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**Supplemental Submission of
UGI Utilities, Inc.**

to the

National Transportation Safety Board

Pipeline Accident Investigation

West Reading, Pennsylvania

March 24, 2023

Investigation No. PLD23LR002

Submitted October 16, 2024

1. INTRODUCTION

This Supplemental Party Submission is being submitted by UGI with the permission of the NTSB because a new factual report was developed after UGI's original Party Submission was tendered to the NTSB. Specifically, a final factual report entitled "Photograph Study Specialist's Report" (Final Report) was provided to UGI on September 24, 2024, 18 months after the accident at issue.

The Final Report states on page 14 in relevant part:

An attempt was made to accurately locate features in the photograph of the excavation using photogrammetry. There were not enough features in the photograph that could be accurately surveyed to permit a unique solution to the problem of calculating the intrinsic and extrinsic parameters of the camera that define the mapping of the physical space to the image space. As a result, photogrammetry could not be used to accurately locate features in the image and provide quantifiable uncertainties of those locations.

The Final Report goes on to state on page 14:

The depth of the excavation could not be determined from the photograph. The steam pipe itself (or any pipe) was not visible in the photograph.

Nevertheless, the Final Report goes on to draw purported findings without any scientific analysis or evidence to correct for the inaccuracies and uncertainties associated with the underlying photo, which serves as the primary basis for the Factual Report's unsupportable findings.

2. THE PHOTOGRAPH STUDY SPECIALIST'S REPORT IS FUNDAMENTALLY FLAWED AND SHOULD NOT BE RELIED UPON

As an initial matter, UGI believes that this Final Report is not relevant to the probable cause or any other issue in this investigation. The single cellular phone photograph on which this study is based does not show the depth of the excavation and, at most, shows three sides of an area where we know only that the asphalt surface was removed, not where the excavation beneath the asphalt occurred. The Final Report does not even attempt to estimate the lateral dimensions of the excavation or the location of gas related assets within the excavation.

In particular, the Final Report does not include reference to the locations of the retired or replacement service tees. Since those have known locations based on post-accident excavation and surveys, they should serve as important data points in judging the accuracy of the Final Report's factual findings relating to the dimensions and relative location of the excavation.

Rather than abandon the effort based on these facts, the Final Report goes on to make purported findings for which there is no scientific basis or factual support. This leaves little more than speculation to support the findings. For example, the Final Report attempts to estimate the north-south dimension of the excavation, or more accurately the area where the top coat of asphalt was removed. This distance is estimated based on a separate photograph that shows a "patch

seem” further west of the excavation site. The dimension from this photo (Figure 4 right) is then compared, without any calculation or scientific basis, to the cell phone photo at the excavation site. We also note that the directional notes at the top of each photograph *incorrectly* depict the direction the camera was facing.¹ An additional problem is that the cell phone photo depicting the area where the asphalt was removed is at an oblique angle and there is no way (and no attempt) to accurately project the width of the excavation in the north-south direction based on the photo.

Even the language used in the findings concedes a lack of scientific basis. For example, the Final Report states, “the position of the steam pipe was *very close to* the west edge of the excavation.” It does not define how close they were, the relative directions of the two items or provide any other basis for this statement, nor does it provide coordinates to know the precise location of the facilities under review.

The Final Report goes on to state, “[f]reshening of the curb blocks caused by the camera perspective and the obscuration caused by the workers next to the excavation make precise measurements difficult, but it appears that ...” Again, the lack of any valid basis renders these findings little more than guesswork.

Even the final findings are laced with uncertainty, “[t]he crack in the pipe at 4.75 feet from the curb was north of the south edge of the excavation (*hidden by the truck*), which is at least 5.6 feet south of the curb.”

In short, UGI does not believe that this report should be relied upon to establish any facts in this investigation. This should be sufficient reason to reject the Final Report as flawed.

3. AT MOST, THE FINAL REPORT SHOWS THAT IN 2021 ASPHALT WAS REMOVED NEAR THE AREA WHERE A STEAM LINE WAS LATER FOUND TO BE RUPTURED IN 2023

It is not clear from the cell phone photo exactly where the asphalt was removed in 2021 relative to the facilities under investigation. The angle of the cell phone photo does not allow any type of accurate calculation of either the west side of the asphalt opening or the south side of the opening, the latter of which is completely obscured by a truck. The angle of the photo is oblique to both the west and south sides of the cut lines on the asphalt and no calculation can be done to solve for the distance from the cut asphalt to the area where the steam line was later found to be ruptured, after the accident date.

There is also no information on the depth of the excavation, or whether in fact there was any excavation at all in a given area where the asphalt top coat was removed.

¹ Photograph Study Figure 4: The actual directions the camera was facing are: left picture camera facing northeast; upper right picture camera facing west; lower right picture camera facing west.

