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Mr. Mark Aguilar
05-DOE-00611

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OCT 19 2005

cc w/Encl.:

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October 3, 2005

05-RF-00914

Mr. John Rampe
Director, Project Management Division
DOE, Rocky Flats Project Office, MV72

WATER-QUALITY UPDATE TO NOTIFICATION FOR REPORTABLE PLUTONIUM SURFACE-WATER MONITORING RESULTS AT RFCA POINT OF EVALUATION GS10 – RCN-031-05

The purpose of this letter is to provide an update¹ to the August 1, 2005 notification of 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 the Walnut Creek basin. 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 July 9, 2005 inclusive, using validated data (for details, see Table 1). Americium-241 (Am) was not reportable during the period. As of July 10, 2005, the 30-day average for Pu was no longer at a reportable level. 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 Values	Range of Reportable 30-day Avg. Values (pCi/L)
Plutonium	6/9/05 – 7/9/05	0.17 – 0.46

Table 2. Analytical Results for Composite Samples Collected at GS10 Used in the 30-Day Average Calculations (Validated through 8/5/2005 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
7/11/2005	0.007	0.005
7/28/2005	0.030	0.061
8/5/2005	0.009	0.012
8/15/2005	-0.001	0.005

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

¹ A previous update for this reportable period was transmitted to DOE on August 30, 2005 (05-RF-00822; RCN-024-05).
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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 (predischarge sample) met all applicable water-quality criteria. Analytical results for composite samples collected at GS08 (1 sample) and GS03 (2 samples) also were well below reporting thresholds.

A portion of the water retained in Pond B-5 was also pump transferred to Pond A-4 (7/6 – 7/12/05, 7/21 – 7/22/05, and 8/10 – 8/22/05). 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 (predischarge 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) were well below applicable standards for all monitored analytes. The water from the 7/21 – 7/25/05 and 8/10 – 8/22/05 transfers is currently being retained in Pond A-4.

Previous GS10 Source Investigations

Kaiser-Hill Company, LLC (Kaiser-Hill) has completed multiple source investigation reports/letters for the GS10 sub-drainage. During WY05, Pu and Am were previously reportable at GS10 for the period 2/2/05 – 5/11/05. The notification for this period was made on 4/6/05 (05-RF-00363), with the water-quality update letter transmitted to DOE on 5/18/05 (05-RF-00503).

The results of recent source evaluations, notification letters, and routine analysis presented in the Annual Automated Surface-Water Monitoring Reports for the GS10 sub-drainage have not identified a distinct Pu source area suggesting the need for an accelerated action. The evaluation continued to suggest that Pu 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.

GS10 Data Evaluation

Figure 1 shows that the recent reportable period at GS10 is associated with a single sample result. This sample (6/6 – 6/11/05) was collected during a period that included a significant runoff event on 6/10/05 (Figure 2) with high relative flow rates.² At upstream location GS40 (700 Area; Figure 3), high Pu activities were also measured (Figure 4) for the same runoff event, indicating that the 700 Area was contributing Pu load to GS10.

With the removal of GS40 on 8/3/05, relative Pu loads for GS10 and GS40 can be calculated through 7/28/05.³ As of 7/28/05, 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. Figure 5 clearly indicates that Pu load from the GS40 sub-drainage (700 Area) was the cause of the reportable values at GS10.

² The maximum flow rate on 6/10/05 (8.31 cfs) was the 4th highest daily maximum for the water year.

³ On 8/3/05, the GS40 sample started on 7/28/05 was discarded due to non-sufficient quantity (NSQ) for analysis.

Recommendation

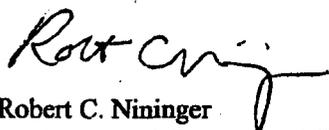
The preliminary findings and conclusions given here suggest that runoff from the GS40 sub-drainage was the cause of the recent reportable Pu values at GS10. The final actions for the GS40 sub-drainage, including the elimination of concentrated runoff, recontouring, soil stabilization, and revegetation have had an immediate and positive impact to water-quality in South Walnut Creek. Recent data continue to support the conclusions of recent source evaluations 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.

