

ER PROGRAM DATA ASSESSMENT
SUMMARY REPORT FORM

Batch No. E88-3369/4th Quarter 1988 Site Area 2 Hillside

Laboratory RFP - 881 General Labs No. of Samples/Matrix 25/Water

Reviewer Org. TechLaw, Inc.

Sample Numbers TB(10/18/88), FB(10/18/88), 45-87, 52-87, 70-86, 5-87, TB(10/20/88), FB(10/20/88), 2-87, 56-86, D56-86, 69-86, 62-86, 4-87, 3-87, TB(10/25/88), FB(10/25/88), FBD(10/25/88), 9-74, 10-74, 8-87, 8-87D, TB(10/27/88), FB(10/27/88), FBD(10/27/88)

Tritium Analyses by Liquid Scintillation
Data Assessment Summary

| | | Comments |
|--|----------|----------|
| 1. Holding Times | <u>V</u> | |
| 2. Initial and Continuing Calibrations | <u>V</u> | |
| 3. Blanks | <u>V</u> | |
| 4. Lab Replicates | <u>V</u> | |
| 5. Lab Control Samples | <u>V</u> | |
| 6. QC-LLD | <u>V</u> | |
| 7. Quench and Efficiency | <u>V</u> | |
| 8. Sample Calculations | <u>V</u> | |
| 9. Overall Assessment | <u>V</u> | |

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be valid.

ADMIN RECORD

REVIEWED FOR CLASSIFICATION/UCNI
By George H. Seelock Date 7-11-90
Date 6/27/90
A-OU01-000058

Action Items: None.

Comments: 1) No raw data from the counter was available for the following samples: TB(10/27/88),
FB(10/27/88), FBD(10/27/88). Results of calculations were submitted.

2) Data provided for this batch showed that the tSIE of the samples, background, and standard used to
determine efficiency was within QC criteria. The observed values of the QC standard CLS 630132 run 11/7/88 fell
outside 2 σ , but less than 3 σ of the expected value.

3) The tritium efficiency control chart for 4th Quarter 1988 showed that the analyst made an effort to adjust the
pipet settings to improve the accuracy of the standard used to determine detector efficiency.

Note: Data Summary Tables are attached.

Marilyn Ayers
Reviewer Signature

Jan. 3, 1990
Date

**Radiochemical Data Completeness
Checklist for Tritium Analyses of Soil and Water**

- A. Yes Case Narrative
Yes Abnormalities explained
Yes Matrix Problems explained
Yes Instrument problems explained
Yes Improper collection, storage, preservation, container explained
Yes Hold times met, explained if not met
- B. Yes Initial and Continuing Calibration Data Package
Yes Detector ID with Program Settings
Yes Date of Performance Check
Yes Batch Number
Yes NBS Traceable Standards with Certification Date and DPMs
Yes Quench Monitor Values and CPM for Standard used to check long term performance of cocktail and instrument
Yes Background-Blank vials CPM Results
- C. Yes Blanks Data Package
Yes Detector ID
Yes Date Analyzed
Yes Collection Date
Yes Sample IDs counted with blank
Yes Detection Level reported
- D. Yes Lab Replicate Data Package
Yes Detector ID
Yes Date Analyzed
Yes Collection Date
Yes Value obtained for sample, replicates, mean values
Yes Count Durations of samples and backgrounds
Yes Statistical analysis of Range, Control Limits
- E. Yes Lab Control Samples Data Package
Yes Sample ID, Detector ID
Yes Values obtained, true value of sample
Yes Statistical Analysis of Results
- F. Yes Lower Limits of Detection
Yes Background measurements
Yes Detector ID
Yes Date of count
Yes Calculated LLD comparison with Required Detection Level

- G. Yes Quench and Efficiency
Yes Quench Monitor used
Yes Quench Monitor Values and Efficiency Values
Yes Detector ID
Yes NBS traceable standards with certification date and DPM
Yes Batch number and sample IDs; Efficiency standard and
backgrounds used
Yes Volume added to cocktail
Yes Cocktail used
Yes Vials used
- H. Yes Sample Data Package
Yes Printed Report of results for sample, reruns
Yes Computer calculations
Yes Analyst initials
No Raw Data from counter, copies of notebook pages

RADIOCHEMICAL ANALYSIS
ANALYTICAL RESULTS (pCi/L)
TABLE #: E88-3369/4th Quarter 1988
SITE NAME: Rocky Flats Plant - Area 2 Hillside

