

Accufacts Inc.

“Clear Knowledge in the Over Information Age”

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**To: Mr. Casey LaLonde
Township Manager
West Goshen Township
1025 Paoli Pike
West Chester, PA 19380-4699**

Re: Response to Additional Questions Raised by West Goshen Township (“WGT”) Supervisors on Accufacts’ Report on ME 2X

This document responds to questions raised by the WGT Board of Supervisors following Accufacts’ recent report on ME 2X.¹ I prepared my below responses subject to the constraints of a Nondisclosure Agreement which prevents me from divulging certain confidential information. While I cannot disclose certain details, the Nondisclosure Agreement has not prevented me from reaching independent conclusions based on the documents and other information provided by Energy Transfer/Sunoco Pipeline (“ET”). The WGT Supervisors’ questions concerning my ME 2X Report, are numbered and bolded below, followed by my responses:

1. Was the thickness of pipe installed on ME 2X greater than that for ME 2? If so, is there an explanation from ET?

Response: The 16-diameter ME 2X in the area that could affect WGT is slightly thinner, but mostly higher pipe grade steel (X-70 versus X-65) than that utilized for the 24-inch diameter ME 2. It is my understanding that most of ME 2X pipe was related to the purchase of mainline pipe from another pipeline operator who had previously purchased the pipe for another project that was cancelled before construction, making the pipe available for purchase at a significant savings.

2. Were 100% of welds x-rayed? Were all welds post heat-treated to reduce HAZ pipe cracking potential?

Response: Yes to both questions, based on ET’s responses to Accufacts.

¹ To Casey LaLonde, Township Manager, “Accufacts Report on the Mariner East 2X Pipeline Affecting West Goshen Township,” July 23, 2020.

3. Are the number of pipeline welds known between the two remotely operated mainline valves? i.e. on the 8.4 mainline section of pipeline?

Response: No. Detailed information that would assist in exactly determining the number of girth welds beyond WGT were not asked for nor provided for the segment between the automatic/remotely operated mainline valves.

4. Is it known how many welds there are in the 1.2-mile section of pipeline in West Goshen Township? If not, what is Richard's professional estimate of the typical number?

Response: No. An estimate of the number of girth welds can be developed by assuming a typical pipe segment length of 40 feet to be joined by girth welding in the 1.2-mile segment, which yields about 158 girth welds. The number of girth welds can change depending on such details as the need for bends or shorter pipe spools than the typical span of forty feet (such as the mainline pipe tie-ins between the HDDS). A typical pipe segment length of forty feet is reasonable to estimate the rough number of girth welds in a mainline segment.

5. Was the Hydrotest pressure on ME-2X approx. 2663 psig? (1.25 x MOP of potential 2130 psig)?

Response: While the specific hydrotest pressures vary slightly because of terrain and mainline pipe grade/thickness changes, and are not public, the minimum hydrotest pressure in the 16-inch ME 2X segment crossing WGT was slightly above 2663 psig.

6. What is the intended MOP of the ME-2X when put in service?

Response: The MOP of the ME 2X pipeline when it is placed initially into HVL service will be 1480 psig, based on various documents supplied by ET to Accufacts.

7. What was the Hydrotest pressure performed on ME-2? If different than ME-2X, what is the explanation from ET?

Response: The hydrotest pressure for ME 2 was substantially lower than that for ME 2X. Under the NDA, Accufacts cannot disclose specific hydrotest pressure information without the written permission of ET.

Hydrotesting requirements in current federal pipeline safety regulation to establish MOP provide, at best, a basic minimum pressure test approach that can be easily “gamed” by less than prudent pipeline operators. It has been Accufacts’ observations, whether I agree with a specific pipeline project or not, that ET clearly utilizes prudent high-pressure hydrotesting protocols and additional procedures that prove the integrity of the pipeline at the time of the hydrotest, establishing pipeline safety margins well beyond federal pipeline regulatory safety minimums. As I mentioned in my ME 2X Report, this does not make the pipeline invincible

to possible failure if pipeline threats are not identified and addressed during its long life of operation.

While I don't speak for ET, I just see the pipeline operator, given the ME 2X pipe steel quality, project investment, as well as the unpredictability of the market in today's uncertain times, keeping their options open for this pipeline during its long lifetime.

8. Where is the Control Room located that monitors this section of pipeline?

Response: The control room is located in Houston, TX.

9. In Richard's opinion, which is a more likely scenario in the event that greater flow volume is required by ET in the future; 1) Pipeline operating pressure is increased towards an MOP of 2130 psig or 2) additional pump station interconnects are made on the pipeline? Or is it sequential, i.e. first 1) then if more volume is needed do 2)?

