

# Accufacts Inc.

“Clear Knowledge in the Over Information Age”

4643 192<sup>nd</sup> Dr. NE  
Redmond, WA 98074  
Ph (425) 836-4041  
Fax (425) 836-1982  
kuprewicz@comcast.net

March 19, 2014

To: Central Arkansas Water

## Re: Accufacts’ Update of Major Issues Related to the Pegasus Pipeline and Central Arkansas Water (“CAW”)

Accufacts has reviewed the various data on ExxonMobil’s restricted access website and has the following major observations related to the Pegasus Pipeline:

### I. ExxonMobil’s dependence on inline inspection (“ILI”) assessment methods cannot be relied upon to prudently identify nor prevent future LF-ERW ruptures.

After almost one year, and despite the release of a metallurgical forensic report on the pipe segment that ruptured at Mayflower, the cause for this pipeline rupture at an operating pressure well below the Maximum Operating Pressure, or MOP, has not been adequately communicated to CAW. Anomalies, especially manufacturing related cracks that may be present in pipelines associated with LF-ERW, do not just lay dormant and then suddenly go to rupture failure. Without a reliable demonstration as to the reason this pipeline ruptured (e.g., crack growth), prudence would dictate that the pipeline segment spanning the Maumelle Watershed is at risk of rupture from continued operation, even at reduced pressures. To date ExxonMobil has not supplied CAW with data sufficient to show that its integrity management program relying on ILI to ascertain crack risk is adequate and appropriate.

While a recently released federal study strongly supports the continued development of ILI tools for ERW crack detection, this report makes very clear that such tools are not as advanced as needed. The study continues to support that a special form of hydrotest involving minimum test pressures at or in excess of 90% Specified Minimum Yield Strength, or SMYS, is effective in dealing with ERW seam weld defects. The study further disclosed numerous instances where pipelines that had undergone lower pressure tests (<90% SMYS) “failed at significantly lower stress levels (e.g., in some cases levels that would have been less than the intended operating stress levels of the pipeline) when subject to pre-service hydrostatic tests after construction of the pipelines.”<sup>1</sup> This is no surprise to Accufacts given my long years of pipeline experience and incident investigations.

---

<sup>1</sup> “Final Summary Report and Recommendations for the Comprehensive Study to Understand Longitudinal ERW Seam Failures – Phase 1, Battelle Project No. G006084,” October 23, 2013, p. 17.

The indication of previous hydrotest failures in the Maumelle region and the use of lower stress test performed in the last cycle of hydrotesting in 2006 at maximum pressures well below 90% SMYS, require that I must continue to recommend that higher stress hydrotests with minimum pressures equal to and in excess of 90% SMYS be performed on the pipeline segment that could affect the Lake Maumelle Watershed before the line be restarted. Because of the elevation profile, to accomplish such higher stress hydrotests the pipeline spanning the Maumelle Watershed in all probability will have to be segmented into more than the two test segments utilized in 2006. Given these factors, I anticipate that such higher pressure hydrotesting will result in some test failures in the Watershed.

## **II. Remotely Operated Valves should be added to pipeline system before startup.**

Based on a review of the Pegasus Pipeline elevation profile in proximity to Lake Maumelle, I also recommend that:

1. an existing manual valve located at approximately MP [REDACTED], immediately [REDACTED] of [REDACTED], should be converted to remote operation via SCADA, and
2. a new check valve and a new remotely operated block valve be installed at approximately MP [REDACTED], south of the [REDACTED].

Remotely operated block valves should pass a surge analysis engineering review to assure valve operation will not place the pipeline into overpressure. In addition, valve installation should also incorporate a design to prevent overpressure from thermal expansion that can cause pipeline rupture should the pipeline segments be isolated during remote valve closure.

There are some additional issues that we should be able to discuss and hopefully resolve in face to face discussions with the pipeline operator, but the above two items I believe are highly leveraging.



Richard B. Kuprewicz  
President,  
Accufacts Inc