4. CLEAR TESTIMONY OF THE UGI CREW WAS THAT THEY NEVER UNCOVERED THE PALMER STEAM LINE AND NEVER KNEW EXACTLY WHERE IT WAS LOCATED

After the accident and more than 2 years after this work was performed, NTSB investigators interviewed all five individuals that worked on this crew assigned to the service renewal on February 16, 2021.² The UGI Mechanic IIA recalled seeing white powder when they were digging with a vacuum truck and shovels.³ He said that he went to talk to someone from Palmer who told him it was a steam line.⁴ When discussing the white powder in more detail Mechanic IIA stated he “never saw the actual [steam] pipe.”⁵ Mechanic IIA also suspected during the April 3, 2023 interview that the steam line was above UGI’s gas main.⁶ He felt confident that it was above and that the steam line was never exposed during this work due to shifting the excavation work as far as possible from the western edge of his excavation hole.⁷ He goes on to state that once UGI’s assets were exposed in order to complete the service renewal, it would not be typical or customary to continue excavating to find the steam line.⁸

In short, during the 2021 replacement of the service line to Building 2, neither the steam line nor the wooden box encasing it were uncovered during excavation. The replacement service line was installed farther away from the original service line to increase separation from the steam line. Post-accident excavation revealed that the closest point of the steam line was approximately two feet above and to the west of the retired tee.

5. POST ACCIDENT EXCAVATION SHOWED THAT BOTH THE STEAM LINE AND THE WOODEN BOX IN WHICH IT WAS ENCASED HAD NOT BEEN SUBJECT TO ANY EXCAVATION DAMAGE

During the post-incident field investigation, the participants did not observe any indication of excavation damage or pre-existing damage around the east side of the steam enclosure, which was the side facing the 2021 excavation work. The plywood box encasing Palmer-owned assets and the white powder backfill around the steam line was found to be intact (Figure 2). Additionally, the new service line was installed farther away from the steam line than the retired tee, thus increasing the distance from the steam line to the new service.⁹ UGI’s Mechanic IIA recalled centering his excavation over the 1982 service line to Building 2, he also recalled a statement from a Palmer employee that the steam line was on the western edge of the excavation

² Pipeline Operations Group Chair’s Factual Report (“Ops Report”) at 12.

³ Pipeline Operations Group Chair’s Factual Report (“Ops Report”) at 12-13.

⁴ Pipeline Operations Group Chair’s Factual Report (“Ops Report”) at 13.

⁵ Pipeline Operations Group Chair’s Factual Report (“Ops Report”) at 12.

⁶ Mechanic II Interview at 52:1-54:17 (April 3, 2023).

⁷ Mechanic II Interview at 52:1-54:17 (April 3, 2023).

⁸ Mechanic II Interview at 52:1-54:17 (April 3, 2023).

⁹ Integrity Management Group Chair’s Factual Report (“IM Report”) at 6.

facing North toward Building 2.¹⁰ When installing the new service tee for Building 2, Mechanic IIA also recalled moving the service tee farther away from the steam line to the eastern side of the excavation downstream of the 1982 Aldyl A service tee.¹¹ This narrative aligned with the layout of the assets when exposed during field investigations.



Figure 1: April 24, 2023, Excavation of R.M. Palmer Steam Line, facing West (Courtesy of PA PUC Image 2393)

6. THE UGI CREW DID NOT KNOW WHERE THE STEAM LINE WAS LOCATED IN 2021 BECAUSE PALMER PROVIDED NO BUILD RECORDS OR SPECIFIC LOCATION INFORMATION

Prior to excavating this area (for the service line renewal) on February 16, 2021, UGI submitted a new, emergency Pennsylvania Underground Utility Line Protection Request (S/N 20210470623) to the Pennsylvania One Call System to repair a gas leak.¹² Palmer was not a participant in the Pennsylvania One Call System, but does operate underground pipeline facilities in the public right-of-way underneath Cherry St.¹³

¹⁰ Integrity Management Group Chair’s Factual Report (“IM Report”) at 6; Mechanic II Interview 40:17-42:3 (April 3, 2023).

¹¹ Integrity Management Group Chair’s Factual Report (“IM Report”) at 6; Mechanic II Interview 40:17-42:3 (April 3, 2023).

¹² Pipeline Operations Group Chair’s Factual Report (“Ops Report”) at 12.

¹³ DR145.

The UGI crew in 2021 was not told about the steam line before they started removing asphalt and only learned about it after they found white powder in the ground and asked Palmer what was underneath. Palmer stated there was a steam line in the area but did not have any records showing where it was located. Subsequently, the excavation scope was altered upon Palmer's confirmation of a buried steam line in the area.

The UGI crew would have likely altered their excavation scope, prior to pavement removal, had Palmer either marked out its underground facilities located in the public right away along Cherry Street or provided UGI with prior notification as to the exact location of these assets.

7. THE LOCATION OF THE STEAM LINE LEAK RELATIVE TO THE 2021 EXCAVATION IS IRRELEVANT SINCE THERE IS NO EVIDENCE THAT THE LEAK EXISTED AT THAT TIME

Even if the study could accurately locate the position of the 2023 steam line leak and the area of the 2021 excavation, it is not relevant to this investigation because there is no evidence that the steam leak existed at the time of the 2021 excavation. With the 2021 excavation having occurred in February, the steam line would likely have been operating throughout the excavation and gas service installation. Yet the photograph taken during the 2021 excavation by a Palmer employee shows no steam leaking from the area of the steam line. In addition, neither UGI nor Palmer employees observed or reported a steam leak while UGI's work was performed, or even thereafter.