

## Hudson 7 Engineering Timeline for CHPE Project

- Oct 2020 – May 2021 Hudson 7 and TDI had an adversarial relationship after TDI explained the project and indicated they had all necessary permits, had provisions to protect the drinking water intakes, and would not consider a terrestrial route. Hudson 7 insisted that a terrestrial route be used in the vicinity of our intake and indicated the Environmental Management & Construction Plan (EM&CP) did not adequately protect the intake from pollution and damage.
- May-July 2021 After consulting with Kurt Ricke of McCabe and Mack and John Lyons, it was determined that the route could be challenged, but we would most likely fail, and our best course of action was to work with TDI to develop an EM&CP that would protect the water source. Hudson 7 retained John Lyons as a pro bono attorney.
- Sep 3, 2021 Hudson 7 met with TDI's COO and Caldwell Marine (CMI), the contractor for jet plowing) We express our concerns that jet plowing would stir up pollutants, as shown in an underwater video. TDI/CMI indicated that they had not done jet plowing near drinking water intakes and would do pilot test near our intakes to determine if the plow would pollute them.
- Sep 9, 2021 Based on John Lyons' advice, it was decided to conduct a pilot test near the Rhinebeck intake and send a letter to the governor.
- Oct 19, 2021 We decided that drinking water standards should be used to evaluate the pilot testing. We contacted DPS, and they were no help. It was decided that our best chance to influence the EM&CP was getting DEC and DOH on our side or persuading TDI to agree to protocol for pilot testing. Gary contacted TDI, and they agreed to a workshop for the pilot test, but they were only required to monitor suspended solids. We requested NYSERDA not to issue a contract until TDI agrees to conduct a pilot test as a condition of EM&CP.
- Oct 20, 2021 Paul Malmrose prepares a draft sediment sampling, pilot testing, & full-scale operations protocols for the EM&CP. Protocols include sediment testing near the intake, pilot testing and monitoring requirements, and an emergency response plan. After review by Hudson 7, the document was sent to TDI.
- Jan 13, 2022 Hudson 7 met with TDI, and TDI was more cooperative, and the CEO attended the meeting. Representatives from DOH and John Lyons attended. At the meeting, Paul presented the protocols. TDI indicated the plans were smart and requested 2-3 weeks to review the plan. DOH indicated that dredging was restricted from Sep until freezing. TDI stated they planned to do the testing in the fall of 2022.
- Mar 31, 2022 Hudson 7, TDI, and DOH met to discuss and revise the protocol. TDI questioned the need for sediment testing and the use of the

Unrestrictive Soil Standards. Hudson 7 indicated that there were hotspots with high levels of contaminants, and TDI asked to discuss this with Dr. Chant from Rutgers. It was again confirmed that the pilot test would be conducted near the Rhinebeck intake since they could be shut down for an extended time because of their large amount of storage capacity. Protocol indicated that two runs should be made at two speeds, 300 ft/hour and 600 ft/hour, and the run should extend from ¼ mile upstream to ¼ mile downstream from the intake. Hudson 7 wanted a test conducted during high tide since contaminants would be at their maximum, and TDI indicated that might not be possible because it could require a nighttime operation. It was agreed that continuous monitoring would be conducted 500 ft upstream and downstream of the plow and intake would also be continuously monitored, and the sample would also be sent to a laboratory. TDI would be required to purchase the continuous analyzer.

May 23, 2022 During a conference call, only members of the Hudson 7 subcommittee met to obtain updates. TDI sent proposed changes to the protocol for our review. TDI would conduct sediment and pilot testing in the fall of 2022. Installation would begin in August 2024. EM&CP was due to DEC in August 2023 ( 12 months before the installation.) TDI wanted to meet again to discuss protocol.

July 7, 2022 Hudson 7 met with TDI, and TDI's project manager attended the meeting. TDI indicated that there were problems with the Rhinebeck site due to utilities under the river at the location and asked for another site. TDI suggested the Port Ewen intake, and Hudson 7 indicated that Port Ewen had the most days of water storage. Hudson 7 stated that obtaining the Town's approval may be difficult. Dr. Chant recommended five core samples. It was decided to take 9-ft cores and sample every foot. It was decided to operate the jet plow at two different speeds during one pass and not to conduct an underwater video because the Hudson River is too murky. Hudson 7 indicated that an engineer should be retained to oversee the jet-plowing pilot.

July 7, 2022 Paul visited the Port Ewen Plant to determine the details to use the Port Ewen Intake. That night he met with the water board, and they were very upset with the project and conducting the pilot at their intake.

