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**NOTIFICATION AND SOURCE EVALUATION PLAN FOR REPORTABLE SURFACE  
-WATER MONITORING RESULTS AT RFCA POINT OF EVALUATION GS-10**

The purpose of this letter is to provide notification of recently observed reportable concentrations of plutonium in surface water at Rocky Flats Cleanup Agreement (RFCA) Point of Evaluation (POE) surface-water monitoring station GS10, which is located in the South Walnut Creek upstream of Pond B-1 in Walnut Creek basin, and to provide an outline of proposed source evaluation and mitigation efforts in response to water-quality monitoring results. Proposed source evaluation and mitigation efforts outlined below are intended to address this recent Pu reportable period, as well as previously reportable Pu and Am values detailed in the April 6, 2005 notification to DOE (05-RF-00363; RCN-008-05).

The calculated 30-day moving average for plutonium-239,240 (Pu) triggered the reporting requirements under RFCA Attachment 5, Section 2.4 (B) for the period June 9, 2005 through June 21, 2005 inclusive, using validated data. Americium-241 (Am) was not reportable during the period. Additional data recently received but not validated extend the Pu event through July 9, 2005 (for details, see Table 1). As of July 10, 2005, the 30-day average for Pu was no longer at a reportable level (unvalidated). Analytical results for all samples that were used in the calculation are listed in Table 2.

*Table 1 – Reportable 30-Day Average Values for RFCA POE Monitoring Location GS10 Using Validated Data*

Analyte	Dates of Reportable Value	Range of Reportable 30-day Avg. Values (pCi/L)
Plutonium	6/9/05 – to be determined	0.17 – 0.45

*Table 2 – Analytical Results for Composite Samples Collected at GS10 Used in the 30-Day Average Calculations (Validated through 6/11/2005 Sample).*

Composite Sample Start Date	Americium Analytical Result (pCi/L)	Plutonium Analytical Results (pCi/L)
5/2/2005	0.039	0.065
5/12/2005	0.006	0.007
6/2/2005	0.029	0.173
6/6/2005	0.152	0.915
6/11/2005	0.006	0.003
6/22/2005	0.001	0.007

**RFCA Reporting Protocol**

Please be advised that within five (5) business days of confirming reportable values (which ends August 3, 2005) the Department of Energy (DOE) is expected, per RFCA, to provide informal preliminary notice stating that RFCA-reportable values have been observed at a RFCA POE. This preliminary notice is sent to other Rocky Flats Environmental Technology Site (RFETS) personnel, the RFCA Project Coordinators, and pre-approved contacts at the Cities of Arvada, Broomfield, Westminster, Thornton, and Northglenn.

To meet the RFCA commitment, DOE must transmit more comprehensive information to the Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) within the 15-day reporting period, which ends August 11, 2005. In addition, RFCA also requires that the DOE, within 30 days of gaining knowledge of the reportable results, submit to EPA and CDPHE a source evaluation plan addressing this reportable

value. This letter serves as both the comprehensive notice and the plan for that source evaluation, based on consideration for other evaluative work already performed in this drainage.

### **Downstream Water Quality Monitoring**

Water flowing through GS10 also passes through the lower B-series ponds (Ponds B-4 and B-5) and South Walnut Creek before leaving the Site. RFCA Points of Compliance (POCs) GS08 (Pond B-5 outlet) and GS03 (Walnut Cr. at Indiana St.) again monitor this water. GS10 analytical results and the reportable 30-day average values were compared with those for pre-discharge samples collected from Pond B-5 prior to the July 2005 direct discharge and from RFCA POC monitoring stations GS08 and GS03 for the July discharge (7/14 – 7/21/05). Monitoring results from Pond B-5 (pre-discharge sample) met all applicable water-quality criteria. Analytical results for composite samples collected at GS08 (1 sample) and GS03 (2 samples) have not been received by the Site as of August 1, 2005.

