INTERNATIONAL PAPER

Environment Health & Safety
INTERNATIONAL PLACE, TOWER III
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U.S. Environmental Protection Agency, Region V
Superfund Remedial Response, Section VI (SR-6J)
77 West Jackson Boulevard
Chicago, Illinois 60604
Attn.: Ms. Jenny Davison
Remedial Project Manager

Wisconsin Department of Natural Resources - RR/5
1300 W. Clairemont Avenue
Eau Claire, Wisconsin 54702
Attn.: Ms. Mae Willkom
Remedial Project Manager

RE: Semi-Annual Progress Report
January 1 – June 30, 2015
Tomah Municipal Sanitary Landfill
Tomah, Wisconsin

Dear Ms. Davison and Ms. Willkom:

This semi-annual progress report is being submitted under the reporting requirements of the Operable Unit 1 (OU1) Consent Decree (CD), (effective date February 19, 2002) and Operable Unit 2 (OU2) CD (effective date April 29, 2005). This report presents a summary of efforts by International Paper to fulfill the requirements of the OU1-CD and the OU2-CD during the period of January 1 through June 30, 2015.

Correspondence, Meetings, and Events

January 9, 2015 — USEPA completes the Five Year Review Report for the Tomah Landfill, reviewing the period of May 8, 2014 through January 9, 2015.

USEPA did not send the Five Year Review Report to the TMSL RPs. The Five Year Review Report became available on the USEPA website between mid-April and mid-March 2015

Overall, the USEPA finds both the OU1 and OU2 remedies currently protective of human health and the environment. The following action items were identified on page 32 to be completed by June 30, 2015:

- Development and Placement of Continuing Obligations (CO) on the larger John Pluess property
- Placement of the Site and the larger John Pluess property on the WDNR GIS Registry

	In addition, the 5-Year Review recommends that the USEPA complete an Explanation of Significant Differences (ESD) to document the change in ICs required for the Tom Pluess, John Pluess, Roger Williams, and Ruth Williams properties.
January 20, 2015	CRA emails a request for information to WDNR related to the submittal of the Semi-Annual Data Submittal (Form 4400-194) for the TMSL. CRA requests that WDNR provide the mailing address for the submittal, number of copies needed, etc. WDNR responds via email that one paper copy and one electronic copy of the submittal may be sent to her attention in accordance with NR 700.11(3g).
January 22, 2015	International Paper sends a cover letter and CRA's "Semi-Annual Data Submittal (July - December 2014) and "Semi-Annual Progress Report" to the USEPA and WDNR by email and commercial courier. The IP cover letter also provides a copy of the monitoring program modifications that were previously requested on July 24, 2014 within the OU1 and OU2 Monitoring Report (January – June 2014) and Updated MNA Evaluation, and a request for additional monitoring program reductions. In a separate 1/23 emailing/mailing, CRA sends files/a replacement CD for Appendix B.1 which provided an excel file (missing from the original CD) containing the Updated MNA Database (Tables GW-3.3 & 3.4).
February 3, 2015	CRA receives a call from the City of Tomah's Brad Noth relaying that there were loggers (Friedl Logging) clearing trees on the Scott Martin property (23410 County Highway ET). Brad says that he let the loggers know that there were monitoring wells on the property, and confirmed that each of the wells was flagged for the loggers. On February 10th, when the logging activities were completed, Brad confirms that the wells were intact and sends CRA pictures of each well.
March 3, 2015	CRA sends an email to Dr. Mark Mueller (a property owner adjacent to Deer Creek) with results from the samples collected from Deer Creek during the November 2014 annual sampling event.
March 12, 2015	CRA submits an electronic data deliverable (EDD) containing data associated with the October 2014 – February 2015 OU2 sampling events to the automated USEPA FTP Site, and sends the USEPA RPM an email confirmation of the data upload.
March 12, 2014	CRA submits an EDD and signed data certification form to WDNR associated with OU1 and OU2 monitoring events conducted during the period from October 2014 – February 2015, and sends WDNR PM an email confirmation.
April 7, 2015	CRA receives a phone call from Tomah resident Ruth Williams (23671 Co Hwy ET). [Ms. Williams property is located within the TMSL plume. Attempts made in both 2006 and 2010 to obtain a Restrictive Covenant/Environmental Protection Easement (RC/EPE) on this property