In consideration of past source evaluation findings and conclusions, and the similar characteristics of this event compared to those previous, Kaiser-Hill does not believe a comprehensive search for new source contributions is warranted. Kaiser-Hill proposes the following in response to these reportable values at GS10:

- (1) Continued routine monitoring as required by RFCA and the Site Integrated Monitoring Plan.
- (2) Continued application and maintenance of comprehensive erosion controls and revegetation measures within the areas tributary to GS10 and other drainages.

In consultation with your staff, we will strive to augment or modify these proposed and possible actions to align them with the Site's Closure Plan.

If you have any questions on this transmittal, please contact me at 303-994-9123 or George Squibb at 303-994-0145.



Robert C. Nininger
Environmental Systems and Stewardship, Environmental Media Management
Kaiser-Hill Company, LLC

GSS/esk

Attachment
As stated

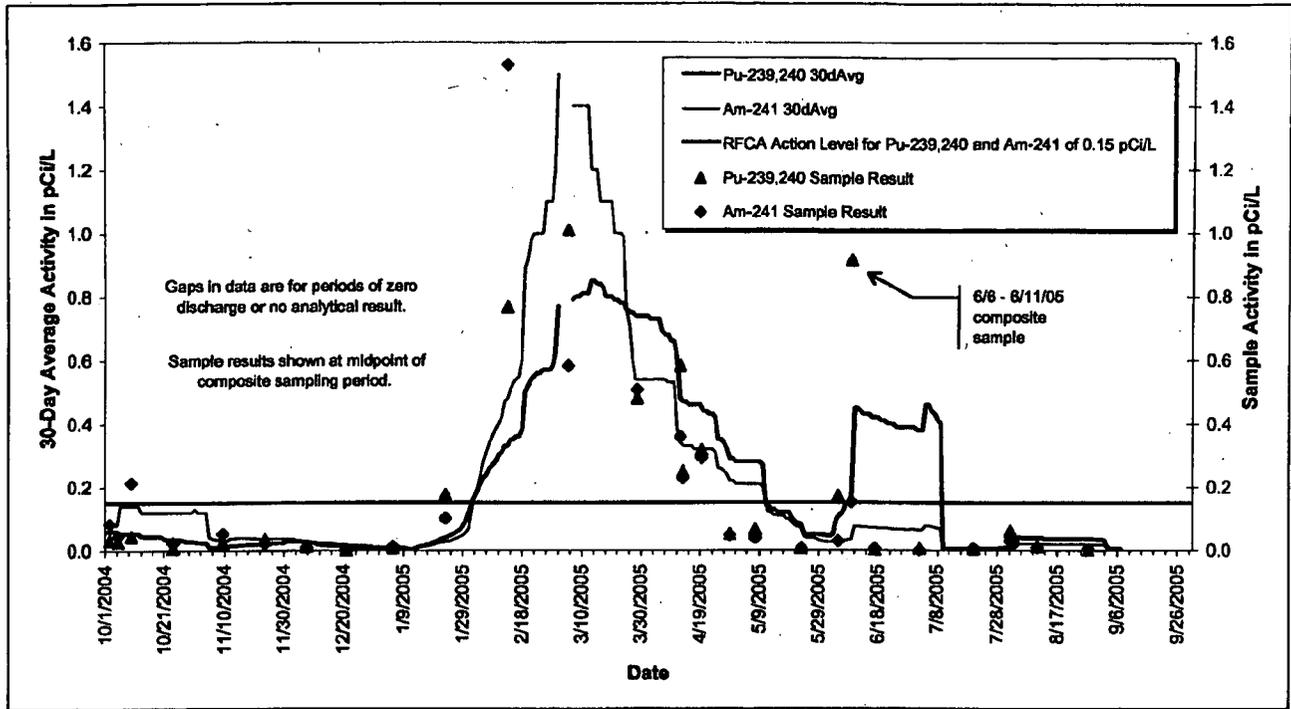


Figure 1. POE GS10 30-Day Averages for Pu and Am with Individual Sample Results: 10/1/04 – 9/7/05.

