



26 March 1997

Arrow Specialty Company  
2301 East Independence  
Tulsa Oklahoma 74110  
Attn. Bob Fornell

Gentlemen,

Columbia Gas Transmission Corporation has operated Arrow Gensets in Cathodic Protection applications for several years. The following is a brief history of our experience with the Arrow Gensets.

Columbia Gas Transmission Corp. operates transmission pipelines throughout the state of Pennsylvania. One of the pipelines is a bare, sixteen inch pipeline, that operates at a pressure necessitating cathodic protection to meet U. S. Government Department of Transportation regulations. The Brookville Districts portion (where I am the Leakage & Corrosion Technician) of this line is one hundred sixteen miles in length. Twenty one miles of this line are located in an area without commercial power available to energize rectifiers. In order to meet the D O T regulations, Columbia Gas Transmission Corporation has installed remote, natural gas powered, energy sources to provide the needed cathodic protection currents.

The first Arrow Genset was purchased in November of 1989. It is still operating with over 57,000 hours and has never had the head pulled. We change oil, oil filter, and spark plug every 1000 hours, because it fits into a schedule of bimonthly inspections required by D. O. T. From past experience, I feel we could extend this maintenance work by 75 to 100 percent and still get reliable service from the Genset units.

The original turbogenerators purchased in 1981 and 1984 have been replaced with Arrow Gensets. The turbogenerator purchased in 1984 performed reasonably well until 1989 when the turbine bearings failed. Repair costs were determined to be \$15,837. The decision was made to abandon this type of unit and replace it with an Arrow Genset. The replacement Arrow Genset was delivered November of 1990 and has over 47,000 hr. The Arrow Gensets that we operate work well.

Another plus for the Arrow Gensets over the turbogenerators is the amount of fuel needed to operate the units. The Gensets use about one tenth the amount of natural gas, as compared to the turbogenerators we were using.

We are very pleased with the performance of the Arrow Gensets and the support we receive from Arrow Specialty, and as the need arises, we will purchase and install more of the Arrow units.

Sincerely,

A handwritten signature in cursive script that reads "Robert Shields".

Robert Shields  
Leakage & Corrosion Technician