



Piping Corrosion Assessment: A Case Study

SES can help determine the cause, evaluate the damage and predict future performance



One of a family of pits originating along the pipe interior that penetrated the pipe wall.

SES became involved in this project when an internal corrosion leak occurred in an 8" low pressure gas pipe line. The unusual feature of this failure was that the corrosion was not on the bottom of the pipe where it would be expected, but on the side. The client's need for information was threefold.

- 1) What corrosion products were present inside the pipe?
- 2) Was there any correlation between the internal corrosion and the metallurgical structure of the pipe or weld seams?
- 3) Based on the samples provided, was the pipe line suitable for continued service?

SES engineers collected scale and corrosion products from the inside of the pipe and analyzed them using x-ray diffraction and fluorescence. The results identified active corrosion processes and corrodents including general weight loss and pitting corrosion due to carbon dioxide gas.



Cross section of pipe showing location of pit

The next step was to perform a metallurgical analysis of the pipe. These studies indicated that corrosion was not the result of manufacturing processes or defects.

After cleaning the corrosion products from the internal pits, pit diameters and depths were measured. A subsequent statistical analysis indicated that the existing pit distribution could result in a pit deep enough to penetrate the pipe wall every 1.4 miles. Based on this information, SES recommended that the pipe line be shut down until it could be inspected and its condition verified.

SES has the expertise to solve a wide range of corrosion-related piping and equipment problems.

For more information on our unique capabilities contact the SES office nearest you today

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