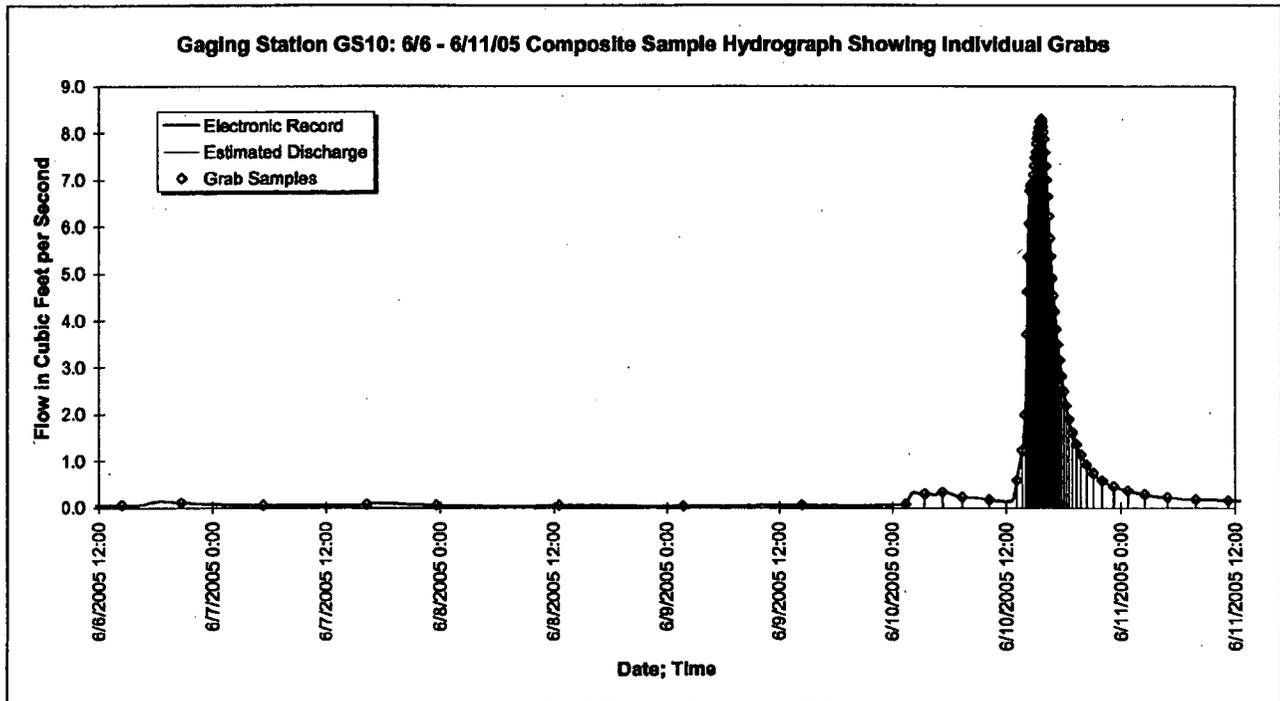


Figure 2. GS10 Hydrograph Showing Individual Grabs for 6/6 – 6/11/05 Composite Sample.

