Accufacts Inc.
"Clear Knowledge in the Over Information Age"

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

October 24, 2012

To: Mr. Max Kieba
PHMSA
Via email to max.kieba@dot.gov

Re: Accufacts Comments on Draft Leak Detection Study (DTPH56-11-D-000001), Presentation, and Workshop of October 5, 2012.[1]

Accufacts has reviewed the above referenced files and has the following observations and comments based on extensive experience, as well as many investigations, concerning both gas and liquid pipeline failures over a long career. Accufacts is highly supportive of this report and it should be most productive in technically advancing pipeline leak detection understanding and challenges, especially on transmission pipelines.

The evidence provided for the 30 month time period (January 1, 2010 to July 1, 2012) clearly indicates a very low reliability for remote release detection (<< 20%), and that there is considerable room for improvement, both in liquid and gas systems. Since it will take significant time and effort to field advance remote release detection, the role of control room involvement in emergency response may need additional "attention" in a parallel effort as time is needed to advance pipeline release detection on many fronts.[2]

Accufacts has several observations or clarifications that are made in the spirit of improving this important product, and hopefully should assist in the understanding and acceptance of this report among various interests:

1. The Executive Summary should briefly recap some of the major data or "findings" in the various tasks sections. For example, inserting a summary table of the PHMSA database for the 1,337 incident reports (January 2010 to July 2012) filtered down further by 1) on ROW, 2) pipe failure, etc., 3) by detection method(s), probably grouped in columns by hazardous liquids, gas transmission, gathering and distribution, would help one quickly grasp the main thrust of this important and complex work effort. This is going to be done anyway, so I would recommend including it in the Executive Summary for the many readers who never get into the important details within a long report.

[1] See https://primis.phmsa.dot.gov/meetings/Mtg80.mtg.
[2] Considerable regulatory effort has been undertaken in the last several years to improve pipeline control room operations. PHMSA may need to focus on inspections to assure these regulations have been implemented to increase response effectiveness during pipeline release emergencies.

2. That rupture detection objective of "immediate" should be changed to detect "quickly."[3] The science of fluid and thermodynamics places absolute time limits, or boundaries, on how rapidly rupture releases can be detected by remote computer systems, and these technical limitations will, in all probability, prevent immediate remote detection. Accufacts believes it is very important to identify pipeline ruptures as rapidly as possible, but the word "immediate" sets up the industry, the regulators, and the public for unrealistic expectations that clearly violate the laws of science, no matter how well meaning the intent.

3. A simple Table should be added to the report, at least for gas and liquid transmission pipelines, that summarizes the 30-month database by ruptures vs leaks utilizing the term rupture in pipeline fracture mechanics (big holes).[4] While Accufacts can understand the draft's approach to avoid distinguishing between leak and ruptures, it has been our experience that leaks may or may not leave the pipeline right-of-way, but ruptures always leave the right-of-way. The public may seriously challenge the failure to distinguish somewhere in the report, the differences between pipe fracture mechanics rupture and the slower rate leak releases, especially for liquid pipelines.[5]

4. The disproportionately small amount of large releases (much less than 20%) detected by SCADA/CPM is not a surprise based on Accufacts' extensive experience and investigations. Serious improvements are warranted in this important area and we hope this report will help parties to realize that actual field improvements in this key area will understandably take time.[6]

5. On page 3-17, item 4, I highly recommend the statement that "refined products are liquids inside the pipeline and remain liquids when released from the pipeline" be modified to "usually" remain liquids when released (or something along these lines). It is Accufacts' experience that this draft statement is technically incorrect, and could be easily and dangerously misunderstood by less experienced readers.[7]

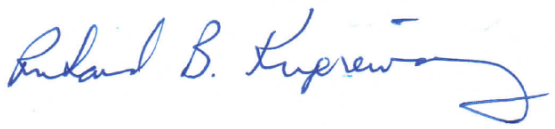
6. Given the many unique characteristics of HVL's pipelines, special attention concerning release detection, especially for rupture, is warranted.[8]

---

[3] Draft Report. Leak Detection Study – DTPH56-11-D-000001," page 3-15, September 28, 2012.
[4] This suggestion assumes the new reporting format permits the pipeline failure as rupture to be easily identified.
[5] For example, many leaks on gas transmission and distribution pipelines, depending on their leak classification, are not dangerous or illegal in current pipeline safety regulations.
[6] Draft Report. Leak Detection Study – DTPH56-11-D-000001," page 3-19, September 28, 2012.
[7] For example, the Bellingham liquid product pipeline rupture (June 10, 1999) generated serious vapor clouds that asphyxiated one victim and nearly affected many first responders within the spreading invisible vapor cloud.
[8] *Ibid*., page 3-25.

7. Accufacts could not find any mention of "external" remote laser detection of hydrocarbon leak identification, especially for natural gas systems, that have become more cost effective and useful at possibly monitoring certain leaks over wide areas. One of the challenges of such systems is in their data filtering of background noise and presentation to leak classifiers, though many advances have been made in these areas.

Regardless of one's position on this draft report, it is time to improve the perceptions on the capabilities of remote motoring (usually via SCADA control room systems and/or CPM systems) of gas or liquid transmission pipeline systems to identify releases, especially large releases.[9] A truly public vetting should permit a more informed and productive regulatory approach in this important matter. Accufacts believes this report will greatly assist all parties and serve as a starting technical benchmark in reaching appropriate and productive consensus to advance rule making in the important area of pipeline release detection.



Richard B. Kuprewicz
President,
Accufacts Inc.

[9] Accufacts' experience is that gas distribution systems are a different operation than transmission systems that these differences render SCADA indication highly ineffective or at best very challenging with current technology.