

**Township of Woolwich
Technical Remediation Advisory Committee
Meeting Minutes**

Thursday, June 13, 2024

6:07 p.m. – 8:18 p.m.

Hybrid Meeting

**Hosted in Council Chambers and on Zoom
24 Church Street West, Elmira**

Present from TRAC: Councillor Nathan Cadeau, TRAC Chair
Mayor Sandy Shantz,
Councillor Eric Schwindt
Tiffany Svensson, Technical Expert
Susan Bryant, TRAC Community Member
Eric Hodgins, TRAC Community Member
Bryan Broomfield, TRAC Community Member
Linda Dickson, TRAC Community Member
Ryan Prosser, TRAC Community Member
David Hofbauer, TRAC Community Member
Dr. Sebastian Siebel-Achenbach, TRAC Community Member
Karl Belan, Region of Waterloo
Mari MacNeil, Region of Waterloo
Geoff Moroz, Region of Waterloo

Stakeholders: *Chris Foster-Pengelly, GRCA*
Hadley Stamm, LANXESS Corporation
Jason Rice, Ministry of the Environment, Conservation and Parks

Special Guests: *Sadie Payne, Former Conestoga College Student*
Nadia LeMoine, Former Conestoga College Student
Dr. Ulysses Klee, Professor, Conestoga College

Present from Staff: Stacey Bruce, Committee Support Specialist
Rae Ann Bauman, Executive Officer

Italics indicate a virtual participant.

1. Land Acknowledgement

Chair Councillor Nathan Cadeau read a Land Acknowledgement.

2. Disclosures of Pecuniary Interest

No pecuniary interests were declared.

3. Approval of Previous Minutes

Moved by Linda Dickson

Seconded by Susan Bryant

That the Technical Remediation Advisory Committee (TRAC) minutes of April 25, 2024, be adopted as presented

...Carried.

4. Delegations

None.

5. Electronic Dashboard – EngageWR Platform Discussion

Rae Ann Bauman, Executive Officer presented a draft TRAC page designed in partnership with Waterloo Region's EngageWR electronic dashboard to house information related to this community project and increase public engagement as described in the committee's new Terms of Reference. The draft page includes links to TRAC's Terms of Reference, Woolwich Township's Procedural By-law, agenda and minutes, a key timeline of events, correspondence, documents received, and related resources. Key widget features in the backend of the page for subscriptions, newsfeeds, and forums for registered or anonymous public polls and surveys were demonstrated. It was discussed that Stacey Bruce, Committee Support Specialist, will be the future administrator of the dashboard and capable of further modifying the page for the committee. The next steps in launching the platform live involve finalizing the posted timeline of events and training S. Bruce.

Discussion around this matter covered content requests from the committee, the current file upload size restriction of 100 MB, and further details about the direct electronic link to Wilfrid Laurier's Assuring Protection for Tomorrow's Environment Collection. It was noted that an RFP is currently underway to increase the file upload size restriction to 250 MB. It was also highlighted that links from this community page open in pop-up windows, allowing users to stay connected to the original content. Community members S. Bryant, Dr. Sebastian Siebel-Achenbach, and Eric Hodgins were identified as key contributors to developing project milestones to complete the timeline of events section on the draft page.

There were no further questions regarding this.

At this time in the meeting Rae Ann Bauman left.

6. Advancements in NDMA Remediation – Student Research Presentation

18:19 Bryan Broomfield entered the meeting.

Conestoga College Professor Dr. Ulysses Klee introduced former students Sadie Payne and Nadia LeMoine, who have recently successfully completed their studies and presented past project work from a professional research internship course on advancements in NDMA remediation and investigation strategies to meet Ontario drinking water standards in the Elmira Aquifer pertaining to its removal from groundwater.

The presentation covered the students' research questions, the significance of their results, methods, findings, and study limitations. It addressed the nature of NDMA, its harmful effects, and the longstanding contamination of the Elmira Aquifer, emphasizing the challenges in removing this chemical from groundwater and its impact on the community's water supply. Various remediation techniques such as ex-situ ultraviolet (UV) treatment, reverse osmosis, granular activated carbon, and both ex-situ and in-situ bioremediation strategies using propane oxidizing bacteria were detailed. The presentation discussed the pros and cons, implementation systems, and potential discharge areas for these treatments, drawing insights from a Community Assessment for Public Health Emergency Response (CASPER) literature review and a LANXESS facility tour in Elmira. The study's overall conclusion that a multi-step approach is necessary to effectively treat NDMA in the Elmira Aquifer was underscored.

18:30 David Hofbauer entered the meeting.