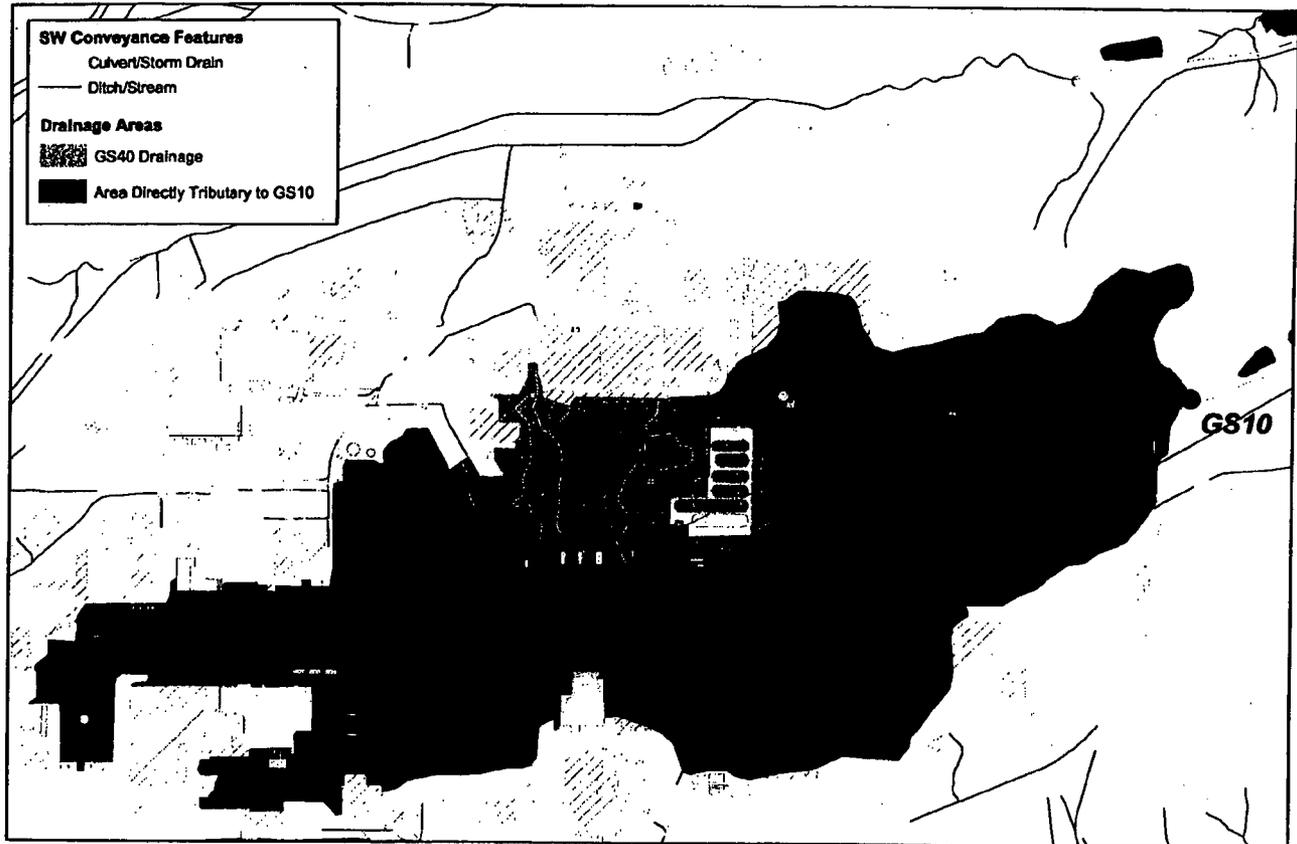


Figure 3. Map Showing GS10 Approximate Sub-Drainages and Upstream Monitoring Locations.

