

**Removal Action Investigation/Remedial Investigation Report
East CKD Area
Revision 2.0 – June 4, 2008
Addendum 1 – August 31, 2009
Little Traverse Bay CKD Release Site
Emmet County, Michigan**

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Note: Revisions and additions are denoted in **bold**. Only revisions and additions are included in this Addendum.

Removal Action Investigation/Remedial Investigation Report
East CKD Area
Revision 2.0 – June 4, 2008
Addendum 1.0 – August 31, 2009
Little Traverse Bay CKD Release Site
Emmet County, Michigan

This Removal Action/Remedial Investigation (RI) Report – Addendum 1.0 – August 31, 2009 has been prepared on behalf of CMS Land Company and CMS Capital, LLC to describe the investigation and interim response activities conducted as per the Administrative Order on Consent for Removal Action (AOC), Little Traverse Bay Cement Kiln Dust (CKD) Release Site (Site) (Docket No. VW-05-C-810, February 22, 2005) at the portion of the Site identified as the East CKD Area (East CKD Area) since publication of Revision 2.0 of the RI Report. This Addendum 1.0 includes data that were collected between April 1, 2008 and June 30, 2009.

The East CKD Area RI activities were planned to generate the data necessary to complete the East CKD Area characterization and evaluate final remedy alternatives for addressing current and potential threats to public health, welfare and the environment from CKD waste material and the investigations met this objective. Recommended investigation and interim response activities for the East CKD Area were presented as part of the July 2005 Final Approved Removal Action Work Plan (Work Plan), Little Traverse Bay CKD Release Site, Emmet County, Michigan (Barr, 2005d). The extent of CKD at the Site and the extent of CKD leachate impacts in Little Traverse Bay have been defined. The mechanisms of leachate generation and migration from the East CKD Area to Little Traverse Bay have also been defined allowing CMS to evaluate the feasibility and engineering requirements to successfully design and implement final remedial systems.

The Removal Action Investigation Report – Revision 0.0 was prepared and submitted to the U.S. EPA on February 15, 2006 (Barr, 2006). Comments on Revision 0.0 were provided by the U.S. EPA via email on April 28, 2006. The Removal Action Investigation Report – Revision 1.0 was prepared to respond to the U.S. EPA comments and submitted on August 17, 2006. The U.S. EPA provided initial comments on Revision 1.0 of the East CKD Removal Action Investigation Report on January 26, 2007 which CMS responded to on February 19, 2007. The U.S. EPA provided additional

comments in a letter dated March 21, 2008. The Removal Action Investigation Report – Revision 2.0 was prepared to respond to the U.S. EPA comments and submitted on June 4, 2008. The U.S. EPA provided the *Keys for Accepting and Approving East Park RI/AE* on June 16, 2009 which provided comments structured to provide for the acceptance of the RI/AE initially, and then approval of the RI/AE. This approach was intended to comport with the process flow diagram developed by the U.S. EPA and CMS.

Revisions 0.0, 1.0, and 2.0 of this Removal Action Investigation Report were prepared for the East CKD Area prior to the collection of all components of data as required by the Work Plan. This Addendum 1.0 has been prepared to incorporate data collected at this Site from April 1, 2008 through June 30, 2009. Components that were previously not complete as specified in the Work Plan and are now complete include:

- Completion of the Baseline Ecological Evaluation
- Installation of groundwater/surface water (GSI) wells to fully define the contaminated groundwater discharge to surface water.

The U.S. EPA *Keys for Accepting and Approving East Park RI/AE* (June 16, 2009) comments to relevant to the RI Report are the following:

1. **Conceptual Site Model (CSM):** *CMS must revise the CSM. The revised CSM should take into account data and information from the recently installed shoreline monitoring wells and any other new information gathered since the submittal of the East CKD RI/FS Revision 2.0. This includes revising Figure 6-1 (RI) to more accurately reflect the current site conditions and Figures 9 and 10 (FS) to account for recent information gathered from shoreline wells and/or diversion wells. Figure 10 should be revised to reflect current site conditions (i.e. discharge of some leachate/groundwater to the lake). Please use the CSM guidance in EPA's 1988 document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" in preparing the revised CSM.*

The CSM has been revised and is presented in the *Alternatives Evaluation East CKD Area Revision 3.0 – August 31, 2009*. The U.S. EPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (October 1988) was used as a guide.

2. **Baseline Ecological Assessment:** CMS must submit, as part of the RI, the Baseline Ecological Assessment for East Park, as requested by the EPA on numerous occasions and as referenced in the RI.

The Baseline Ecological Investigation for Benthic Organisms and Periphyton Community for Reference and CKD Leachate Release Areas and Mercury Bioaccumulation Assessment by Sampling and Analysis of Biomass of Dreissenid Mussels Report has been completed and was submitted on August 25, 2009.

3. **GSI Wells:** As acknowledged by CMS in Revision 2.0 of the RI, GSI wells were not installed for the purpose of fully defining the contaminated groundwater discharge to surface water. However, EPA recognizes that additional shoreline wells have been installed by CMS in accordance with the EPA- approved mercury flux model protocol. These wells, in the opinion of the EPA and MDEQ, will meet the Work Plan requirements for GSI wells. Consequently, the revised RI shall refer to these additional wells as GSI wells.

The U.S. EPA-approved mercury flux model wells are acknowledged to be Groundwater Surface Water Interface (GSI) wells.

4. **Inclusion of New Data:** The revised RI/FS shall incorporate all additional data collected subsequent to the submittal of Revision 2.0 of the RI/FS. This shall include all sampling and monitoring data and aquifer test data obtained from all newly installed shoreline wells and diversion well pump tests. These revisions shall be reflected in all applicable Figures and Tables in the revised RI/FS.

Data that were collected subsequent to the submittal of Revision 2.0 of the East CKD Area Removal Action Investigation/Remedial Investigation Report are included in this Addendum 1.0.

5. For consistency with the AOC, please revise the term "feasibility study" or "FS" to read "alternatives evaluation" or "AE".

The term alternatives evaluation, or AE, is used in place of feasibility study, or FS.

7. *Updated Groundwater Model: CMS shall provide an updated groundwater flow model in the revised RI/AE.*

Updates to the groundwater flow model since the recalibration are presented in Appendix T.