The committee raised questions regarding the theoretical and practical aspects of this research. The presenters elaborated on the Canadian and US focus of their study, highlighting successful applications of similar technologies in evidence-based case studies with drinking water standards similar to Ontario. The presenters also described how the case studies they examined commonly applied multiple technological strategies where it was difficult to assess the individual effects of each one. They also discussed LANXESS's successful local use of the technologies studied, emphasizing again the importance of a multi-step remediation approach.

In response to further questions from the committee, the presenters described their interest in studying the technologies, touring the LANXESS facility, and gaining a deeper understanding of this environmental issue. They also explained limiting their focus on NDMA over both it and chlorinated benzene due to the high availability of research materials. The committee further clarified the differences between the ex-situ and targeted in-situ treatment, the availability of microbial bioremediation methods for chlorinated contaminants vs. the limitations around this for NDMA, and the hazards of injecting propane into the contaminated groundwater for propane-oxidizing bacterial treatment were emphasized. The effective application of UV and activated carbon remediation technologies by LANXESS and the energy intensiveness of these treatments were also noted. The remaining NDMA contamination in the aquifer and the technical challenges associated with its treatment, particularly regarding well site selection and aquifer substrate conditions like silt were described by the company. LANXESS spoke to the importance of further consulting with GHD and WSP regarding removing the mass of these contaminants with ex-situ treatments to meet 2028 deadline targets.

The committee discussed the scalability of the technologies presented in the study, focusing on the required scale for remediating 2 million gallons of water daily from the Elmira Aquifer. They noted considerations such as costs, energy demands, and the requirement for full-time personnel to oversee continuous treatment operations. Additionally, the committee explored the study's conclusion on employing a multi-step remediation approach further, emphasizing the importance of the combination of different technological processes in the case study applications to enhance overall efficiency, with each contributing specific capability.

The committee questioned whether evidence from other case studies addressed the effectiveness of technologies at the asymptotic plateau of treatment, similar to the current situation with the pump-and-treat method being used in the Elmira Aquifer. Since this was beyond their study, the presenters could not address this and were unable to respond to this initially, but after further inquiries were made regarding potential future research directions the presenters suggested focusing on comparing reverse osmosis and UV remediation technologies, alongside proposing another LANXESS facility tour in the future for additional insights.

In response to a committee question, it was noted that no other in-situ methods are currently available for NDMA remediation besides the propane oxidizing bacteria treatment, which poses explosion hazards and is unsuitable for community use. Discussions explored the potential for alternative, safer bioremediation treatments, referencing an associated unsuccessful and discontinued in-situ Chemical Oxidation (ISCO) pilot test that took place a decade ago in the central area of Elmira, west of the LANXESS site. The importance of specific aerobic and anaerobic conditions for tailored in-situ bioremediation treatments for different compounds was highlighted.

Additionally, the importance of conducting further site characterization was emphasized for future bioremediation work. However, it was noted that there is already sufficient information available to continue discussions on cleanup options like this due to the extensive prior studies of the site. The localized impact and limited broader scale effectiveness of permanganate-based bioremediation were noted from environmental remediation experience.

The student research presenters were complimented on their comprehensive work by the committee. It was also noted similarly from past LANXESS monthly progress reports that carbon and UV remediation treatments have demonstrated effectiveness.

There was no further discussion regarding this.

7. Review of LANXESS April 2024 Monthly Progress Report

Linda Dickson presented her summary of LANXESS's April 2024 Monthly Progress Report.

Hadley Stamm provided a response that well W3R has been up and running since the end of May, in response to questioning around of the exact date that the wireless equipment was recently installed for well W3R.

The committee further discussed a containment breach that occurred in April beneath the NW portion of the site, specifically north and west of the dam and southwest of the creek. LANXESS explained their efforts to control water levels through extraction well operations relative to the creek, which is typically challenged during high spring water events. Due to significant seasonal high fluctuations in water levels in this area, it was noted that the water lost was diluted, and such events typically do not result in exceedances of contaminant concentrations or adverse impacts. The ministry mentioned that the Environmental Compliance Approval (ECA) has previously been amended to reduce monitoring requirements, but that additional specific

monitoring is required to address data gaps that occur during storm events, particularly in spring months when containment breaches are common like this. It was emphasized that GHD, on behalf of LANXESS, collects surface water samples as close as possible to these events to monitor any potential negative effects through testing.

There was no further discussion regarding this.

8. Updates

7:04 Mari MacNeil entered the meeting.

H. Stamm presented the following LANXESS Elmira – TRAC Update.

LANXESS first provided an informal update on well PW6, noting that its replacement is progressing ahead of schedule, although potential supply chain challenges post-COVID-19 could still affect the overall timeline.

