

# **SOLUTION MINING RESEARCH INSTITUTE**

1745 Chris Court  
Deerfield, Illinois 60015-2079  
847-374-0490

**Meeting  
Paper**



## **Temperature Logging/Monitoring of the Casing Wall to Detect Flow Outside the Casing**

**Claude E. Cooke, Jr.**

**WellSeal Technology, Inc.**  
8720 Memorial Drive  
Houston, Texas 77024  
USA

Presented at the Spring 1996 Meeting  
Houston, Texas, U.S.A.  
April 15-16, 1996

# TEMPERATURE LOGGING/MONITORING OF THE CASING WALL FOR FLOW OUTSIDE CASING

CLAUDE E. COOKE, JR.  
WellSeal Technology, Inc.  
8720 Memorial Drive  
Houston, Texas 77024

## Summary

This paper discusses a method for detecting the presence of flow outside casing in a well. Stationary temperature sensors measure temperature differences around the inside circumference of the casing. The measurements may be made by a logging tool or by permanent sensors. A logging tool having the sensors attached can be lowered into a well on electric wire line or tubing and the sensors brought into contact with the wall of the casing. Differential temperatures between sensors are measured electronically. Results of measurements are transmitted in real time or stored for later retrieval. Sensors are placed on tubing or a packer and extended to contact the casing wall at any selected depth to provide monitoring for the presence of flow outside casing. An electrical conductor to the surface can be provided in the annulus or other means can be used to telemeter the data to surface or store the data for later retrieval.

The principles of such measurements were proven years ago with a logging tool utilizing two moving sensors. Tools with stationary sensors, which should prove to be much more satisfactory, are not now commercially available.