

## FACT SHEET

## ANOMALY IN OCTOBER 7-8, 1989, A-4 DISCHARGE SAMPLE ANALYSIS

- Analysis of samples taken from the discharge of the granulated activated carbon units at Pond A-4 have indicated an anomalously high Pu239 value from one of the sample aliquots. Analysis of a forty-eight hour composite sample are as follows:

| 10/7 - 10/8 Composite: | Aliquot | Pu239 (pCi/l) | Comments    |
|------------------------|---------|---------------|-------------|
|                        | 1       | 68 ± 9        | 1st count   |
|                        |         | 85 ± 11       | 2nd count   |
|                        |         | 90 ± 12       | 3rd count   |
|                        | 2       | 0.087 ± 0.069 | new aliquot |
|                        | 3       | 0.019 ± 0.060 | new aliquot |

High Pu239 results are restricted to only one sample aliquot taken from the 10/7 - 10/8 sample.

- The following data indicate that the high Pu239 sample is temporally and spatially bracketed by normal Pu239 concentrations and that the gross alpha samples do not support high Pu239. All of the Rocky Flats data have been presented in the October monitoring report with the exception of the subject 10/7 - 10/8 composite and the 10/9 - 10/13 composite. Missing data are typically reported the following month.

| Rocky Flats: | Date          | Location                        | Pu239 (pCi/l)  |
|--------------|---------------|---------------------------------|----------------|
|              | 10/2 - 10/6   | treated A-4 effluent, composite | -0.003 ± 0.028 |
|              | 10/9 - 10/13  | treated A-4 effluent, composite | 0.010 ± 0.030  |
|              | 10/14 - 10/15 | treated A-4 effluent, composite | 0.020 ± 0.032  |
|              | 10/16 - 10/17 | treated A-4 effluent            | NA             |
|              | 10/2 - 10/6   | Walnut at Indiana, composite    | 0.019 ± 0.032  |
|              | 10/7 - 10/8   | Walnut at Indiana, composite    | 0.137 ± 0.047  |
|              | 10/9 - 10/13  | Walnut at Indiana               | NA             |
|              | 10/14 - 10/15 | Walnut at Indiana, composite    | -0.013 ± 0.028 |
|              | 10/16 - 10/17 | Walnut at Indiana, composite    | 0.005 ± 0.016  |

| Date        | Location                     | Gross Alpha (pCi/l) |
|-------------|------------------------------|---------------------|
| 10/7        | treated A-4 effluent         | 7 ± 10              |
| 10/8        | treated A-4 effluent         | 11 ± 12             |
| 10/7 - 10/8 | Walnut at Indiana, composite | 0.137 ± 0.047       |
| 10/7        | Walnut at Indiana            | 2 ± 7               |
| 10/8        | Walnut at Indiana            | 9 ± 11              |

| CDH: | Date  | Location                   | Gross Alpha (pCi/l) |
|------|-------|----------------------------|---------------------|
|      | 10/3  | Pond A-4, grab             | <8                  |
|      | 10/7  | treated A-4 effluent, grab | NA                  |
|      | 10/3  | Walnut at Indiana, grab    | 10 ± 6              |
|      | 10/6  | Walnut at Indiana, grab    | <8                  |
|      | 10/10 | Walnut at Indiana, grab    | <8                  |
|      | 10/13 | Walnut at Indiana, grab    | <8                  |

ADMIN RECORD

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|-----------------------------|-------------------------|
| REVIEWED FOR CLASSIFICATION | BY <i>B. J. GARDNER</i> |
| DATE <i>7-12-92</i>         |                         |

10/17 Walnut at Indiana, grab  $10 \pm 7$

| Broomfield: | Date  | Location                   | Gross Alpha (pCi/l) |
|-------------|-------|----------------------------|---------------------|
|             | 9/27  | Treated A-4 effluent, grab | 8.0                 |
|             | 10/17 | Treated A-4 effluent, grab | 8.1                 |
|             | 10/2  | Walnut at Indiana, grab    | $11.0 \pm 7$        |
|             | 10/9  | Walnut at Indiana, grab    | $8.0 \pm 5$         |
|             | 10/16 | Walnut at Indiana, grab    | $12.3 \pm 6$        |
|             | 10/23 | Walnut at Indiana, grab    | $8.5 \pm 5$         |

CDH is currently running 10/3 sample from Pond A-4 (prior to carbon treatment) for Pu239. Results should be available in early January. Broomfield has not done any Pu239 specific analysis.

- Rockwell has filed an unplanned event response level 5. Rockwell will provide a critique report to DOE within 5 working days (January 5). Rockwell Environmental Management is using Techlaw to conduct an independent verification of the 123 Laboratory analysis. Verification will begin December 22 and should be completed and available by December 27, 1990.
- Conclusions:

Given the volume of data from the treatment unit and Walnut Creek showing ambient levels of Pu239 and the fact that the high Pu239 is not observed in all of the 10/7 - 10/8 composite sample, it is most likely that the high Pu239 data point is resulting from 123 Laboratory contamination or contamination introduced during sampling. There is a remote chance that the anomaly is due to a single Pu contaminated particle (i.e. sediment) that was transported through both carbon exchange units and resided in only one of the sample aliquots. However, because the carbon units are prefiltered and the particle would have to be transported through two twelve foot long columns of activated charcoal, this is not likely. Radiometric analysis of the carbon indicate that there is no Pu activity above background for the activated charcoal used in the A-4 treatment so it is unlikely that the contaminant is a particle of charcoal.