011.
f. Evaluate using pressure transducers on at least two silty clay wells to demonstrate that the phytoremediation area is actually removing water from the silty clay unit.

7. Section 5.4 Summary of Results – MWV states that a DCE stall is occurring at the site because the pump and treat system is creating an aerobic environment and preventing cleanup of DCE and vinyl chloride. If this were true, why has the western finger cleaned up while the eastern finger has not? This summary section seems to suggest that the pump and treat system should be shut off. Natural attenuation processes have been occurring at this site since the 1940's. When the VOC plume was fully characterized, it was found to be 1800 feet down gradient of the source and over 750 feet wide. With the implementation of the pump and treat system, the plume has shrunk in size substantially. The plume appears to be 1500 feet in length and only 250 feet wide. MWV needs to include this type of detail in the CMPR to meet the requirements of the CMP. In addition, MWV must evaluate why the conditions on the western half of the plume are conducive to clean up of the VOCs, but not the eastern half of the plume. MWV must investigate and answer this question in order to support their theory that the pump and treat system is inhibiting the cleanup of the VOCs at the site.

8. Section 6.1.2 GPCS Efficiency: MWV argues that the pump and treat system effectiveness has been greatly reduced based on the asymptotic curve of the VOC concentrations being removed. Currently, 20 pounds of VOCs are being removed annually. Since we know so little about the mass of VOCs remaining in the source and in the ground water system at the site, it is hard to determine if 20 pounds per year is substantial or not. Ohio EPA has given approval for MWV to attempt pulse pumping to determine if that would increase mass removal. MWV has argued against pulse pumping. Therefore, to determine if OAC Rule 3745-27-10(F)(3)(b), the effectiveness of remediation procedure in controlling the source in order to reduce further releases, is being complied with, MWV must conduct the necessary investigations to evaluate the mass of VOCs that are remaining at the site.

9. Section 6.1.2 GPCS Efficiency: In addition to evaluating the concentration curve for the pumping system, please include an evaluation of the concentration curves for monitoring wells as well to meet the requirement of the CMP that progress toward cleanup will be evaluated.

10. Section 7.0 Please revise this section accordingly based upon these comments. In addition, the conclusion section also states that the phytoremediation is effectively removing VOCs from the silty clay. MWV states that their plant tissue sampling shows the presence of VOCs in the tree tissue. How does the fact that concentrations of VOCs in the silty clay today are very similar to the concentrations found in the past affect MWVs evaluation of the effectiveness of phytoremediation? Ohio EPA would conclude that the silty clay appears to be unaffected by the phytoremediation when total VOCs are 15,000 ug/l in 1995 and 15,000 ug/l in 2010.

11. Table 8 – Please include any new 500, 600, or 700 series wells in table 8. Any wells that have been installed to help characterize the VOC plume at this site, whether requested by Ohio EPA or USEPA, must be included in CMPRs per OAC 3745-27-10(E)(4)(g).

12. Ohio EPA has determined that two additional wells, one to the north and one to the east of well D505-11, are needed to evaluate the extent of the VOCs in the silty clay to enable Ohio EPA to determine compliance with OAC 3745-27-10(E)(4)(g) and OAC 3745-27-10(F)(15)(b)(i). The isoconcentration map may not be an accurate representation of the VOCs in the silty clay. MWV must determine if the VOCs are discharging to the unnamed tributary to the east of the site. Surface water sampling may also be necessary.

Statement or Recommendations

13. Section 2.4.2 MNA – MWV states that natural attenuation is part of the approved remedial strategy for the Depot Landfill. For clarification purposes, Ohio EPA would like to point out that the original Corrective Measures Plan discusses natural attenuation as a component of the No Additional Action alternative which primarily included the pump and treat system. The February 6, 2001, letter from the director of Ohio EPA, selecting the Corrective Measures for this site, does not specifically select MNA as a component of the remedy. Ohio EPA would have to modify the Corrective Measures at this site if the Pump and Treat system is going to be replaced with MNA. Phytoremediation of ground water was specifically selected for this site, so expansion of the use of phytoremediation would not require a modification of the Corrective Measures.