8.1 Human Health and Ecological Risk Assessment (HHERA) Revisions

The company described their discussion of necessary revisions in the HHERA with the ministry on June 12th, 2024. They also highlighted submitting initial comments at the end of May and their request for a formal meeting with the ministry's technical team to plan the execution of this work. The company described that after this technical discussion, they intend to finalize this report, incorporating the additional data collected by the ministry from the creek's floodplain. LANXESS noted also planning to update their progress regarding this at the next TRAC meeting.

8.2 Removal of Canagagigue Creek Hotspots

LANXESS discussed that their next remediation work for the hotspot removal on the creek will depend on findings from the risk assessment. They emphasized their intention to undertake voluntary work on the creek, pending the assessment's outcomes, which may dictate mandatory obligations. The company highlighted uncertainty regarding whether mandated work would differ from voluntary efforts. They expressed a need to clarify regulatory obligations before proceeding with targeted voluntary work.

Questions were raised by the committee regarding the timeline for submission of the final HHERA. LANXESS indicated it is expected to be completed by the end of summer, but that creek cleanup work is unlikely this year. Anticipating additional ministry comments post-submission, the company noted not foreseeing cleanup work commencing until next summer.

The committee questioned perceived delays in cleanup efforts during the preparation of ongoing reports. The company emphasized the importance of understanding the rationale behind cleanup efforts, considering their potential impact, and ensuring alignment with community interests.

The committee provided additional comments on the importance of avoiding unintended impacts on the creek by ensuring accurate identification of contaminant hot spots. The need for a thorough risk assessment before initiating any further work to gain a comprehensive understanding was emphasized.

8.3 Technical Advisory Group (TAG) and the Ministry of the Environment & Parks (MECP) Written Comments on the LANXESS Canagagigue Creek Clam Biomonitoring Program

LANXESS discussed wanting a deeper understanding for this clam biomonitoring work from the HHERA study that is expected to be completed. It was also emphasized that they would like to further understand the analysis of fish tissue data and long-term monitoring obligations under their ECA permit. The company highlighted challenges in obtaining clams for the biomonitoring program due to the Ministry of Natural Resources and Forestry (MNR) licensing restrictions for introducing them into the creek. The company proposed fish tissue monitoring every 3-5 years as an alternative method for the ministry's consideration.

19:23 Geoff Moroz entered the meeting.

Using alternative clam species abundant in the upstream watershed for in-situ monitoring was suggested in response by the committee. They also recommended that GHD utilize further expertise to provide more detailed insights into creek biology and testing methods. In reply, LANXESS noted interest in exploring a collaboration with EnviroScience Inc., a US-based company specializing in bioremediation.

The ministry provided comment on the consideration of native clam species for biomonitoring, emphasizing the need to understand their upstream source in the Grand River in relation to the LANXESS site and other inputs into the creek system as well as their population size as it must be sufficient to support the study work without negatively impacting the species harvested for this work. The committee further underscored the significance of utilizing expert knowledge to study potential native clam populations for biomonitoring. The importance of understanding clam population size, baseline contaminant exposure, and maintaining a sufficient multiple-year supply of clams from healthy, stable populations with contaminant levels below detection limits for effective monitoring was further emphasized.

There was no further discussion regarding this.

9. 2028 Order Deadline

Regarding the 2028 cleanup deadline, LANXESS stated that it is unfeasible to meet this target set 30 years ago. They emphasized future efforts to address the removal of the mass of remaining aquifer contamination through consultations with GHD and Stantec consultants. They also noted exploring plans around sparging various wells and leveraging Joe Ricker's plume analytics as well as current existing studies to effect change in the environment of the contaminated site.

Discussion around the 2028 deadline and developing a proposal for a remedial framework by 2026 occurred, with ongoing updates on a remediation framework set as a standing future TRAC agenda item. The committee expressed interest in hearing the ministry's response to future proposed frameworks. The company highlighted the slow progress and challenges in their remediation efforts, emphasizing the iterative process of conducting remediation pilot tests to advance the cleanup work.

The committee requested a comprehensive summary of remediation technologies employed and studies acquired, emphasizing the need to revisit the potentially outdated draft remediation framework and technologies used for in situ and ex-situ treatment documents prepared five years ago. The committee decided, after further discussion, to proceed with this while also exploring new strategies through a technical experts meeting. To ensure inclusivity of perspectives, it was determined that the meeting will involve hydrogeologist consultants, representatives from the company and ministry, TRAC's Technical Expert, and community members.

