

February 12, 2010

Mr. Frank Sowers, P.E. NYSDEC, Region 8 6274 East Avon-Lima Road Avon, NY 14414-9519



Re: RI Phase II Work Plan Addendum

**Proposed Modification 3** 

Former ITT Rochester Form Machine Facility

Site #8-28-112

Town of Gates, Monroe County

Order on Consent: Index # B8-0614-02-05

**Proposed Modification** 

File: 3356/35273 #2

Dear Mr. Sowers:

The following presents a proposed modification to the Remedial Investigation (RI) Phase II Work Plan Addendum approved by the New York State Department of Environmental Conservation (NYSDEC) in a letter dated September 28, 2007. This proposed modification was discussed with NYSDEC in a teleconference on February 10, 2010.

The Phase II Work Plan Addendum was originally submitted to NYSDEC on February 8, 2007. Because of conditions encountered in the field, various modifications to the Phase II Work Plan Addendum have been required. A revised Phase II Work Plan Addendum was submitted on August 17, 2007 and approved by the NYSDEC on September 28, 2007. A subsequent Phase II Work Plan Addendum Modification as submitted on January 7, 2008 and was approved by the NYSDEC on January 14, 2008. A second Phase II Work Plan Addendum Modification (Modification 2) was submitted September 4, 2009 because natural gas was encountered during the completion of deep boring, AMSF-MW-17MP, originally proposed to a total depth of greater than 200 feet. This second modification was approved by the NYSDEC on September 14, 2009.

The proposed Phase II Work Plan Addendum Modification 3 requested in this letter is in response to the continued encountering of natural gas, and specifically at a shallower depth than previously encountered. In addition, the recent encounter now demonstrates that there is a likelihood that we would continue to encounter natural gas in connection with the additional planned deep well activities. Modifications are also requested because of the consequential potential risks the natural gas presents to field personnel and surrounding property owners, tenants, and members of the public, relative to the RI objectives for site characterization.

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## Background

The September 4, 2009 Phase II Work Plan Addendum Modification 2 limited the depth of deep borings to 150 feet in an effort to avoid encountering natural gas that was previously encountered during drilling at depths greater than 150 feet in the Rochester Shale. However, on January 20, 2010, upon completion of coring ITT-MPBW-21 to a total depth of 150 feet, the drilling rods were pulled back in preparation for bedrock core retrieval when natural gas was observed exiting the drill rods. The natural gas was managed in accordance with the NYSDEC-approved Natural Gas Mitigation Protocol and Standard Operating Procedures presented in the September 4, 2009 Phase II Work Plan Addendum Modification 2.

Work completed as part of the Phase II RI prior to encountering natural gas at ITT-MPBW-21 includes:

- Three shallow bedrock monitoring wells (ITT-SBW-17, ITT-SBW-18, and ITT-SBW-23) were installed to approximately 10 to 20 feet below the top of the bedrock during first quarter of 2008 (approximately 25 to 35 feet below ground surface). Two of these wells (ITT-SBW-17 and ITT-SBW-18) are located along the northern edge of the Cinemark property. The third well (ITT-SBW-23) is located along the northwestern edge of the ITT property.
- Four intermediate bedrock monitoring wells (ITT-IBW-19, ITT-IBW-20, AMSF-MW-15I, and AMSF-MW-16I) were installed to approximately 35 feet below the top of the bedrock (approximately 40 to 50 feet below ground surface) during the first quarter of 2008. ITT-IBW-19 is located on the Cinemark property south of the building; AMSF-MW-15I and AMSF-MW-16I are located in the northwestern corner of the former AMSF property in the vicinity of recharge well RW-2; and ITT-IBW-20 is located just north of the former RFM building.
- AMSF-MW-19MP (located in the front lawn in the southeastern portion of the former AMSF property) and ITT-MPBW-22 (located in a parking space adjacent to the building on the Cinemark property) were drilled and cased to 80 feet during first quarter of 2008 in preparation for coring to a greater depth. As currently configured, both borings are essentially solid pipes in the ground and could not be used to sample groundwater. Bedrock matrix sampling was completed to 80 feet in both of these borings. Bedrock matrix data from both of these borings show shallow volatile organic compounds (VOCs) above a depth of approximately 50 feet and then no detected VOCs between approximately 50 and 80 feet below the ground surface.
- AMSF-MW-18MP, which is located in the driveway in the northwest corner of the former AMSF property, was drilled and cased to 80 feet and drilled to 150 feet during the first quarter of 2008. The borehole has not yet been developed or purged and no well has been installed in this boring.
- AMSF-MW-17MP, which is located adjacent to AMSF-MW-18MP, was drilled and cased to 80 feet during the first quarter of 2008 and then cored to 160 feet before the boring had to be abandoned because of the presence of natural gas (encountered on March 19, 2008). Bedrock matrix sampling was completed at AMSF-MW-17MP to the total depth of the boring.

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Bedrock matrix data from this boring indicates VOCs are present above a depth of approximately 60 feet and then low concentrations to no detection of VOCs between approximately 60 and 130 feet below the ground surface.