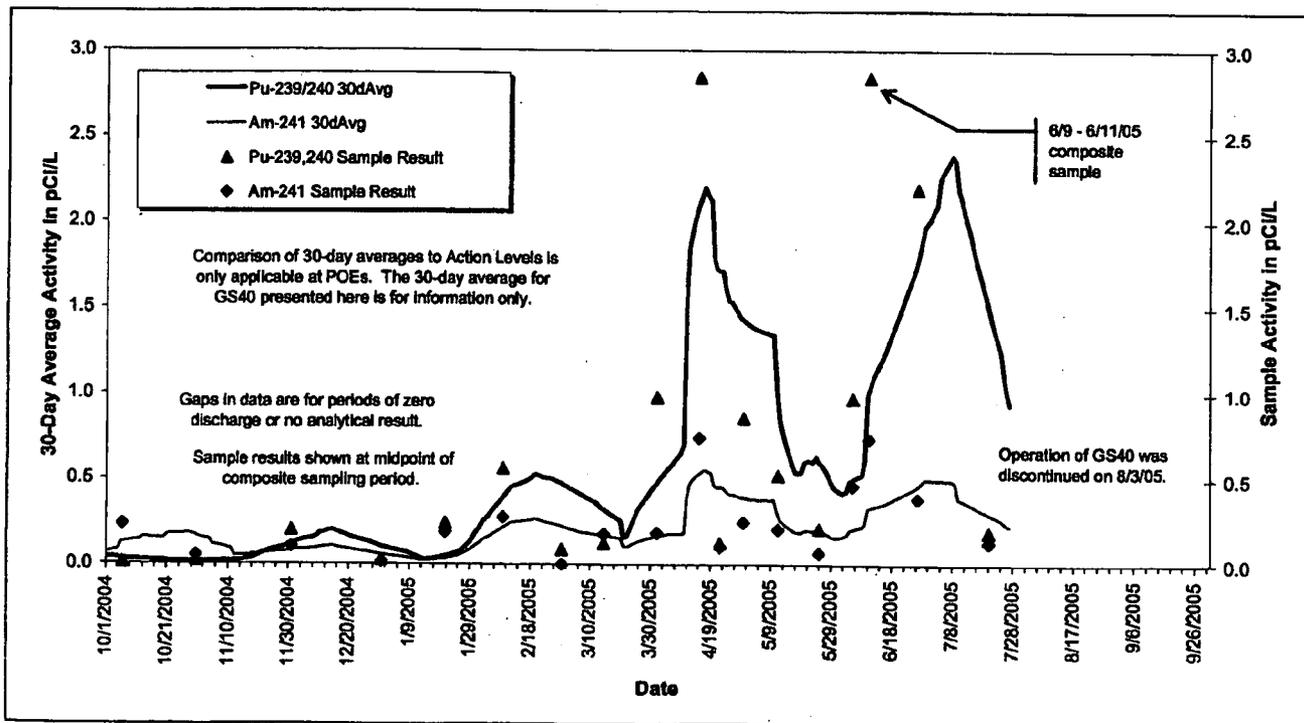


Figure 4. GS40 30-Day Averages for Pu and Am with Individual Sample Results: 10/1/04 – 7/27/05