9.1 ACTION: H. Stamm of LANXESS to initiate a Technical Experts Meeting involving hydrogeologist consultants, representatives from the company and ministry, TRAC's Technical Expert, and community members.

The committee discussed reformulating its framework questions for community outreach, emphasizing their current regulatory and technical aspects and the need for public education. The critical role of technical experts in formulating these current draft questions was highlighted.

The committee reviewed the five-year age and potential retooling of these questions, including a follow-up on past discussions from the Technical Advisory Group (TAG) group on questions to pose to the public in consideration of the 2028 order deadline. A technical experts meeting before September was deemed crucial for revising these current draft questions effectively.

The committee discussed answers, feasibility, and relevance of fundamental questions they aim to address, emphasizing the need for responses from those capable of providing answers. They focused on the critical nature of addressing these issues effectively. The audience for the framework questions and considerations regarding existing water in the aquifer for cleanup evaluations were discussed, focusing on containment vs. cleanup strategies to conserve this water supply resource.

The committee also deliberated on the overwhelming weight of these questions for community committee member volunteers to answer compared to mandated experts and the ministry. The balance between expectations and the participatory capacity of the committee was considered.

Discussion focused on the assimilation of treated water into the stream, its current non-usage, and the perception surrounding these issues. The evaluation included the relevance and methodologies of Ontario Drinking Water Standards, prompting a query to the Ministry of the Environment Conservation and Parks (MECP) regarding their establishment, particularly in terms of the public perception of minor exceedances.

9.2 ACTION: The MECP to follow up with their Water Resources Branch regarding the historical establishment of the limits for the key contaminants for the committee.

Concerns were raised about site-specific cleanup criteria from the MECP, contrasting with offsite contamination and the evolution of cleanup approaches over the past decades, varying by regulatory requirements and company-driven initiatives.

The importance of the technical nature of these questions was emphasized. Considerations extended to water conditions and industrial vs. end-use drinking water, as well as the contextual relevance of unanswered questions to generate discussion and input on the 2028 order deadline.

In conclusion, the committee meeting organizers were tasked with determining questions to prioritize for this ongoing future discussion. The company's investment in treating contaminated water intended for discharge into the creek, and reassessing priorities leading up to 2028, was highlighted. The role of technical experts, the committee, and public feedback, alongside the necessity to educate the public and allow experts to shape future directions and question formulations, was underscored.

9.3 ACTION: Chair Councillor N. Cadeau, and Technical Expert Tiffany Svensson, to identify and formulate questions related to developing a remediation framework in preparation for the 2028 order deadline, for future discussion.

There was no further discussion regarding this.

10. Preparing The Spring TRAC Update for Council

The committee discussed preparing a comprehensive update to present to Council on August 27th. This high-level presentation will cover the committee's purpose, recent structural changes, and relevant work. Discussion highlighted the importance of including diverse perspectives and differing views on the committee's direction in the presentation. Committee members were encouraged to propose questions for Council for the presentation via email to Chair Councillor N. Cadeau.

10.1 ACTION: Chair, Councillor N. Cadeau, and Technical Expert T. Svensson will prepare a draft of the presentation, within the next month, which will be circulated to the committee for feedback.

There was no further discussion regarding this.

11. Other Business

11.1 2023 Annual Environmental Report

D. Hofbauer presented his summary of the 2023 Annual Environmental Report, prepared by GHD on behalf of LANXESS.

The committee discussed the notable annual reoccurring recommendation for the plant to develop a labeling system to ensure drums are not stored longer than 90 days, per ministry guidelines. They also reviewed LANXESS's waste disposal practices. It was confirmed there have been no violations and that the plant follows recommended disposal guidelines.

There was no further discussion regarding this.

12. Correspondence

12.1 Alan Marshal's May 14, 2024, Council Meeting Delegation

12.2 LANXESS April 2024 Progress Report Prepared by GHD

12.3 2023 Annual Environmental Report

12.4 Student Research Paper on Advancements in NDMA Remediation

It was noted that four documents were received since the last TRAC committee meeting and there was no further discussion regarding these.

13. Next Meeting

The committee agreed to reschedule the next meeting to September 12th, 2024, at 6:00 pm, moving it a week earlier.

14. Adjournment (8:18 P.M.)

14.1 Card Signing for Ramin Ansari's Retirement

Committee members were invited to sign a card for Ramin Ansari's retirement.

Moved by Dr. S. Siebel-Achenbach
Seconded by Ryan Prosser

The committee adjourns to meet again on Sept 12, 2024.

...Carried.

Recorder: Stacey Bruce, Committee Support Specialist