	were declined.] Ms. Williams explains that she had heard rumors that the City of Tomah may be interested in pursuing her property through eminent domain for the development of an industrial park. During this call, Ms. Williams expresses interest in signing a modified RC/EPE to protect her property from further development. Per Ms. Williams' request, CRA provides contact information for both the USEPA RPM (Thomas Smith) and WDNR PM (Mae Willkom) so that she could discuss the details with them. In a subsequent conversation with CRA, the City of Tomah confirms that there are no plans by the City to pursue Ms. Williams' property, but if she was receptive to the RC/EPE on her property the City was prepared to move ahead with getting the document signed.
April 8, 2015	City of Tomah participates in a conference call with USEPA (Jenny Davison and Attorney Jose DeLeon) and WDNR (Mae Willkom) to discuss the plan of access to the two Pluess properties. Their discussion included the following topics: • An introduction to Ms. Jenny Davison as the replacement of Thomas Smith as the USEPA RPM, effective February 2015. • A recap of historical interactions between the City of Tomah and Tom and John Pluess. Attorney DeLeon said that he would attempt to reason with the Pluesses over the phone, and would request assistance from the US Attorney if he did not reach an agreement. • A reminder by WDNR of the monitoring reductions proposed in the July 2014 Monitoring Report that would remove the MW-11 nest and Pluess residential wells from the monitoring program. WDNR stated that they agreed with the proposed reductions. USEPA said that they needed to review these requests with a USEPA hydrogeologist before committing to a decision. • The implementation of an ESD/property placement on the WDNR GIS Registry instead of pursuing deed restrictions with the Pluesses.
April 9, 2015	CRA contacts WDNR to discuss the upcoming Annual Monitoring Event and requests that the monitoring locations on the Pluess properties be excluded from the event, as the access is currently restricted for those locations. Per WDNR recommendation (since the TMSL project is USEPA lead), CRA leaves a voicemail with this request for the USEPA RPM.
April 14, 2015	CRA leaves voicemail message with Ruth Williams to share the contact information for the new USEPA RPM, Jenny Davison.
April 14, 2015	CRA calls the USEPA RPM to request that the May 2015 sampling event exclude monitoring all locations installed on the Pluess properties, due to

	the lack of a safe means of access. Ms. Davison says that she would consult with Attorney DeLeon before making this decision. USEPA recommends that CRA still send sampling notification letters to the Pluesses, but to copy her and Attorney DeLeon, and to provide Attorney DeLeon's contact information on those letters. Ms. Davison says that she would review the access situation with Attorney DeLeon after his April 28th return to the office and let us know the outcome of their conversation prior to the sampling event. CRA also asks about the July 2014 request for monitoring program reductions. Ms. Davison relays that she did not expect that a decision would be made about these monitoring locations prior to the May 2015 sampling event. Ms. Davison says that she would consult the USEPA hydrogeologist and let CRA know.
April 15, 2015	CRA sends an email to USEPA and WDNR providing notification of the proposed scope and schedule for the May 2015 routine OU2 MNA sampling event.
April 16, 2015	CRA sends letters to property owners requesting access to monitoring well locations and surface water locations located on their properties for the purpose of conducting the May 2015 OU2 sampling event.
April 16, 2015	CRA sends letters to property owners requesting permission to sample their residential wells as part of the May 2015 OU2 sampling event.
April 24, 2015	WDNR leaves CRA a voice message requesting information about Ruth Williams' recent contact with USEPA regarding signing a modified RC/EPE.
April 27, 2015	CRA calls WDNR to discuss CRA's recent contact with Ruth Williams.
April 28, 2015	WDNR calls CRA to recap their recent conversation with the USEPA related to TMSL happenings/correspondence, including: • WDNR confirmed that neither the USEPA or WDNR would be performing a site visit during the May 2015 sampling event. • USEPA had not yet spoken with the Pluesses related to obtaining access to the monitoring locations on their properties, but expected that these conversations would be happening by the end of this week. WDNR let USEPA know that CRA would not be monitoring any of the locations on the Pluess properties until access was secured. • USEPA still needed to discuss the monitoring modification requests that were presented in the July 2014 OU1 OU2 Monitoring Report with the USEPA hydrogeologist. • USEPA received a phone call from Ruth Williams. USEPA requested that the RPs coordinate with Ms. Williams to discuss a modified RC/EPE.