Response: The more likely scenario for greater flow capacity is No. 2 to interconnect some existing pump stations along the pipeline that are used for ME 1 to increase flow capacity without raising the MOP. Switching to a larger diameter pipeline (8-inch ME 1 to the 16-inch ME 2X) is a better use of pump horsepower that improves horsepower efficiency from a larger pipeline if the capacity increase is warranted. Specific details, however, are likely needed on factors beyond WGT that don't necessarily make this option a certainty.

10. What change of service (other than increased flow volume) would require higher operating pressures than moving HVL's?

Response: A major change in liquid service increasing the gravity of the fluid to be transported, say for refined heavier product or crude oil, might present the opportunity to raise MOP. Think of this mainline pipe as having been certified at time of construction to operate at the higher MOP if needed. While this might defy common sense, given the initial high-pressure hydrotest, the minimum federal pipeline safety regulations permit such future MOP changes if warranted without new hydrotesting. Such MOP changes/decisions can be heavily influenced by market conditions, as I mentioned previously and can be highly unpredictable.

To be fair to ET, other changes along some of the pipeline, beyond some pump station interconnects to existing pumps/pump stations, may be needed to permit an MOP increase on ME 2X. From my perspective, the MOP increase is not automatic and may have some cost considerations/hurdles for the pipeline operator that may need to be evaluated and considered in the future.

11. Will ET utilize a common HDD bore to accommodate both the 16" ME 2X and the 20" ME 2? If so, does this present any concern due to proximity?

Response: It is my understanding that common HDD bores are utilized across WGT with one remaining HDD for ME 2X within WGT still needed (currently estimated to be completed in November of this year). In reviewing the proposed alignment sheets for both ME 2 and ME 2X HDD installations, I did not see any interaction threat issues between the ME 2 or ME 2X pipelines, nor with the nearby ME 1 across WGT.

12. For instrumentation related to the operations and leakage safety of the pipeline will there be a scheduled calibration protocol to verify accuracy?

Response: ET has operating/maintenance procedures that are meant to assure that remote monitoring field equipment and related communication protocols operate as intended. I have reviewed these procedures and based on my operating experience these procedures are prudent. In addition, under federal minimum pipeline safety regulations, certain over pressure protection, pressure control, and pressure limiting devices on HVL pipelines, require biannual inspection (not to exceed 7 ½ months between inspection and testing) to assure such safeties work as intended.

I need to warn all parties that there are no release detection limitations codified in federal pipeline safety regulations, even developing standards (such as rupture detection), for very good reasons. My many decades of experience in release detection have shown me that such limits (even well meaning) can be highly unrealistic and create an illusion of safety where none may exist, given many challenges associated with remote release detection.

13. How will ET implement periodic integrity assessments of the pipeline, eg. future hydro testing after the initial test?

Response: Federal pipeline safety regulations set minimum reassessments in liquid transmission pipelines that could affect certain segments of pipelines at five-year intervals. These regulations do not define which assessment methods should be utilized nor identify the strengths and weaknesses of the four identified permitted assessment approaches.

There is no requirement that another hydrotest be required ever again in the long life of the ME 2X pipeline, even if a change in liquids transported (change in service) on the pipeline were to occur.

It is worth mentioning that special high-pressure hydrotesting can be a superior reassessment tool over inline inspection assessments, or smart pigs, on pipelines that can be at threat from certain cracking risk, usually associated with more vintage pipelines with poorer manufacturing techniques. I would not expect such

cracking threats to be a viable threat of concern on the ME 2X operation. Most likely ET will rely on inline inspection, or smart pig tools, to stay ahead of various possible threats.

14. Will the Township be informed of initial startup and commencement of operations?

Response: It is my understanding that ET will provide courtesy notices to WGT officials before putting pipelines initially in service.

15. Is there a plan in place to coordinate the emergency response plans of ET with the County and Township?

Response: ET has various emergency response plans, but certain details and actions will be event/location specific. As mentioned in previous Accufacts reports for WGT, key contact with the control room personnel plays a critical role in a pipeline emergency. ET's emergency procedures call for the control center to notify local emergency response agencies.

WGT might want to contact the county lead Emergency Management individual, as it is my understanding certain county officials have met protocol requirements to gain access to sensitive various Mariner pipeline information that might be helpful in a pipeline emergency.

Please let me know if you have any further questions.



Richard B. Kuprewicz,
President,
Accufacts Inc.