| Sample Location | 3369-TB | 3369-FB | 3369-45-87 | 3369-52-87 | 3369-70-86 | 3369-5-87 | 3369-TB | 3369-FB | 3369-2-87 | |
|---------------------|----------|----------|------------|------------|------------|-----------|----------|----------|-----------|----|
| Sample Number | 3369-TB | 3369-FB | 3369-45-87 | 3369-52-87 | 3369-70-86 | 3369-5-87 | 3369-TB | 3369-FB | 3369-2-87 | |
| Sample Date | 10/18/88 | 10/18/88 | 10/18/88 | 10/18/88 | 10/18/88 | 10/18/88 | 10/20/88 | 10/20/88 | 10/20/88 | |
| Matrix | Water | Water | Water | Water | Water | Water | Water | Water | Water | |
| Parameter | DL | DL | DL | DL | DL | DL | DL | DL | DL | |
| | pCi/L | Val. | +/- | DQ | Val. | +/- | DQ | Val. | +/- | DQ |
| Gross Alpha | 2 | | | | | | | | | |
| Gross Beta | 4 | | | | | | | | | |
| Total Strontium | 1 | | | | | | | | | |
| Total Cesium | 1 | | | | | | | | | |
| Radium 228 | 1 | | | | | | | | | |
| Tritium | 400 | 200 U | | V | 220 U | | V | 220 U | | V |
| Uranium 234 & 233 | 0.6 | | | | | | | | | |
| Uranium 235 | 0.6 | | | | | | | | | |
| Uranium 238 | 0.6 | | | | | | | | | |
| Plutonium 239 & 240 | 0.01 | | | | | | | | | |
| Americium 241 & 242 | 0.01 | | | | | | | | | |
| Radium 226 | 0.05 | | | | | | | | | |
| Gamma scan | | | | | | | | | | |
| Other isotopes | | | | | | | | | | |

- U Indicates the parameter was not detected above the Instrument Quantitation Limit
- J Quantitation is approximate due to limitations identified during the quality control review
- Value is rejected due to other contractual criteria examined during the quality control review
- ** Value is rejected due to blank contamination identified during the quality control review
- DL Detection Limit in PicoCuries per Liter (pCi/L)

DQ Data Qualifier
 V Valid
 A Acceptable with qualifications
 R Rejected
 3369/TK21

**RADIOCHEMICAL ANALYSIS
ANALYTICAL RESULTS (pCi/L)**

TABLE #: E88-3369/4th Quarter 1988
SITE NAME: Rocky Flats Plant - Area 2 Hillside

Page 2 of 3

| Sample Location | 56-86 | D56-86 | 69-86 | 62-86 | 4-87 | 3-87 | TB | FB | FBD |
|---------------------|------------|-------------|------------|------------|-----------|-----------|----------|----------|----------|
| Sample Number | 3369-56-86 | 3369-D56-86 | 3369-69-86 | 3369-62-86 | 3369-4-87 | 3369-3-87 | 3369-TB | 3369-FB | 3369-FBD |
| Sample Date | 10/20/88 | 10/20/88 | 10/20/88 | 10/20/88 | 10/20/88 | 10/20/88 | 10/25/88 | 10/25/88 | 10/25/88 |
| Matrix | Water | Water | Water | Water | Water | Water | Water | Water | Water |
| Parameter | DL | | | | | | | | |
| Gross Alpha | 2 | | | | | | | | |
| Gross Beta | 4 | | | | | | | | |
| Total Strontium | 1 | | | | | | | | |
| Total Cesium | 1 | | | | | | | | |
| Radium 228 | 1 | | | | | | | | |
| Tritium | 400 | V | 200 U | 210 U | V | 200 U | V | 200 U | V |
| Uranium 234 & 233 | 0.6 | | | | | | | | |
| Uranium 235 | 0.6 | | | | | | | | |
| Uranium 238 | 0.6 | | | | | | | | |
| Plutonium 239 & 240 | 0.01 | | | | | | | | |
| Americium 241 & 242 | 0.01 | | | | | | | | |
| Radium 226 | 0.05 | | | | | | | | |
| Gamma scan | | | | | | | | | |
| Other isotopes | | | | | | | | | |

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3369/LK21

Rockwell ER Program
Rocky Flats Plant

RADIOCHEMICAL ANALYSIS
ANALYTICAL RESULTS (pCi/L)
TABLE #: E88-3369/4th Quarter 1988 **Page 3 of 3**
SITE NAME: Rocky Flats Plant - Area 2 Hillside

| Sample Location | 9-74 | 10-74 | 8-87 | 8-87D | TB | FB | FBD | | | |
|---------------------|-----------|------------|-----------|------------|----------|----------|----------|-------|-----|----|
| Sample Number | 3369-9-74 | 3369-10-74 | 3369-8-87 | 3369-8-87D | 3369-TB | 3369-FB | 3369-FBD | | | |
| Sample Date | 10/25/88 | 10/25/88 | 10/25/88 | 10/25/88 | 10/27/88 | 10/27/88 | 10/27/88 | | | |
| Matrix | Water | Water | Water | Water | Water | Water | Water | | | |
| DL | 2 | | | | | | | | | |
| Parameter | pcil | Val. | +/- | DQ | Val. | +/- | DQ | Val. | +/- | DQ |
| Gross Alpha | 4 | | | | | | | | | |
| Gross Beta | 1 | | | | | | | | | |
| Total Strontium | 1 | | | | | | | | | |
| Total Cesium | 1 | | | | | | | | | |
| Radium 228 | 400 | 200 U | V | | 200 U | V | | 220 U | V | |
| Tritium | 0.6 | | | | | | | | | |
| Uranium 234 & 233 | 0.6 | | | | | | | | | |
| Uranium 235 | 0.6 | | | | | | | | | |
| Uranium 238 | 0.6 | | | | | | | | | |
| Plutonium 239 & 240 | 0.01 | | | | | | | | | |
| Americium 241 & 242 | 0.01 | | | | | | | | | |
| Radium 226 | 0.05 | | | | | | | | | |
| Gamma scan | | | | | | | | | | |
| Other Isotopes | | | | | | | | | | |

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 3369L/R21

Rockwell ER Program
 Rocky Flats Plant