July 12, 2022 The subcommittee met to determine how to proceed if the pilot cannot be conducted at Rhinebeck intake. It was determined that the risks were too great to conduct the pilot at the Poughkeepsie plant, and Port Ewen did not want the pilot conducted near their intake. Boring must be done before the piloting. Laboratory analyses will be required for pesticides, PCBs, petroleum products, dioxins, and metals, and we need online monitoring equipment. It was suggested to involve the County DOH and look for another pilot testing location. It was agreed that Tighe & Bond be retained to review, coordinate and witness the activities. TDI had 33 suggested revisions to the protocol, and 11 were resolved.

- July 19, 2022 Subcommittee met to prepare for the meeting with TDI on 7/22. Port Ewen did not agree to pilot at their intake, and another location was needed. TDI needed to pay for the consultant, develop an emergency response plan for each community, testing equipment. In a letter to TDI, the Hudson 7 indicated that they are trying to help TDI, but all liability lies with them since they refuse to use a terrestrial route. DOH was reluctant to be involved but agreed to attend meetings. TDI indicated that an alternate site must be found quickly since the jet plow would be available in September. Since Hudson 7 cannot contract and no municipality wants a contract, Hudson 7 suggested that Tighe & Bond contract with TDI.
- Aug 2, 2022 At the meeting with the Hudson 7 and TDI, several alternatives for a simulated intake were discussed, such as the IBM intake, a fireboat, a dock in Marlboro, and Norrie. The simulated intake would have sediment concentrations similar to the Hudson 7's intakes. PCBs and pesticides, along with the appropriate standards, appeared to be the major contaminants of concern. Tighe & Bond recommended doing the pilot between 82 and 83 borings, located between the Rhinebeck and Esopus intakes. TDI indicated that DEC did not want the test near Norrie Point and the Marlboro Dock, and a fireboat would not work. Sites north of intakes could not be used because of fish habitats. The IBM intake was not feasible. A barge with a pump appeared to be the best solution.
- Aug 4, 2022 A subcommittee met to discuss the project. The site selection was difficult, and our initial interest was to get the project out of the water. We needed to prove a negative impact to influence the EM&CP. Esopus again express their concerns about the project and pilot testing. We look at several terrestrial routes, but DEC and DOH will not support changing the route. DOH does not have control of river quality, and only DEC has the responsibility. The governor supports this "clean energy" project even though it puts our intakes at risk. Several members indicated that we should still push for a terrestrial route and suggested getting politicians and Times Union involved. It was suggested to pursue a PR campaign with TDI.
- Aug 5, 2022 The subcommittee and TDI met again to discuss the site near the VA hospital in Fishkill near boring S93. TDI agreed to contact town leaders in the area. Several other sites were evaluated and eliminated. Randy indicated he might have a 3 MGD pump that TDI could use.
- Aug 11, 2022 The subcommittee and TDI met again. Tighe & Bond's scope was given to TDI with a copy to Hudson 7, and the contract has gone to the attorney. TDI agreed to submit its sampling plan, coordinated with Fishkill and VA Hospital, and obtained a Coast Guard permit. Randy will provide the 3 MGD pump. Tighe & Bond indicated that S93 is representative of borings near our intakes and again requested a cross-section near the intake, a plow route. Paul indicated that Poughkeepsie had the greatest risk. The route is only 160 ft from the

intake, and the plant withdraws ten times more than any other Hudson 7 plant.

Aug 19, 2022

The subcommittee and TDI met again. TDI integrated its work plan with the Hudson 7 protocol. Paul suggested sampling at the simulated intake, but TDI said the previous boring from 2010 was adequate—sediment sampling to be conducted before the pilot. We agreed the plow would be operated at 300 and 600 ft/hr, and no underwater video would be required. TDI requested testing methods for sediment testing and agreed the route would come within 160 feet of the simulated intake. Paul wanted the standards to be a pass/fail but TDI wanted to evaluate all the parameters before determining pass/fail. Tighe & Bond's legal department was unhappy with the agreement since we would be working for Hudson 7 but have our contract with TDI, and Tighe & Bond would have legal obligations to TDI. TDI reported that officials had been notified about testing.

Aug 26, 2022

The subcommittee and TDI met again. Tighe & Bond reported that they could not contract with TDI because of legal problems. Randy and Paul will perform the work that Tighe & Bond planned to do. However, Paul was only available after Sep 19. TDI said that they could not wait that long. Randy agreed that he and his staff would monitor the operation. TDI decided to use a barge for the simulated intake. Hudson 7 requested that the plow be closer than 160 ft since the pump capacity was only 2-3 MGD. The intake would be 4 ft of the river bottom, like Poughkeepsie's intake. Pilot testing was scheduled during the second week in September. Dan Valentine requested that a sediment sample be taken for each foot of the core. We agreed that TDI could test sediment using groundwater methods. PAHs, PCBs, pesticides, and metals should be the primary concern. Paul again questioned how we would determine the pass/fail. TDI submitted its work plan to meet Hudson 7's protocol requirements.

