



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

Return to URFO 467-33
Docket 40-8786
PDR

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Docket No. 40-8786
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MEMORANDUM FOR: Docket File No. 40-8786
FROM: Kristin B. Westbrook, Project Manager
Uranium Recovery Field Office
SUBJECT: URI'S RESPONSE TO NRC'S LETTER OF JULY 23, 1982 ON
INACCURATE FLUID BALANCE DATA (AND REQUESTS FOR OTHER
INFORMATION) REGARDING URI'S QUARTERLY REPORT (82-1)
FOR NORTH PLATTE R&D ISL

NRC sent a letter to URI dated July 23, 1982, based on the following items of URI's 1st Quarterly Report - 1982: 1) inaccurate fluid balance data; 2) missing data as required by Table 5.2.01 of the EIA; and 3) missing as built drawings for the evaporation ponds as required by License Condition No. 28, section m. URI has responded to these three items in a submittal dated August 12, 1982. The purpose of this memo is to review URI's responses for each of these three items.

ITEM 1: INACCURATE FLUID BALANCE DATA

Background

URI stated in their 1st Quarterly Report - 1982 that: "Because of meter failure and inaccuracy, it became apparent that the injection and extraction and bleed rates could not be numerically recorded with the equipment in hand." It is the position of the NRC staff, as detailed in the July 23, 1982 letter to URI, that failure of equipment in hand is not justification for not accurately measuring flow rates over an extended period of time on each injection and production well as required by Source Material License SUA-1400, License Condition No. 20. URI was asked to take corrective actions to accurately measure flow rates on each injection and production well in order to satisfy their license and ensure environmentally safe operations.

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URI's Response to NRC Letter of July 23, 1982

URI disagrees with NRC that the individual well flow rate monitoring is needed to have environmentally safe operations. URI's letter lists the following four alternate methods which they claim can determine the adequacy of the bleed:

- 1) Use of in-line totalizers
- 2) Continuous water level monitoring
- 3) Discontinuous water level monitoring
- 4) Water quality sampling and analysis

NRC Response to URI's List of Alternate Flow Balance Methods

The NRC staff finds it necessary to measure the injection and production flow rates on individual wells. The environmental purpose is to have a positive bleed from production wells such that more fluids are produced than are injected, resulting in a hydraulic gradient into the mined pattern which will not allow contaminated fluids to migrate outwards. A knowledge of the distribution of the production well bleed and individual flows into each injection well is needed to achieve accurate balance. None of URI's four techniques indicate the individual production well or injection well flow rates and cannot be relied upon to maintain the necessary balance. An exception is that method No. 1 above could be effective depending upon the location of the in line totalizer.

URI's New Information

URI believes that the injection rate flow measurement values read from the meters have been too high. They explain that CO₂ liquid under pressure was added to the injection stream during operations and due to a drop in pressure expanded as it changed to gas causing the meter to read too high.

Based on CO₂ gas expansion, URI has submitted revised fluid balance data in their Quarterly Report (April 15, 1982 - July 15, 1982) for both the first and second quarter of 1982. I previously reviewed URI's first quarter data (as documented in NRC's letter of July 23, 1982) and am reviewing URI's revised data for both the first and second quarter of 1982 in this memo.

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NRC Review of URI's New Information

For the first quarter of 1982, URI's original figures showed a total of 1,461,400 gallons injected and 1,282,978 gallons produced. This shows an over injection of lixiviant because not enough fluid volume was produced to maintain a hydraulic gradient into the wellfield. URI has adjusted their injection well rates by subtracting CO₂ gas expansion volumes. URI states that one pound of CO₂ liquid will expand to 8.43 ft³ or 63.06 gallons. During the first quarter 1982 URI states that they added 65 pounds of CO₂ per day. Sixty-five (65) multiplied by 63.06 equals an adjustment of 4,099 gallons per day but URI has incorrectly adjusted their injection rates by subtracting 4,200 gallons per day from the injection rate.

For the 2nd quarter 1982 operational data (April until the end of May) URI's data column indicates continued CO₂ adjustment of 4,200 gallons per day. URI states that for the 2nd quarter of operations 43 pounds of CO₂ was added to the injection stream per day. Forty three (43) multiplied by 63.06 equals an adjustment of 2,712 gallons per day. Using an adjustment of 2,712 gallons per day, URI's April 15, 1982 - April 30, 1982 data shows 301,640 gallons injected and 301,405 gallons extracted and this demonstrates over injection. The May 1, 1982 - May 31, 1982 data shows 588,965 gallons injected and 642,727 gallons extracted which demonstrates an over production (bleed) of approximately 9%. These findings are not consistent with URI's statements (ref. Q rpt. 82-2) that a one percent bleed was maintained throughout the report period. The data presented does not show a consistent ability to correctly determine or report flow rates.

It is established in the preceding paragraphs that if the NRC staff accepted URI's assumptions about CO₂ gas expansion the revised data submitted by URI still doesn't show a consistently adequate bleed. The NRC staff views the well piping system as partially closed fluid flow and we do not consider the fluids to be at full atmospheric pressure which is URI's primary assumption. Additionally, I cannot quantify URI's other problem of occasional meter failure. They attribute this to calcium carbonate deposits in the meters but have not quantified the times or extents of these "occasional failures". URI is currently in the restoration process and the CO₂ gas and calcium carbonate deposits are operational problems which are no longer applicable. URI's meters are now functioning properly but better planning by URI is needed if they ever propose commercial operations.

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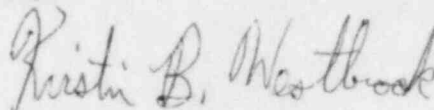
ITEM 2: MISSING TABLE 5.2.01 DATA

In our letter to URI we informed them that the pre-operational and operational monitoring specified by Table 5.2.01 of the EIA was required by License Condition No. 26 but had not been submitted. URI's submittal of August 12, 1982 contains pre-operational soil grab sample data for U-nat and Ra-226 taken from 0-5 cm depth and 5-15 cm depth at the wellfield and also at the pond area. The U-nat data is below a detection limit of 0.0006 pCi/gm and the highest Ra-226 sample is 1.5 pCi/gm which is within expected natural background ranges.

Followup actions are needed to obtain the rest of the preoperational data and all of the operational data for the first quarter of 1982 required by Table 5.2.01..


ITEM 3: AS BUILT DRAWING FOR THE EVAPORATION PONDS

URI has submitted as built drawings for the evaporation ponds. D. Gillen of the Uranium Recovery Licensing Branch staff and I have reviewed the drawings and have found the drawings adequate because no changes are noted from the original approved plans.



Kristin B. Westbrook, Project Manager
Uranium Recovery Field Office

Approved By:


John J. Inehan, Section Chief
Uranium Recovery Field Office

Case Closed: 04008786130E

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