United States Environmental Protection Agency
Region V
POLLUTION REPORT

Date: Monday, April 7, 2008
From: Ralph Dollhopf

To: Ralph Dollhopf, U.S. EPA Scott Kendzierski, NWMCHA

Subject: Augmentation Summary and Intern Leachate Collection
Bay Harbor CKD Leachate Site
4000 Main Street, Petoskey, Resort Township, MI

POLREP No.:	3	**Site #:**	1119
Reporting Period:		**D.O. #:**	
Start Date:	5/10/2005	**Response Authority:**	CERCLA
Mob Date:	5/9/2005	**Response Type:**	Time-Critical
Demob Date:		**NPL Status:**	Non NPL
Completion Date:		**Incident Category:**	Removal Action
CERCLIS ID #:	MIN000509941	**Contract #**	
RCRIS ID #:			

Site Description
See previous POLREPs for details.

Current Activities
Removal Work

The Interim Response Leachate Collection System (IRLCS) located along lakeshore release areas (excluding Pine Court Ridge) were operated and maintained by CMS continuously during 2008 and the beginning of 2009. The recovered leachate was trucked off-site for disposal at the northeastern underground injection well in Johannesburg, Michigan, or at the Traverse City Waste Water Treatment Plant. The approximate volume of leachate collected during this period was 51,000,000 gallons.

♣ Removal Action Work Plan (RAWP) Amendment No. 2 – Effectiveness Monitoring was completed on 5/12/08. Lakeshore Effectiveness Monitoring was attempted and partially completed by CMS for some of the release areas during the following months: 04/08 (Seep 1, WCKD, East Park), 05/08 (Seep1), 06/08 (Seep 1, Seep 2, Pine Court, WCKD), 7/08 (WCKD, East Park), and 8/08 (Seep 1, Pine Court, WCKD, East Park); completion of the effectiveness monitoring was restricted due to unsuitable weather and wave conditions. Lakeshore effectiveness monitoring was completed for all of the release areas by CMS during 9/08. Additional periodic lakeshore monitoring was performed by EPA during the following months: 1/08 (2 days; Seep 1, Pine Court, WCKD), 3/08 (8 days; Pine Court), 4/08 (15 days; Seep 1, Pine Court, WCKD, East Park), 5/08 (3 days; Seep 1, Pine Court, WCKD, East Park), 6/08 (3 days; Pine Court, Village Harbor), 12/08 (3 days; Pine Court).

♣ As summarized below, CMS initiated augmentation of IRLCSs at Seep 1, Pine Court, and West CKD.

Seep 1– The conceptual design for augmentation in this area proposed by CMS consisted of construction of a barrier wall (i.e., slurry wall) between Little Traverse Bay and the existing collection drain line at the east end of Seep 1 (eastern 300') to improve the efficiency of leachate capture within unconsolidated gravel and sand deposits occurring above bedrock. The design of the barrier wall was completed by Barr Engineering, Inc. on 9/10/08, and included a field investigation consisting of a series of test borings along the proposed wall alignment and replacement well installation. Barrier wall construction by Barr Engineering and Veit, Inc. was completed on 11/05/08.

Pine Court – The conceptual design for augmentation in this area consisted of targeted leachate collection (TLC) above a confining shale layer near existing monitoring well cluster W2025, which CMS has identified as the source of the Pine Court shore pH exceedances. Barr Engineering completed the design, installation and preliminary testing of a pilot-scale TLC system on 5/25/08. Further augmentation at Pine Court will be initiated during April 2009.

West CKD – The conceptual design for augmentation in this area consisted of removal of sediment containing CKD located along the shore, both lakeward of the existing trench collection drain and along the existing trench drain alignment, with subsequent reconstruction of the collection drain. CMS and Barr Engineering, Inc. completed the preliminary design work for the WCKD augmentation, which included field investigations to delineate the horizontal and vertical extent of CKD/Sediment to be removed, from 3/15/08 – 7/02/08. Final Design by Barr Engineering was completed on 9/30/08. Construction by Barr Engineering and Northern A1, Inc. was begun on 12/01/08 and is presently on-going. To date, Barr and Northern A1 have completed the planned removal of CKD/Sediment located lakeward of the existing trench collection drain. Reconstruction of the collection system is scheduled to be completed by 5/2009.