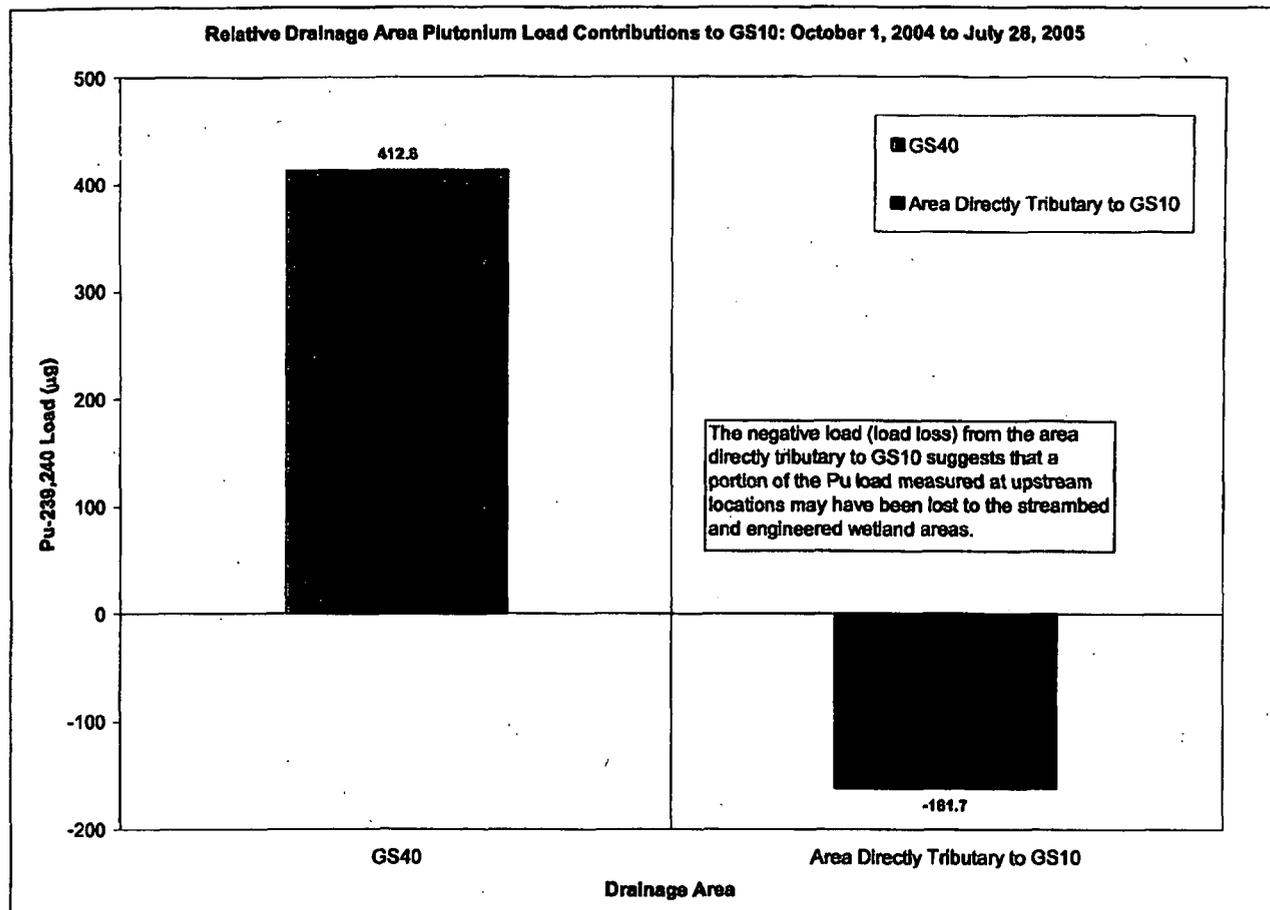


Figure 5. Relative Pu Loading Chart for GS10 Sub-Drainages.

The GS40 sub-drainage 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 TSS measured at GS10 for the 6/6-6/11/05 composite sample was also relatively high at 840 mg/l (Figure 6). These TSS results from GS10 correlate well with the results for the 6/9-6/11/05 composite sample collected at GS40 (2.84 pCi/l Pu, 1900 mg/l TSS). The 700 area is in final closure, with the remaining storm drains being removed in the first week of August 2005. Implementation of soil cover, erosion controls, and revegetation measures along with final contouring is also complete.

With the final closure of the 700 Area, significant improvement in water quality at GS10 has been observed. Figure 1 clearly shows that both Pu and Am activities have decreased significantly. Although no recent TSS data are available, turbidity levels relative to flow rate also show a significant improvement (Figure 7).

