UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
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TEMPERATURE LOGGING FOR MECHANICAL INTEGRITY

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PURPOSE:

The purpose of this document is to provide a guideline for the acquisition of temperature surveys, a procedure that may be used to determine the internal mechanical integrity of tubing and casing in an injection well. A temperature survey may be used to verify confinement of injected fluids within the injection formation.

Test results must be documented with service company or other appropriate (acceptable) records and/or charts, and the test should be witnessed by an EPA inspector. Arrangements may be made by contacting the EPA Region 8 Underground Injection Control (UIC) offices using the EPA toll-free number 1-800-227-8917 (ask for extension 6137 or 6155).

LOGGING PROCEDURE

Run the temperature survey while going into the hole, with the temperature sensor located as close to the bottom of the tool as possible. The tool need not be centralized.

Record temperatures a 1-5°F per inch, on a 5 inches per 100 feet log scale.

Logging speed should be within 20 - 30 feet per minute.

Run the log from ground level to total depth (or plug-back depth) of the well.

When using digital logging equipment, use the highest digital sampling rate as possible. Filtering should be kept to a minimum so that small scale results are obtained and preserved.

Record the first log trace while injecting at up to the maximum allowed injection pressure. Subsequent to the temperature survey, the maximum injection pressure will be limited to the pressure used during the survey.

LOG TRACES

Log the first log trace while the well is actively injecting, and record traces for gamma ray, temperature, and differential temperature. Shut-in (not injecting) temperature curves should be recorded at intervals depending on the length of time that the injection well has been active. Preferred time intervals are shown in the following table:

Active Injection	Record Curves at These Times (In Hours)				
1 month	1	3	6	12	
6 months	1	6	10-122	22-24	
1 year	1	10-12	22-24	45-48	
5 years	1	10-12	22-24	45-48	90-96
10 years or more	1	22-24	45-48	90-96	186-192