♣ CMS completed design and construction work for final CKD grading and geomembrane cover placement within the remaining uncovered central area at East Park. The final engineering design for this work was completed by Barr Engineering, Inc. from 1/01/08 – 3/12/08. Construction by Barr Engineering and Veit, Inc., was completed on 7/20/08. Construction included removal of surface infrastructure features, CKD grading and placement of geomembrane and soil cover layers over approx. 6.5 acres. Resort Twp. was granted access to East Park by CMS to perform surface restoration work beginning on 7/20/08. To date, Resort Twp. contractors have completed restoration of the park pavilion structure, construction of concrete curbs and sidewalks, lighting installation, irrigation system installation and landscaping, and final asphalt paving of park access roads.

♣ CMS completed design and implementation of the Village Harbor Southwest Corner sediment removal and capping. The design for this work was completed by Arcadis, Inc. on 3/01/08. The design consisted of partial removal of shallow reactive sediment down to bedrock or targeted elevation limits extending from the southwest corner of Village Harbor lake to the west side horseshoe dock area, followed by placement of an impermeable geosynthetic clay liner and protective granular soil cover materials over the removal area; turbidity curtains were to be placed around the active work area to control sediment/turbidity dispersal within Village Harbor during the removal. Construction by Arcadis and WRS Compass, Inc. was completed on 10/29/08. An estimated total of 1299 tons of sediment were removed from the southwest corner area for off-site disposal. No pH or turbidity exceedances (e.g., above 25 NTU) were observed outside the turbidity barrier during the removal activity. To date, one round of post-construction lake bottom pH monitoring performed by Arcadis, Inc. prior to lake ice formation indicated no pH exceedances above 9.00 s.u; additional post-construction pH monitoring is planned for spring 2009.

♣ CMS completed design and partial implementation of the Village Harbor Sump sediment capping. The design for this work was completed by Arcadis, Inc. on 6/23/08. The design consisted of partial filling of the sump to an elevation of 562' msl with granular fill, followed by placement of an impermeable geosynthetic clay liner cap and protective granular fill cover materials up to a final target elevation of approximately 565' msl; turbidity curtains were again placed around the active work area to control sediment/turbidity dispersal within Village Harbor during the capping. Construction by Arcadis and WRS Compass, Inc. was begun on 10/30/08. Arcadis and Compass completed placement of granular sand fill within the sump area, up to the target elevation of 562' msl on 12/05/08 (est. total 5115 tons granular fill placed); the granular fill was placed in series of approx. 6-inch lifts with a sonar bottom elevation survey performed following placement of each lift. No pH or turbidity exceedances (e.g., above 25 NTU) were observed outside the turbidity barrier during the capping activity. Arcadis and WRS Compass removed the turbidity curtains, stored the on-site excavating equipment and barges on the west side of Village Harbor lake and demobilized from the site for the winter during the week of 12/12/08. Work will be completed by the end of May 2009.

♣ CMS implemented installation of additional monitoring well clusters at East Park to monitor groundwater mercury flux to surface water, in accordance with 2008 discussions between CMS, USEPA and MDEQ. The well installation and testing was completed by Barr Engineering and Boart Longyear from 10/01/08 – 11/10/08. Collection of an initial round of groundwater samples from the wells for laboratory analysis was completed by Barr Engineering on 11/05/08. Additional groundwater sample collection and analysis from the wells is planned for 2009.

♣ CMS completed design and partial implementation of the East Park Diversion Well System installation. Preliminary design of a 10 well system by Barr Engineering was completed on 4/18/08. Initial installation by Barr Engineering and Boart Longyear, Inc. of two groundwater withdrawal wells (EPDW-2 and EPDW-7) plus associated observation and monitoring wells was completed on 6/25/08, and pumping tests for those wells were completed on 7/03/08 and 7/16/08, respectively. A final revised design by Barr Engineering that included a total of 5 groundwater withdrawal wells was completed on 11/07/08. Final construction of the revised 5-well diversion well system by Barr Engineering and Boart Longyear was begun on 11/11/08, and is presently on-going; to date, the remaining three withdrawal wells have been installed, and Barr/Boart are completing installation of additional observation wells.

Planned Removal Actions

Removals and augmentation works will be completed by fall 2009. Monitoring will continue to measure the effectiveness of the leachate collection system. If effectiveness monitoring finds additional high-pH releases, additional augmentation will be required.

In coordination with Michigan DEQ, U.S. EPA's Remediation Branch is continuing work on long-term, engineering controls.

Key Issues

Public and stakeholder meetings were held in Petoskey on January 28 and 29.

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