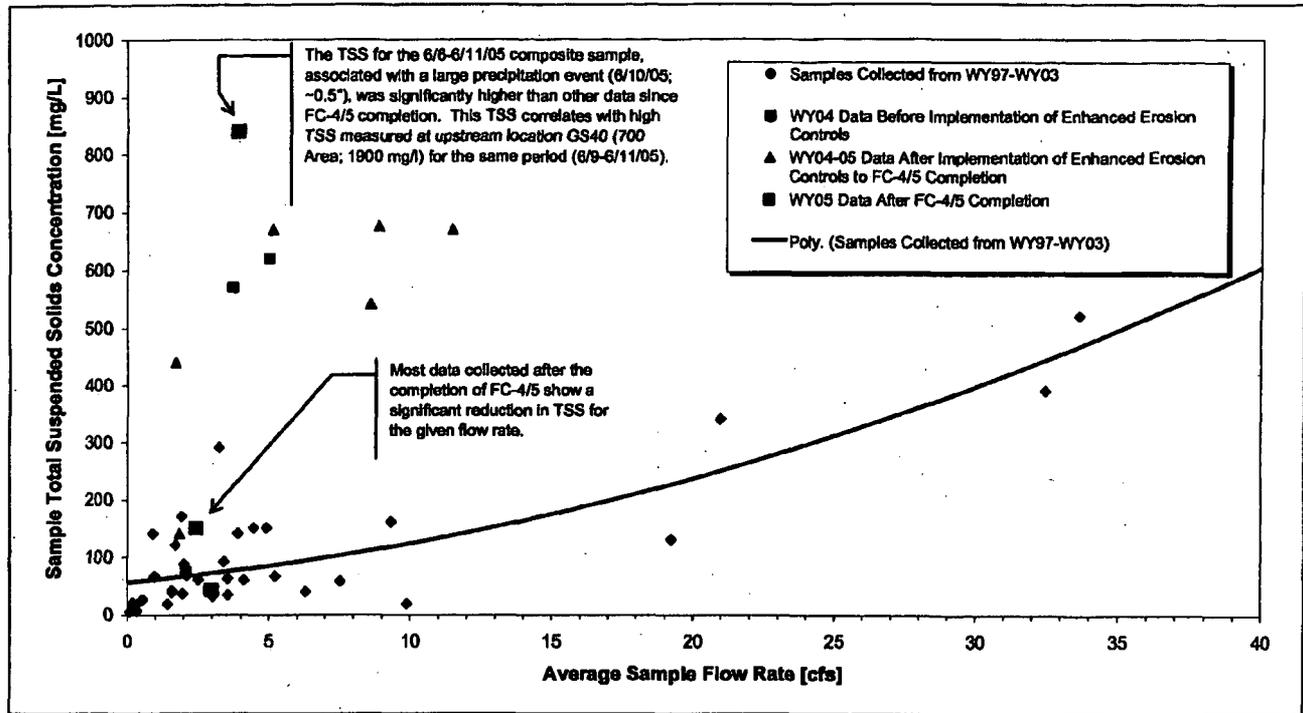


Figure 6. Variation of Sample TSS with Flow Rate at GS10.

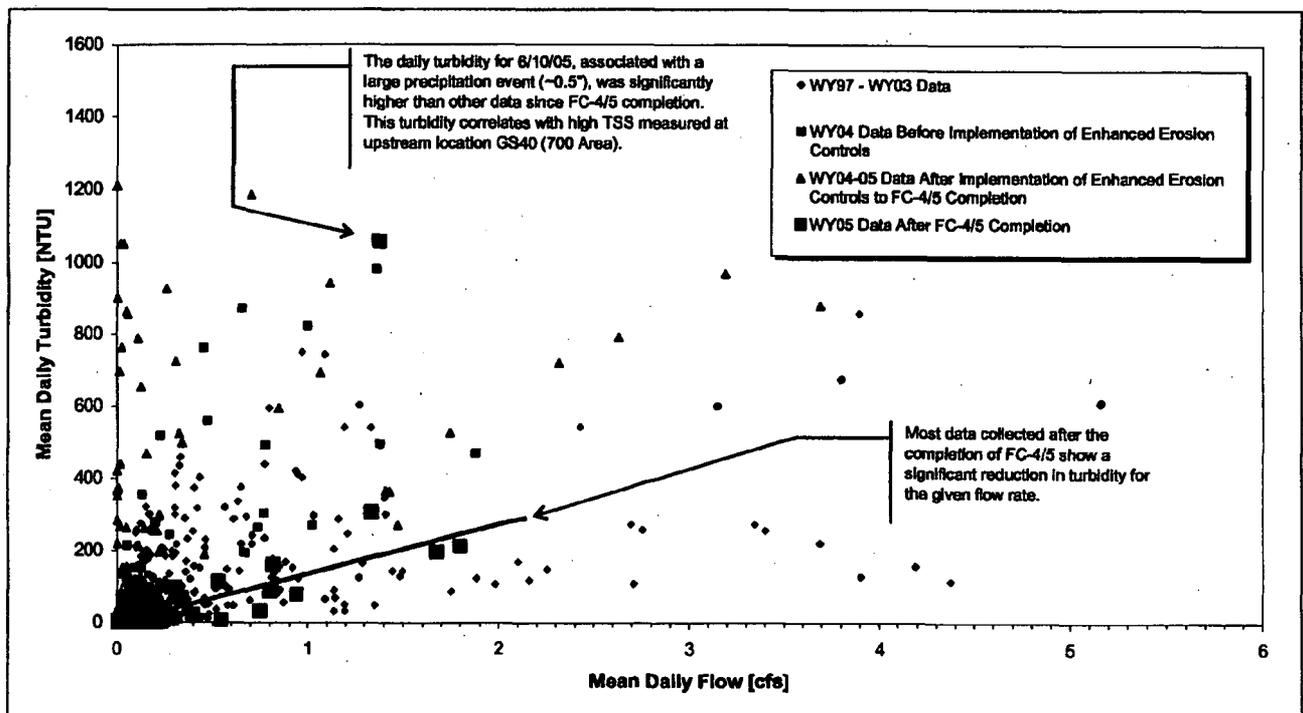


Figure 7. Variation of Turbidity with Flow Rate at GS10.