- USEPA and WDNR are continuing discussions related to implementing an ESD/property placement on the WDNR GIS Registry instead of pursuing deed restrictions with the Pluesses. WDNR explained that typically the USEPA writes an ESD that the project consultant uses to write a Revised Remedial Action Report (RAR). WDNR would that write an approval letter for the RAR, and at that time place the properties on the WDNR GIS Registry. WDNR mentioned that they hoped to have the properties on the Registry by September 2015 if possible, before the TMSL designation as Sitewide Ready for Anticipated Reuse (SWRAU) is retracted.

May 4, 2015	CRA emails the USEPA to see if access had been gained to the Pluess properties. CRA tells the USEPA that the sampling team is on their way to the Site and has been instructed to stay off of the Pluess properties unless they hear otherwise. USEPA calls CRA and says that they had not yet contacted the Pluesses. USEPA also requests that CRA resend them the July 2014 OU1 OU2 Monitoring Report and Semi-Annual Progress Report. CRA sends these documents to the USEPA electronically.
May 28, 2015	The USEPA leaves CRA a voicemail with an update related to their efforts to secure access to the TMSL monitoring locations on the Pluess properties. According to Attorney DeLeon, he was able to reach the Pluesses regarding access to their wells, and that they were cooperating. The USEPA also emails a request to CRA for the agreements that were used to install the wells on the Pluess properties, as they may contain language regarding their consent to allow monitoring.
June 3, 2015	CRA emails the USEPA that they and the City of Tomah were unable to locate any access agreements related to the installation of monitoring wells on the Pluess properties. CRA relays that a different consultant coordinated these installations during 1995 and 1996. WDNR emails that they could not locate any related access agreements in their files either. On June 9th, CRA emails the USEPA and relays that International Paper completed their file review, and were unable to locate any related agreements.
June 3, 2015	The USEPA emails CRA looking for zoning restrictions in Tomah that may limit or restrict the use of private residential wells in the affected areas. On June 9th, CRA sends the USEPA a response that they had forwarded the zoning question to the City of Tomah, as CRA was not familiar with this particular restriction. On June 17, 2015, CRA sends the USEPA a response that the City of Tomah did not believe that there were any specific zoning restrictions or other covenants regarding the TMSL in the Township of LaGrange. As the City recalled, the Township was not zoned.
June 8, 2015	CRA receives a call from Tomah resident Mrs. Richard Handy (23562 Flame Avenue) relaying that they were having their septic drain field

	replaced and that their contractor was concerned about the adjacent gas probe (GP-17). While the project is currently on hold (pending WDNR approval), according to the Monroe County inspector and the contractor, it was determined that GP-17 may need to be modified in place (extended a few feet taller) or relocated to avoid being buried within the slope of the drain field.
June 9, 2015	The USEPA emails CRA looking for any county health regulations that would restrict ground water consumption in the TMSL plume (or prohibit putting in a well over the plume). CRA responds that they did not encounter any applicable county health regulations while researching for the 2014 Institutional Controls Report, and suggests that WDNR may be more familiar with these regulations. CRA also responds that they have forwarded the USEPA's 6/3/2015 zoning restriction question to the City of Tomah. WDNR relays via email that they called the Monroe County zoning office asking about restrictions on placing wells. Monroe County responded that they do not issue permits for wells, nor do they have any general restrictions.
June 11, 2015	USEPA and WDNR call CRA together to discuss the Explanation of Significant Differences (ESD) that they are preparing related to placing properties within the TMSL plume on the WDNR GIS Registry instead of pursuing deed restrictions with property owners.
June 11, 2015	USEPA emails CRA a question about a regulation cited in the Long Term Stewardship Plan provided in the 2014 Biennial Institutional Controls Report (5/13/2014). On June 17, 2015, CRA sends the USEPA a response that Wisconsin Administrative Code Chapter NR 810.16 is more appropriate than NR 811.10 related to "prohibiting the use of private domestic wells; requiring the abandonment of private wells; prohibiting new domestic well installation". CRA advises that NR 810.16 will replace NR 811.10 within the 2016 Biennial IC Report.
June 19, 2015	WDNR emails CRA the draft Remedial Action Report for Tomah Armory, as an example, with the link to the required notification form.