 ITT-MPBW-21 was drilled and cased to 80 feet during first quarter 2008 and was recently cored to 150 feet where natural gas was encountered (on January 20, 2010). Bedrock matrix sampling was completed to a depth of 150 feet in this boring. Bedrock matrix analysis is in process.

The presence of natural gas in two of the deeper borings presents challenges and risks for the site investigation activities as currently proposed. As discussed with NYSDEC in the teleconference on February 10, 2010, the latest encounter with natural gas while drilling ITT-MPBW-21 has increased ITT's concerns regarding the risks that are inherent in drilling on the site property and adjacent off-site properties in an environment where natural gas naturally exists and can occur at varying depths. While the natural gas encountered at ITT-MPBW-21 was managed in accordance with the NYSDEC-approved Natural Gas Mitigation Protocol and Standard Operating Procedures, the fact that natural gas was encountered on the first attempt at drilling (and at shallower depths than before) after encountering natural gas at AMSF-MW-17MP is of concern.

Also, ITT has significant concerns regarding continuing with any further deep well installation activities at ITT-MPBW-21, where natural gas continues to be present. There is currently approximately 140 feet of water in the borehole and natural gas is likely still present in fractures at the bottom of the hole and retained in these fractures by the hydrostatic pressure of the groundwater. Water and natural gas would need to be purged and the borehole reamed before the boring could be sampled (screening level sample only). Because of the nature of the natural gas in the bedrock it is likely not feasible to completely purge the gas from this formation. Additionally, repressurization of the natural gas to some extent may occur in the future.

Similarly, while natural gas was not encountered while drilling AMSF-MW-18MP (which has been cased to 80 feet and drilled to 150 feet, but has been capped for the past two years), it is our understanding that there is the strong potential that natural gas could migrate in the bedrock fractures to this well either now or at any time in the future, particularly because of its proximity to AMSF-MW-17MP. Thus, continued activities below the currently cased level of 80 feet would present a similar natural gas risk, which again is heightened because this well is located on an off-site property frequented by the public

Based on the above facts, it now appears highly probable that ITT would encounter natural gas if drilling were to continue at off-site wells AMSF-MW-19MP and ITT-MPBW-22, as currently planned. This combined with the fact that these two wells are located on non-site properties owned by Cinemark and Maguire Family Properties, which are visited daily by members of the public, now creates a risk for which there is no significant off-setting benefit to be derived from continued drilling at these locations.

In addition, the naturally occurring presence of natural gas in the deep bedrock may limit the migration of VOCs because the naturally occurring organic materials associated with the natural gas are expected to encourage the sorption and retardation of VOCs in groundwater and thus limit the migration of VOCs in deep groundwater. The same naturally occurring organic materials will present

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an obstacle should remedial activities be necessary in the deep bedrock; as the same organic materials that retard VOC migration would limit the effectiveness of deep groundwater remediation.

Given the above facts, ITT requests approval from the NYSDEC for the following:

- Properly abandon ITT-MPBW-21. Well abandonment will be consistent with Draft Groundwater Monitoring Well Decommissioning Procedures (November 2002) and consist of filling the borehole with grout, cutting off casings below grade, removing well boxes, and restoring the ground surface.
- Cautiously open the well cover at AMSF-MW-18MP. If natural gas is detected in the well, properly abandon the well. If no natural gas is detected, collect a screening-level groundwater sample as requested by NYSDEC, and then properly abandon the well. It should be noted that obtaining a reliable groundwater sample would require development of the boring and purging of water and any natural gas from the boring prior to sampling, and therefore a grab sample is expected to be of limited use. The bedrock matrix data that have been collected provide more reliable characterization of the occurrence of VOCs in the bedrock and groundwater than collecting a groundwater sample from undeveloped and unpurged borehole with a 70 feet length of bedrock exposure.
- Properly abandon AMSF-MW-19MP and ITT-MPBW-22. Because the bedrock matrix data have shown that the highest concentrations of VOCs exist in the upper 50 to 60 feet of the bedrock, the casing in the wells have been grouted,, and drilling below 80 feet on off-site property now carries unnecessary risks, ITT believes the most reasonable option is to abandon these wells.
- Collect a full round of water level measurements and groundwater samples from all existing monitoring wells. The last groundwater sampling event took place in 2005.
- Proceed with the remaining activities in the Phase II Work Plan Addendum, which would include surveying well locations, hydraulic conductivity testing, groundwater elevation monitoring, and groundwater sampling during high and low groundwater elevation periods.

Completion of the Phase II work has been complicated and delayed by the presence of natural gas. This proposed modification will allow the characterization of the known shallow and intermediate bedrock groundwater impacts to proceed, and will permit the project team to focus resources on completing the RI and evaluating feasible remedial options.

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We respectfully request NYSDEC's written approval for the Phase II Work Plan Addendum Modification 3 described in this letter. Please contact me at (315) 437-6100 or Teresa Olmsted at (714) 630-3175 if you have any questions or comments regarding this proposed modification.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Guy Swenson, CPG Technical Director

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