



ALTERNATE FORMATION PRESSURE FALL-OFF TEST AND TESTING PLAN DEVELOPMENT PROCEDURES

Procedure #: UICI-2b
(2/19)

SECTION I. PURPOSE

The purpose of this test is to identify injection interval static pressure in wells that do not operate or are not injecting or disposing of fluids. Facilities that select this method of testing must provide a request for a variance from Procedure UICI-2. KDHE has the right to deny the variance based on well operations, permit conditions, or other regulatory rationale.

SECTION II. REGULATORY CITATION

KDHE regulation 28-46-30, which references 40 CFR (Code of Federal Regulations) 146.13 (d) and the UIC Permit require monitoring of the pressure buildup in the injection zone at least annually.

SECTION III. SCHEDULING OF TEST

The schedule for the test must be mutually agreed upon between KDHE and the permittee so that KDHE has the opportunity to witness the test.

SECTION IV. DEVELOPING A TEST PLAN

A plan for conducting the test shall be submitted to KDHE for review and approval prior to conducting the test. Plan approval shall be obtained from KDHE prior to commencing the test. The plan shall include a proposed schedule. A form, available at our website, is to be used when submitting the plan.
[http://www.kdheks.gov/uic/download/Class I Disposal Well Formation Pressure Fall-Off Test Plan.pdf](http://www.kdheks.gov/uic/download/Class_I_Disposal_Well_Formation_Pressure_Fall-Off_Test_Plan.pdf)

SECTION V. GENERAL PREPARATION

A review of previous fall-off tests should be conducted to assist in developing a testing procedure that will provide valid test results. This will help prevent repeating any previous mistakes or errors.

A successful test involves consideration of several factors. These include, but are not limited to the following:

1. Offset wells completed in the same formation as the test well should be shut-in prior to and during the test. If this cannot be accomplished then a low, constant injection rate into the offset injection wells should be maintained prior to and during the test, if feasible.
2. A surface readout downhole pressure gauge should be used. The capability to produce plots necessary to analyze the test data should be available at the well site to help insure valid test data is obtained and false test runs are quickly identified and aborted.

SECTION VI. CONDUCTING THE ALTERNATE FALL-OFF TEST

The following is the recommended procedure for conducting the test. Alternative procedures that will produce valid test results and which will satisfy the requirements of KDHE and the regulations will be considered by KDHE.

1. The surface readout downhole pressure gauge must be located at or near the top of the injection interval at the same depth as used in previous tests, unless previous testing indicates a more appropriate location. A surface readout should be provided to allow flexibility in determining appropriate pressure measuring and recording time intervals and to ensure valid test data is generated and false testing runs can be identified and aborted.
2. Lower the gauge down the injection tubing at 500 foot increments. At each 500 foot increment, secure the tool and allow the tool to stabilize for at least five minutes. Then record the temperature and pressure. Continue taking temperature and pressure readings to the depth identified in above Item #1 of this Section for the final readings. Readings obtained at increments of less than 500 feet, such as 200 foot increments, are acceptable.
3. After the final temperature and pressure readings are recorded, lower the gauge down until total depth is determined.

SECTION VII. EVALUATION OF THE TEST RESULTS

A licensed geologist or licensed professional engineer, licensed by the Kansas Board of Technical Professions to practice geology or engineering in Kansas and knowledgeable in the methods of pressure transient test analysis, must evaluate the test results.

The following information and evaluations must be provided with the test report:

1. Download temperature/pressure data and plot pressure vs. depth and temperature vs. depth graphs, and then construct pressure/temperature table and static gradient report, including the static fluid level determination.
2. Provide a comparison of static fluid level, total depth and the injection interval formation pressure to previous measurement results.
3. Explain any anomalous data responses. The analyst should investigate physical causes other than reservoir responses.

SECTION VIII. REPORT COMPONENTS

In addition, the report to KDHE must also include the following information. The report shall be submitted to KDHE within 30 days of test completion must include:

1. The facility name, location, well identification number and KDHE UIC Permit number of the test well.
2. A well schematic depicting current completion and location of the pressure measuring tool during the test.
3. Test well information including wellbore radius, completed interval and type of completion.
4. The distance between the test well and offset wells completed in the same injection interval and the status of the offset wells during both the injection and shut-in portion of the test. Describe the impact, if any, the offset wells had on the test.
5. Chronological listing of the daily testing activities.

6. A description of the surface readout downhole pressure gauge used including manufacturer and type, resolution, calibration certificate and the manufacturer's recommended frequency of calibration.
7. Date of test.
8. Total shut-in time, final static pressure and temperature.
9. Explanation for any pressure or temperature anomaly.
10. A statement that the raw test data generated by the test will be kept on file by the permittee for a period of not less than 3 years and will be made available to KDHE upon request during this time period. The raw test data need not be submitted to KDHE unless requested.