Field Activities

- The OU1 monthly landfill gas monitoring event was conducted on January 15, 2015.
- The OU1 monthly landfill gas monitoring event was conducted on February 11-12, 2015
- The OU1 semi-annual blower discharge sampling event was conducted on February 20, 2015.
- The OU1 monthly landfill gas monitoring event was conducted on March 9-10, 2015
- The OU1 monthly landfill gas monitoring event was conducted on April 8, 2015.
- The OU2 semi-annual/annual groundwater sampling/biennial event was conducted during May 4-6, 2015.
- The OU2 annual residential well sampling event was conducted on May 4, 2015.

- The OU2 semi-annual surface water sampling event was conducted on May 4, 2015.
- The OU1 annual condensate tank sampling event was conducted on May 5, 2015.
- The OU1 semi-annual gas extraction system alarm testing was conducted on May 11, 2015.
- The OU1 monthly landfill gas monitoring event was conducted on May 13, 2015.
- The OU1 monthly landfill gas monitoring event was conducted on June 9, 2015.

Sampling and Test Data

- OU1 OU2 Monitoring Report (January - June 2015) - GHD Services Inc. (GHD) (Formerly CRA) (7/23/2015).

Key Findings

Based on the review of monitoring data collected during this reporting period, and comparison of current data with historical monitoring results, GHD concludes the following, as presented in the OU1 and OU2 Monitoring Report (January – June 2015) (GHD, July 2015):

Based on the review of monitoring data collected during this reporting period, and comparison of current data with historical monitoring results, GHD concludes the following:

- Decreasing vinyl chloride (VC) concentrations at groundwater monitoring wells located immediately downgradient of the Tomah Municipal Sanitary Landfill (TMSL) boundary indicate that OU1 source controls (i.e., the landfill cap and active gas extraction system), implemented in 2000, are effectively reducing and removing volatile organic compounds (VOCs) from the TMSL.
- The current OU2 MNA monitoring wells have defined the TMSL plume boundaries, both horizontally and vertically (see Section 2.4). Although deep wells (MW-18D and MW-22D) near the TMSL show VOC levels above the Wisconsin Enforcement Standard (WES), there are upgradient and downgradient deep wells that quantitatively define the groundwater plume (i.e., MW-7D, MW-12D, and MW-19D).
- The primary contaminants of concern in groundwater continue to be VOCs, specifically vinyl chloride. The VOC plume dimensions are similar to the plume dimensions from the 2014 MNA evaluation. However; the VOC mass within the plume is being attenuated.
- Increasing vinyl chloride concentrations at MW-20B are an indication of the migration of the impacted zone of groundwater from the TMSL, prior to the implementation of the OU1 source controls. Vinyl chloride concentrations at MW-20B are expected to diminish similar to the decreasing trends observed upgradient at MW-3C, MW-7C, MW-12C, MW-18C, and MW-22C.
- Gas extraction system monitoring at the extraction wells indicates methane and VOCs are being removed from the TMSL. Since full scale operation of the active gas extraction system began in September 2000, approximately 180 pounds of vinyl chloride and 15 pounds of benzene have been removed from the TMSL.

- Operation of the active gas extraction system is reducing the potential for landfill gas migration off-Site. Monitoring of the off-Site gas probes indicates no off-Site migration of landfill gases towards the residential homes south of the landfill.