A portion of the water retained in Pond B-5 was also pump transferred to Pond A-4 (7/6 – 7/12/05 and 7/21 – 7/25/05). The water from the 7/6 – 7/12 transfer was subsequently direct discharged from Pond A-4 to Walnut Creek (7/14 – 7/21/05). Monitoring results from Pond A-4 (pre-discharge sample) met all applicable water-quality criteria. Analytical results for composite samples collected at GS11 (Pond A-4 outlet; 1 sample) and GS03 (2 samples) have not been received by the Site as of August 1, 2005. The water from the 7/21 – 7/25/05 transfer is currently being retained in Pond A-4.

### **Previous GS10 Source Investigations**

Kaiser-Hill Company, LLC (Kaiser-Hill) completed the latest of seven special source investigation reports for the GS10 sub-drainage in December 2004. This investigation, the *Final Source Evaluation Report for Points of Evaluation GS10, SW027, and SW093: Water Year 2004*, was designed to identify location-specific sub-drainage areas that may contain source areas and further define or resolve the causes of reportable values at RFETS POEs.

The results of this source evaluation and routine analysis presented in the Annual Automated Surface-Water Monitoring Reports for the GS10 sub-drainage have not identified a distinct source area suggesting the need for an accelerated action. The evaluation continued to suggest that water-quality measurements at GS10 are the result of diffuse, low-level actinide contamination associated with soils and sediments from past Site operations released to the environment through events and conditions over past years. This actinide contamination is transported with suspended solids in surface-water runoff during precipitation events.

In response to these findings, the Site continues to enhance the preexisting program of erosion controls to further prevent the movement of soils and sediments and to protect storm water and surface-water quality. The increased activities of building removal and soil disturbance require rigorous erosion control methods. A number of control methods are currently being used, from straw bales and wattles to soil tackifiers and erosion blankets. Ultimately, disturbed areas are closed and revegetated.

### **Preliminary Loading Analysis Results**

When these reportable actinide concentrations were initially observed, Kaiser-Hill completed a preliminary loading analysis within the sub-drainages upstream of GS10. The observed relative loadings upstream of GS10 during Water Year 2005 to-date are discussed here. A map, indicating the approximate areas served by each sub-drainage monitoring location, and two bar charts summarizing the loading observations for both Pu and Am are also attached to this report. As of 8/1/05, only upstream location GS40 remained in operation; all other upstream locations

have been removed as ditches have been filled in, land surface has been recontoured, and channelized flow has been eliminated.