Sep 2, 2022

Randy, Paul, Dottie, and TDI met to discuss the work plan for the pilot test. TDI reported that the plow could not come closer than 160 ft because of safety concerns and Hudson 7 representatives could not be on the barge for the plow, and only two persons could be on the intake barge. The test is scheduled for Sep 8. Contaminants of concern and testing procedures were determined. Paul indicated that cores must be analyzed in segments. It was agreed to take samples every 30 minutes for the Lab and every 15 minutes for turbidity and pH. Normandeau will be collecting samples. It was decided that the whole test may not fail if one sample fails. Any failures will be evaluated based on all sampling results. If pH changes or turbidity increases, failure may result. If concentration increases from the base value but is less than the drinking water standards, it still passes.

Sep 9, 2022

The pilot test was conducted after several problems were resolved. Randy and Dottie were present on the barge first for two hours, but the plow did not start until they left. Nick Butler followed them on the

barge, and other operators observed from the barge for the simulated intake barge.

- Oct 2, 2022 The subcommittee and TDI met again. TDI reported the reports were delayed, and it was expected that pilot testing results would be available in mid-November, and sediment report would be available in mid-December. The core sample was taken. TDI reviewed the proposed table of contents for the report and indicated that this test was done only for the Hudson 7 and another test would be performed for DEC. Hudson 7 requested that a conclusion section be provided and recommendations are provided for EM&CP. Sean asked that the report remain confidential until finalized. Hudson 7 requested maps showing the final proposed route and intakes.
- Nov 15, 2022 The pilot testing report was received.
- Nov 21, 2022 The subcommittee and TDI met again. TDI reported that most contaminants do not show a clear pattern throughout the plow run. Semi-volatiles show a clear spike after the jet plow passes. However, they are orders of magnitude less than the standard. The tides appeared to have more influence than the plow. Turbidity appears to be confined to the trench, as predicted. Semi-volatile compounds increased from non-detect to detectable Metals all increased. Sodium and chlorides exceed standard due to the salt front. PCBs were below standards.
- Nov 30, 2022 Dottie, the lab director for Poughkeepsie's plant, compared the concentration to the drinking water standards. The contaminants were significantly below the standard except for sodium and chlorides and Benzo (a) pyrene, which just reached the standard. Benzo (a) pyrene is a hydrocarbon from coal tar.
- Dec 14, 2022 The subcommittee and TDI met again. TDI has sediment core sample results and expects to complete the report in early January. Paul questioned if the plow was at least 7 feet below the river bottom and TDI said they would check with CMI. TDI was making some revisions to the pilot test report. TDI was checking about an online analyzer for full-scale construction. Paul questioned if a grappling hook ahead of the jet plow would cause a problem, and TDI said it was less invasive. Hudson 7 requested the final route of the jet plow in relation to the intakes. TDI said that only a corridor was identified, and the route could be out of the corridor. Hudson 7 was particularly concerned about the Port Ewen intake. TDI would be developing EM&CP this year and should be completed by January 2024. TDI will recommend that intakes be shut down when the plow passes. It was requested that Paul provide the emergency response plans to TDI so that TDI can develop a plan for the EM&CP.
- Jan 2, 2023 TDI submitted the Sediment Report and indicated that there were some exceedances based on NYSDEC Sediment Quality Threshold Values. All metals were below the standard Poughkeepsie has for their sludge disposal.

Jan 9, 2023

Subcommittee met to review Sediment Report and Pilot Testing Report. Paul asked Gary to request the following:

- Profile of the jet plow in relation to the river bottom
- Did the obstruction survey identify rock in the pilot route?

Operators should send an emergency response plan to Paul for review.

Feb 8, 2023

Dottie completed a review of the Sediment Report. The review of the results indicated no pesticides and volatile compounds in any sample. Metals, PCBs, and Dioxins exceed limits depending on the standards used. Contaminates are higher in the top 4.5 feet and in the lower 4.5 feet and are higher than concentrations taken in 2010 at the simulated intake. No cores were performed at the Port Ewen intake but taken upstream and downstream of the intake.

Feb 9, 2023

Subcommittee met to review Sediment Report. We need to determine the standard to use to evaluate results. Emergency plans rely on trucking in water, and this method is not feasible because it would require numerous trucks. A plan must be developed in case the intake is damaged or contaminated for a long time. No sample was taken at the Port Ewen intake, and we needed these items to be resolved before we met with TDI.