

**TEXAS NATURAL RESOURCE CONSERVATION COMMISSION  
TECHNICAL PEER REVIEW DOCUMENT**

*This Section to be Completed by Issue Initiator*

**TITLE OR ISSUE**

Issue, Reporting Discrepancy: For a recording system available to an operator, for example a strip chart, a record-keeping and reporting error is likely to occur. The UIC workgroup proposes no more than ten (10) percent allowable discrepancy between self-reported monthly values and actual recorded data.

**DOCUMENT INITIATED BY** (Name/Office/Phone Number)

**DATE**

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**ISSUE DESCRIPTION**

During a facility inspection, a state investigator reviews the self-reported data and determines whether the permitted values are accurately reported in relation to the daily record-keeping activity. A guideline is desired in answering two specific questions; see the UIC checklist:

Section 2, Question 15 : Are recorders installed and maintained in proper working order? This is a requirement in accordance with the 30 Texas Administrative Code (TAC) 331.64(c)

Section 3, Question 2: Are complete accurate records maintained as required by the permit and rules? According to 30 TAC 331.67(a), a permittee is required to keep complete and accurate records of all monitoring parameters specified in the permit.

The disposal well operators use various recording systems including strip (or circular) charts, electronic analog logger system, electronic digital logger system with or without computers, and log books. In the self-monitored monthly report, see TNRCC reporting form, maximum or minimum values are the following: maximum injection pressure, minimum annulus pressure, maximum injection rate, maximum injection fluid density and minimum pH. An operator has to determine the maximum and minimum parameter values which may result in reporting discrepancies, particularly when using strip/circular charts.

**WHO'S AFFECTED?**

Those facilities which may not be using adequate recording equipment, particularly the strip charts.

*This Section to be Completed by Peer Review Team*

**FACTORS CONSIDERED**

During an inspection, a state investigator may review the data recording sources causing discrepancy in the self-reported data. For example:

- o If there are problems in the strip chart recording, peaks showing maximum or minimum values may not be meaningful; the obvious problems include recorder malfunctioning, zero line drifting, momentary peaks, and instrumental noise of the strip chart system. In order to maintain the recording and reporting accuracy, an operator should provide comments for all questionable or debatable peaks on the strip chart.
- o A selection of an inadequate unit scale of the recording paper can contribute a lot of error. This problem is similar to determining a well-head pressure gauge accuracy.

Supposing a facility uses a 10-centimeter wide strip chart having a total of 50 divisions, and if the range of the strip chart for pressure is 0-1000 psi, we have unit scale of one division=20 psi. If an operator reads, at worst, the pressure value within plus or minus of one division, an error involved for this strip chart would be  $[(20/1000) \times 100] = 2$  percent. In this case, the facility should have no difficulty in meeting the proposed 10 percent deviation.

The error in the above example could get bigger: For the same strip chart, if an operator sets a range of 0-2000 psi for accommodating elevated injection pressures, an error involved would be 4 percent. Also, much larger error is likely to occur when a recording paper having an inadequate log scale (non-linear) is utilized.

- o A reading taken from a recording device, such as strip chart, should closely match with the reading of a primary measuring device, such as pressure transducer. This is analogous to comparing the primary pressure transducer with a wellhead pressure gauge. In both cases, for a median quality gauge or recording instrument, there is no problem in controlling its accuracy to within 3.5 percent of a full range. However, a large or noticeable error can occur if a recorder is malfunctioning, for example faulty gear system of a strip chart or pulsating/vibrating ink line.

#### **FINDING(S) AND RECOMMENDATION(S)**

- o Based on the UIC workgroup studies and reviews, a 10 percent allowable discrepancy between the self-reported monthly values and actual recorded data should be maintained to meet the monitoring requirements as specified in a permit and rule.
- o A facility should take all necessary steps in installing adequate strip chart or electronic data logger system for the permitted parameters. Any time the recording system is not accurately working and the 10 percent discrepancy is likely to occur, facility should take immediate actions to correct the problem. While corrective actions are being taken, any backup system including manual measurements should be used.
- o If a discrepancy is greater than 10 percent, such an occurrence is an area of concern for compliance purposes.

**COMMENTS**

REVIEW COMPLETED BY	NAMES	INITIALS	DATE
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