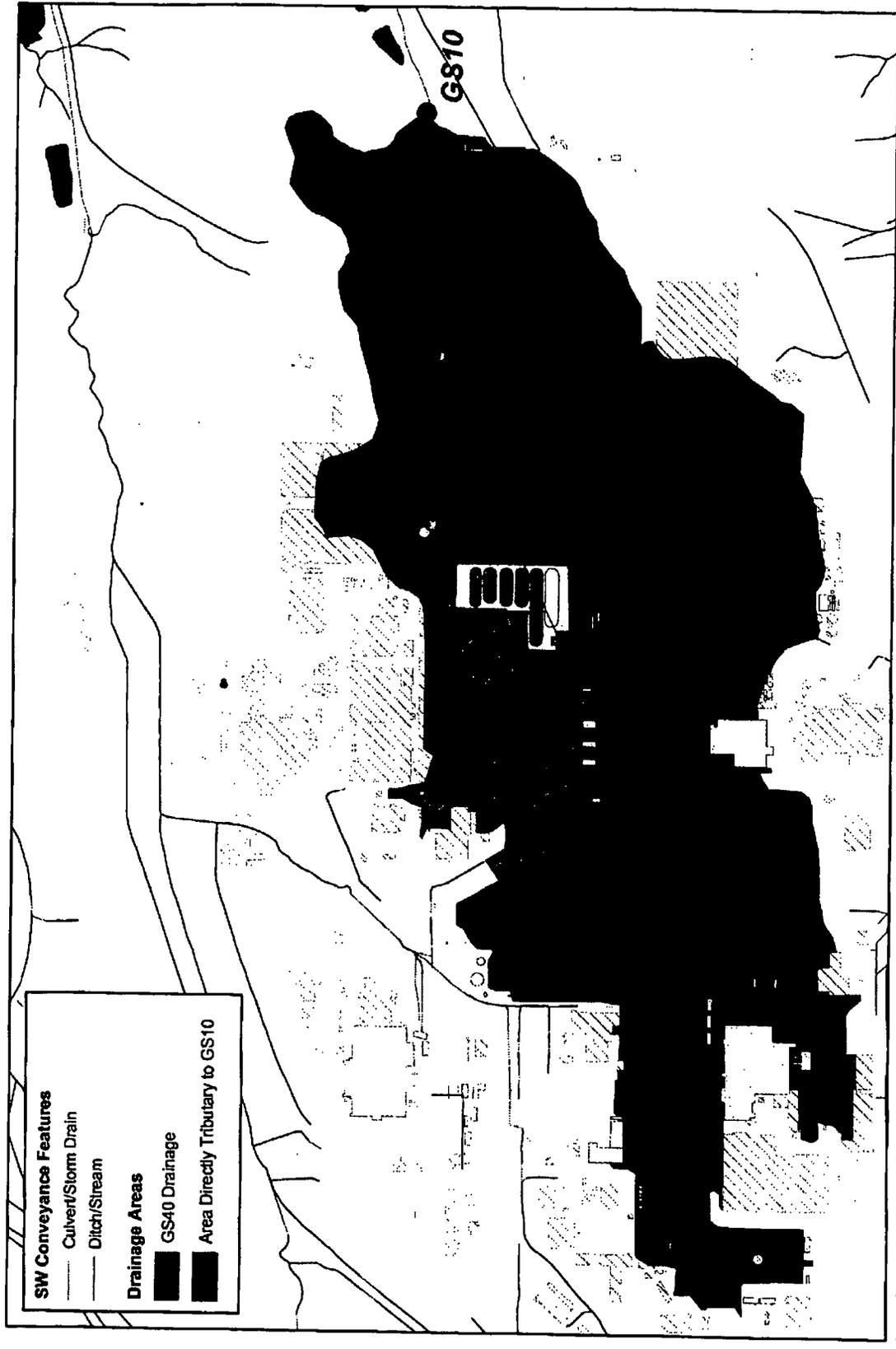
Referring to the attached map and charts we observe that the GS40 sub-drainage, which gages the central Industrial Area (including the areas around 707 and 750 Pad) continues to contribute a majority of both the Pu and Am load measured at GS10. Relatively high activities and TSS concentrations continue to be measured. This area has been experiencing significant soil disturbances and increased traffic loads due to the wholesale demolition of structures, construction of functional channels, culvert removals, and transport of debris in those areas. The 700 area is in final closure, with remaining storm drains scheduled to be removed in the very near future, and the implementation of soil cover, erosion controls, and revegetation measures to follow. These final actions are expected to have an immediate and positive impact to water-quality in South Walnut Creek.

### **Recommendation**

The preliminary findings and conclusions given here suggest that the GS40 sub-drainage remains as the sole contributor of significant Pu and Am load to GS10. Previous source evaluations concluded that ongoing RFETS activities (i.e., Decontamination and Decommissioning and ER projects, excavations, or other routine operations) did not expose any new sources of significant contamination tributary to GS10 not being addressed by Site accelerated actions. However, significant progress towards closure has resulted in large areas of disturbed soils, resulting in increases in soil/sediment transport.