As recommended in the July 2015 OU1 OU2 Monitoring Report:

- Remove the MW-11 nest from the OU2 groundwater monitoring program. The MW-11 nest, which is currently sampled biennially, has been sampled 16 times since the wells were installed in 1996, during which time, vinyl chloride has never been detected. The MW-11 nest is cross-gradient to and approximately 300 feet north of the TMSL plume.
- Remove the Pluess Rental well (24037 Co. Hwy ET), Tom Pluess well (24081 Co. Hwy ET), John Pluess well (24241 Co. Hwy ET), and Linda Johnson (24011 Flatter Avenue) from the OU2 residential well sampling program. The Pluess residential wells have each been sampled 15 times between 1995 and 2013. The Johnson well has been sampled 10 times since 1997. These residential wells, currently sampled every five years, have never shown impact from the TMSL. These residential wells are cross-gradient to and 1,000 feet north of the TMSL plume.
- Reduce sampling the Heffel well (12363 US Highway 12) to every five years, with the next sampling event occurring in 2018 (coinciding with the other 5-year residential sampling locations). The Heffel well is located more than 1,200 ft from the TMSL plume boundary, and has been sampled 17 times since 2000. MW-25C, which is located between the Heffel well and the TMSL plume boundary, serves as a sentinel monitoring well and is sampled semi-annually.

As recommended in the January 2015 Semi-Annual Progress Report:

- Reduce sampling the MW-14 nest and MW-21 nest from annual to biennial, with the next sampling event occurring in 2017 (coinciding with the other biennial sampling locations). These two well nests are located north of Deer creek and are currently sampled annually. The MW-14 nest has been sampled 27 times since the wells were installed 15 years ago in 2000. The MW-14 well nest has never detected vinyl chloride during its entire sample history. The MW-21 nest has been sampled 19 times since the wells were installed 10 years ago in 2005, and has never detected vinyl chloride during its entire sample history. The closest upgradient well to the MW-14 nest and MW-21 nest is the MW-13 nest, which is located approximately 800 feet south west and south of Deer Creek. MW-13A and MW-13B have reported vinyl chloride and MW-13C has never reported vinyl chloride in its samples. However, the vinyl chloride concentrations at MW-13A and MW-13B have remained at a steady-state condition. Hence, there is no technical reason to expect the downgradient water quality conditions to change, because the groundwater plume is being naturally attenuated as confirmed by the monitored natural attenuation program. The MW-14 and MW-21 well nests will remain in place for hydraulic monitoring and in the unlikely event that the MW-13 well nest experiences an upward trending change in vinyl chloride.

Based on the conclusions noted above, GHD recommends the following:

- Continue the increased sampling frequency at MW-18D (an annual sampling location) on a semi-annual basis through November 2015.
- Continue all other OU2 groundwater and surface water monitoring as outlined in the last OU1 OU2 Monitoring Report (January-June 2014) (Ref. 3).

- The OU1 gas extraction system should continue to be monitored in accordance with the approved monitoring program.

Upcoming Events (July 1, 2015 through December 31, 2015)

- International Paper will continue to implement the CD requirements for OU1 and OU2.
- OU1 monthly landfill gas monitoring will continue.
- OU1 semi-annual blower discharge sampling will be conducted in August 2015.
- The OU1 condensate tank will be emptied, as needed, by the City of Tomah in Fall 2015.
- The OU1 semi-annual gas extraction system alarm testing will be conducted in November 2015.
- The OU2 semi-annual monitoring well sampling event will be conducted in November 2015.

Anticipated Problems or Delays

No problems or delays are anticipated for this upcoming quarter.

Personnel Change – CRA Merger and Name Change

Effective February 2015, Ms. Jenny Davison replaced Mr. Thomas Smith as the USEPA Remedial Project Manager.

Effective July 1, 2015, the merger between CRA and GHD was completed, and they are currently operating under the name of GHD.

Effective August 2015, Mr. Ryan Aamot will replace Ms. Lisa Poole as the GHD Project Manager.

Please do not hesitate to contact me if you need any additional information or have any questions or comments.

Very truly yours,

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Philip J. Slowiak, Sr., CSP
Senior Project Manager

c.c.: Roger Gorius; City of Tomah (w/ enc.)
Richard Radcliffe; City of Tomah (w/o enc.)
Ken Patterson; City of Tomah (w/o enc.)
Lisa Poole; CRA (w/o enc.)