



Southwest Region,  
Office of Pipeline Safety

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U.S. Department  
of Transportation

Research and  
Special Programs  
Administration

## LETTER OF CONCERN

### CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 24, 1996

Mr. Edward R. Murray, President  
Texas-New Mexico Pipeline Company  
P.O. Box 5080  
Bellaire, Texas 77402-2325

CPF No. 46518-C

Dear Mr. Murray:

On October 31, 1996, an engineer from the Southwest Region, Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code, conducted an onsite pipeline safety inspection of your pipeline records at Hobbs, New Mexico and the 16- inch diameter crude oil pipeline facilities in southeastern New Mexico. Conversations with Texas-New Mexico Pipeline Company (TX-NM) personnel indicate that this operating unit is not considering measurement errors due to the IR drop when performing cathodic protection surveys or evaluating the results.

TX-NM has adopted Texaco Pipeline, Inc.'s (Texaco) operating and maintenance procedures and one of the cathodic protection criteria requires that the measured potential obtained at test stations be equal to or less than a negative 850 millivolts (mV). Furthermore, by referring to NACE RP 0169-92, Standard Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems, in its amended operating and maintenance procedures, Texaco requires that the IR drop be considered.

The importance of determining the IR drop can be illustrated in the following equation:

$$P/S_c = P/S_{IR} + P/S_{Structure/electrolyte}$$

Where,

$P/S_c$  = Pipe-to-Soil Potential measured directly over the pipe

$P/S_{IR}$  = Potential drop in the soil (IR Drop)

$P/S_{Structure/electrolyte}$  = Protective Potential on the pipe

This equation shows that when the pipe-to-soil potential measured directly over the pipe ( $P/S_c$ ) is 850 mV, the IR drop ( $P/S_{IR}$ ) must be zero or the protective potential on the pipe ( $P/S_{Structure/electrolyte}$ ) will be less than 850 mV. The criterion goes on to state that it is necessary for the operator to demonstrate by methods defined in RP 0169-92 that the IR drop is zero or insignificant. Otherwise, the required level of protection is not achieved.

This office is concerned that the safety of Texaco's 16-inch diameter pipeline between Aneth, Utah and Jal, New Mexico may be jeopardized because some potentials were at or near the -850 mV level and TX-NM did not consider the IR drop or demonstrate that it was insignificant. The required level of protection on the pipeline may not be achieved in these areas.

We expect that you will act to ensure that interpretation of data or result from cathodic protection surveys performed on all of the pipelines in your system use the recommended practices specified in your amended operating and maintenance procedures.

Sincerely,

James C. Thomas  
Director