14. Section 2.4.3 Pytoremediation – This section presents a discussion of the use of phytoremediation to address the VOCs in the silty clay unit. Please make it clear in future reports that MWV implemented phytoremediation as a source control to enhance the cleanup of VOCs in the Lower Aquifer, as well as the silty clay. On page 35 of the July 2000 CMP, MWV states that the silty clay is a potential source of VOCs to the Lower Aquifer. Page 36 of the CMP states that VOC contamination in the silty clay is migrating easterly and vertically downward. Please make this clear in future reports.

15. Section 3.2 Groundwater Monitoring & Section 5.1 Landfill Monitoring - MWV has revised the format of the CMP progress report. Specifically, the previous report (CMPR Through December 2009) included a section titled Landfill Detection

Monitoring. Ohio EPA requested that this section be eliminated from the report because detection monitoring is not being conducted. MWV has revised the June 2010 report to include three sections titled:

a. Landfill Monitoring to evaluate parameters not part of the Corrective Measures;
b. Plume Monitoring for VOCs in the Lower Aquifer and Silty Clay wells;
c. Plume Boundary Monitoring for VOCs in the lower Aquifer at the leading edge of the plume.

This format is not specifically provided for in the approved CMP and has not been used in previous water quality reports. Ohio EPA requests that the Landfill Monitoring section be changed to reflect that MWV is monitoring inorganic parameters and VOCs at the landfill limits of waste that have triggered in the past. MWV is not monitoring parameters that are not part of this CMP. This type of monitoring would include all of Appendix I in OAC 3745-27-10. MWV currently samples ground water for 6 metals and 7 water quality parameters. OAC 3745-27-10 requires in Appendix I, monitoring for 15 metals and 12 water quality parameters. If MWV wants to modify the monitoring program to include all Appendix I parameters for wells at the landfill boundary, then Ohio EPA would accept this proposal.

16. Section 5.1 Landfill Monitoring: Please list the concentration limits (remediation standards) in each section and whether the UTL is above or below this standard. The report does this for the VOCs, but not the inorganics. Please revise.

17. Given that the new format of the Corrective Measures Progress Report seems to be emphasizing the expansion of phytoremediation and the implementation of MNA at this site, Ohio EPA must remind MWV that under the approved CMP, Ohio EPA has no obligation to allow shut down of the pump and treat system until concentration limits are met throughout the impacted ground water zones (see page 52 of CMP), or the end of the post closure care period has been achieved, whichever is longer {OAC Rule 3745-27-10(F)(15)(b)}. MWV should focus their time and resources on investigation and elimination of the source of VOCs and addressing the eastern finger of the VOC plume in the Lower Aquifer rather than trying to demonstrate that MNA and phytoremediation can replace pump and treat. The pump and treat system has cleaned up the western finger of the VOC plume and there is no reason to expect that the eastern finger cannot be cleaned up as well.

18. Section 6.1.2 GPCS Efficiency: MWV states that the change in the VOC plume from 2003 to 2010 is minimal. MWV also states that there has been a reduction in VOCs within the capture zone. To support these conclusions, Ohio EPA recommends that MWV submit the following graphical presentations in future reports and provide discussion in this section of the reports.

a. MWV needs to provide VOC concentration vs. time plots for the monitoring wells at the site. These graphs were provided in previous reports.
b. Provide a series of VOC plume maps over the 16 years of the remedy, not just a map in 2003 and 2010. These maps should be color-shaded maps of the VOC concentrations in monitoring wells relative to concentration limits over time.

19. Table 8 – Please revise table 8 to reflect the past practice that if a parameter had a statistically significant trend or concentration it would be in red. No significant results are highlighted in red.

Conclusion

Ohio EPA has determined that the June 2010 Corrective Measures Progress Report does not fully meet the requirements of the approved CMP and OAC 3745-27-10(E) & (F). Ohio EPA has determined that additional wells are needed in the silty clay unit given the elevated VOC concentrations being detected in this unit and the overall lack of monitoring wells. For many years, Ohio EPA would have minimal comments, if any, on the semiannual water quality reports for this site. In 2010, however, the time and effort of review of the semiannual reports has increased substantially with the implementation of the new format.

Please review these comments and respond within fifteen days of receipt of this letter as to your intentions to make the necessary corrections to this report. If you have any questions, please contact me at 740-380-5438.

Sincerely,

Daniel L. Bergert, R. S.
Environmental Specialist II
Division of Solid and Infectious Waste Management

DLB/jg

cc: Dave Hunt, DDAGW-SEDO
Brian Queen, DSIWM-SEDO
Ross County Health Department