Department of Energy

ROCKY FLATS OFFICE
P.O. BOX 928
GOLDEN, COLORADO 80402-0928

JUL 25 1994

94-DOE-08056

Mr. Joe Schieffelin
Hazardous Waste Facilities Unit Leader
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Mr. Martin Hestmark
U.S. Environmental Protection Agency, Region VIII
ATTN: Rocky Flats Project Manager, 8HWM-RI
999 18th Street, Suite 500, 8WM-C
Denver, Colorado 80202-2405

Gentlemen:

The Department of Energy had requested concurrence on May 25, 1994 (94-DOE-05693) to treat incidental and purge waters at the interim measure water treatment facilities at Operable Unit 1 and Operable Unit 2 (OU 1 & OU 2). The Environmental Protection Agency and the Colorado Department of Public Health and Environment have verbally requested the following information to be provided regarding our May 25, 1994 request.

Approximately 200 gallons per quarter of groundwater monitoring purge water requiring treatment will continue to be generated in the future. This water may contain Resource Conservation and Recovery Act (RCRA) F-listed and regulated characteristic constituents. The need to treat this water has been created by the requested removal of the decontamination pad tanks from the RCRA interim status permit. Purge waters which may contain RCRA regulated constituents are no longer placed in these tanks. Historically, these waters were collected in the decontamination pad tanks and sampled for RCRA characteristics prior to treatment at either the Building 374 evaporator or the OU 1 water treatment facility.

The organic constituents in the decontamination water may exceed the Building 374 limits but have historically been far below RCRA regulated characteristic limits. Characteristic hazardous waste has never been generated at the decontamination tanks. Approximately 5000 gallons per month is the anticipated volume based on historical knowledge. This water will be sent to the 374 evaporator whenever possible.

Decanted water from Investigation-Derived Material drums also may require treatment. At this time, our references to "incidental waters" in this letter, and letter 94-DOE-05693, refers only to this decanted water. The volume associated with this need is expected to be very minimal (less than 100 gallons per quarter).

Acceptance criteria have been developed to ensure that the treatment facility to be used has the capability to effectively treat any water accepted. The acceptance criteria for OUs 1 & 2 is enclosed. The OU 1 system will be used preferentially because it allows for sampling of the effluent prior to discharge. The OU 2 system does not allow for this because of the lack of effluent tanks.

Please contact Brandon Williamson at 966-5276 with any questions you may have.

Sincerely,

Steve Slaten
IAG Project Coordinator
Environmental Restoration

Enclosure

cc w/Enclosure:
J. Roberson, ER, RFFO
S. Slaten, ER, RFFO
B. Williamson, ER, RFFO
S. Grace, ER, RFFO
J. Stewart, SAIC, RFFO
M. Broussard, EG&G
A. Schmiechen, EG&G
M. Burmeister, EG&G

Table 4.4-1(1)
Acceptance Criteria
OU-2 Field Treatability Unit

**Volatile and Semi-Volatile Organic Compounds**

| | |
|---|---|
| Free Product | None. No visible sheen or interface. |

Total Volatile and Semivolatile Compounds (2)

| | |
|---|---|
| Carbon tetrachloride | 15 ug/L(3) |
| Chloroform | 15 ug/L(3) |

| Influent Organics Concentration,ug/L | Approximate Changeout, days(4) | Water Treated to Changeout, M gals. |
|---|---|---|
| 35 | 90 | 2.6 |
| 70 | 45 | 1.3 |
| 140 | 22 | 0.65 |
| 280 | 11 | 0.33 |

**Total Radionuclides, pCi/L**

| Analyte | Criteria | ARAR |
|---|---|---|
| Gross alpha | 730 | 11 |
| Gross beta | 545 | 19 |
| Plutonium | 3.3 | 0.05 |
| Americium | 0.5 | 0.05 |
| Total Uranium | 15.0 | 10 |

**Total Heavy Metals, ug/L**

| Analyte | Criteria | ARAR |
|---|---|---|
| Aluminum | 400 | 200 |
| Arsenic(5) | 50 | 50 |
| Barium | 2000 | 1000 |
| Beryllium | 100 | 100 |
| Cadmium | 5 | 5 |
| T. Chromium | 100 | 10 |
| Copper | 25 | 25 |
| Iron | 2000 | 1000 |
| Lead | 6 | 5 |
| Manganese | 1100 | 1000 |
| Mercury | 0.2 | 0.2 |
| Nickel | 40 | 40 |
| Selenium | 10 | 10 |
| Zinc | 100 | 50 |

Major Ions, mg/L

| Analyte | Criteria |
|---|---|
| Calcium | No criteria |
| Carbonate | No criteria |
| Chloride | 100 |
| Magnesium | No criteria |
| Sodium/Potassium | No criteria |
| Nitrate/Nitrite | 10 |
| Sulfate | 250 |

Water Quality Parameters, mg/L

| Analyte | Criteria |
|---|---|
| Free Product | None. No visible sheen or interface. |
| Total Organic Carbon (TOC) | 2(6) |
| pH | No criteria |
| Suspended Solids | No criteria |
| Total Dissolved Solids | 350 |

(1) To be used as a general guideline. Due to process interaction and complexity, the characterization of all water to be considered for treatment must be evaluated on an individual basis. Bench scale testing may be required to verify suitability of the process.

(2) If any the following compounds are present, consult EOM authority: acetone, 2-butanone, methylene chloride, vinyl chloride.

(3) Can be removed by carbon, but capacity will be significantly limited.

(4) Based on historical data from the Phase II TSR

(5) Higher concentrations can be considered for treatment when laboratory testing is used to validate treatment effectiveness or an adverse impact on the process is suspected.

(6) Need to characterize further. High TOC loads carbon.

Table 3.5-1(1)
Acceptance Criteria
OU-1 Building 891 Facility

| | |
|---|---|
| **Organic Compounds** | |
| Free Product: | None. No visible sheen or interface. |
| Total Volatile and Semivolatile Compounds | 1,400 ug/L |
| Carbon Tetrachloride | 5 ug/L(3) |
| Chloroform | 15 ug/L |
| Vinyl Chloride | TBD(2) |
| **Radionuclides** | |
| Plutonium | 0.05 pCi/L |
| Americium | 0.05 pCi/L |
| Total Uranium | 400 pCi/L |
| **Heavy Metals** | |
| Total Heavy Metals | 1.5 mg/L(3) |
| **Major Ions and Water Quality Parameters** | |
| Chloride | 500 mg/L |
| Nitrate/Nitrite | 10 mg/L |
| Sulphate | 250 mg/L |
| Total Dissolved Solids (TDS) | 1500 mg/L |

(1) To be used as a general guideline. Due to process interaction and complexity, the characterization of all water to be considered for treatment must be evaluated on an individual basis. Bench scale testing may be required to verify suitability of the process.

(2) To be determined.

(3) Higher concentrations can be considered for treatment when laboratory testing is used to validate treatment effectiveness or an adverse impact on process in suspected.