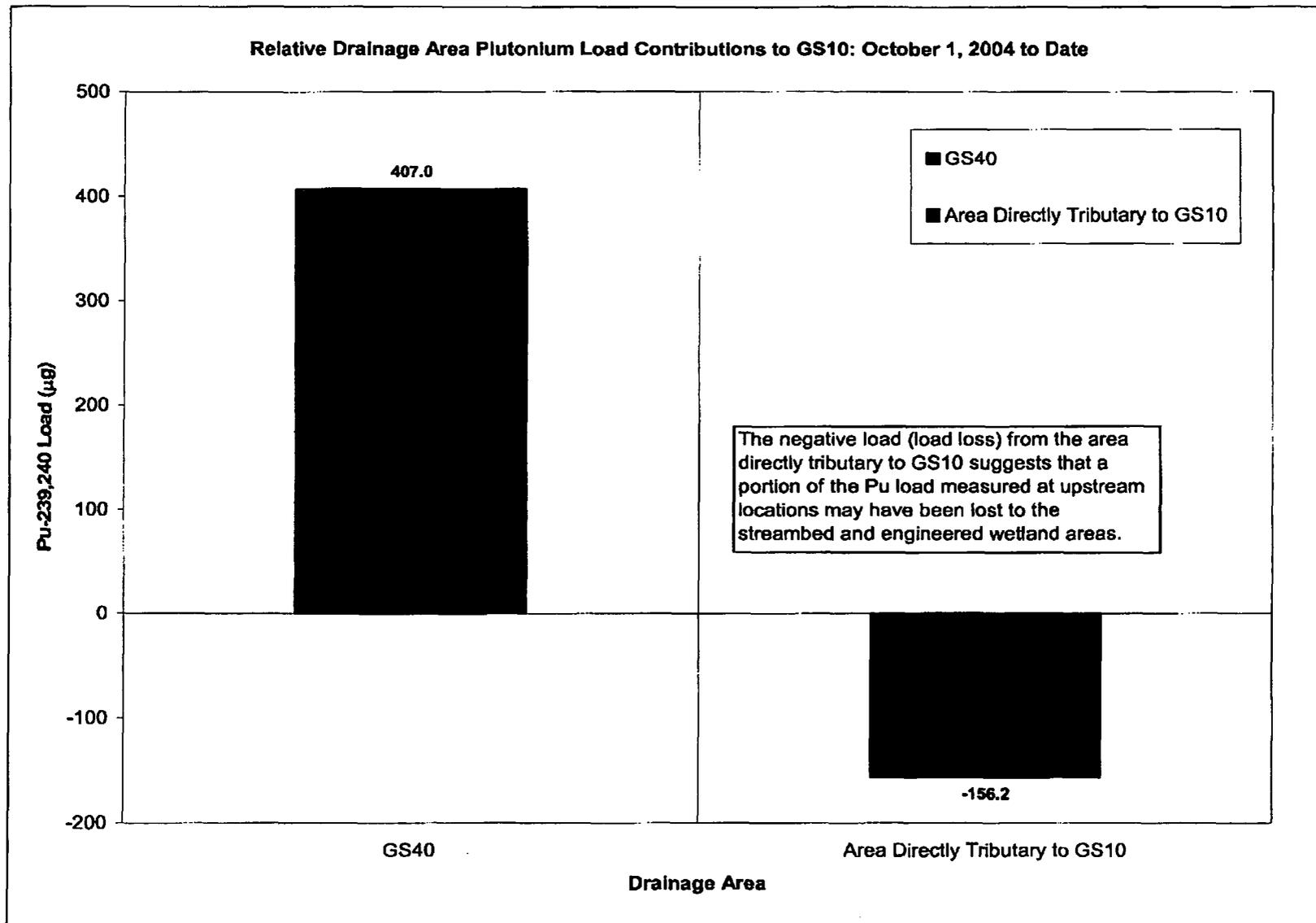
In consideration of past source evaluation findings and conclusions, and the similar characteristics of this event compared to those previous, it is believed a comprehensive search for new source contributions is not warranted at this time. In response to these reportable values at GS10 the following actions are recommended:

- (1) A more comprehensive data evaluation for GS10 will be completed when more data become available with the elimination of flow from the central 700 Area. The resulting report would include an updated GS10 source evaluation summary using all available data at the time of publication. This evaluation will include a detailed monitoring summary, an assessment of water-quality correlations, and an assessment of Decontamination and Decommissioning (D&D), Environmental Restoration, and Site Closure project activities within the GS10 drainage that could have influenced the surface water quality in the sub-drainages. We anticipate a data update within 30 days of this letter, and a more comprehensive evaluation within 60 days.
- (2) Continued routine monitoring as required by RFCA and the Site Integrated Monitoring Plan.
- (3) Continued application and maintenance of comprehensive erosion controls and revegetation measures within the areas tributary to GS10 and other drainages.



Attachment 1: Map Showing GS10 Sub-Drainages and Upstream Monitoring Locations.

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Attachment 2: Relative Pu Loading Chart for GS10 Sub-Drainages.