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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE QUARTERLY ENVIRONMENTAL MONITORING REPORT OCTOBER - DECEMBER 2001

US Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

FEBRUARY 2002

Points of Contact:

R. McCallister, (303) 966-9692
Air, Meteorology, Climatology, and Groundwater Programs
Department of Energy, Rocky Flats Field Office

J. Stover, (303) 966-9735
Surface Water Programs
Department of Energy, Rocky Flats Field Office

R. Nininger, (303) 966-4663
Kaiser-Hill Company, L.L.C.

Contributors:

B. Butler-Veytia, URS Group, Atmospheric Monitoring
L. Dunstan, SSOC, Water Monitoring
P. Haines, URS Group, Atmospheric Monitoring
K. Ondracek, RFCSS, Water Operations
G. Squibb, SSOC, Water Monitoring

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PREPARED BY SAFE SITES OF COLORADO, L.L.C.

THE DATA IN THIS DOCUMENT MAY BE PRELIMINARY AND COULD CHANGE AFTER THE DATA HAVE BEEN VERIFIED OR VALIDATED.

FEBRUARY 2002

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HIGHLIGHTS FOR OCTOBER - DECEMBER 2001

This report is produced and distributed quarterly as part of our ongoing Agreement in Principle and as a forum for the Rocky Flats Cleanup Agreement (RFCA) quarterly monitoring requirement. As discussed at a previous Exchange of Information Meeting, the Site is consolidating its reporting for selected media. In an effort to provide a more meaningful interpretation of the data presented and to save some natural resources, namely trees, the Site will be providing analytical data in the following formats.

Airborne effluent data are represented by a single graph providing cumulative plutonium emissions for 1999, 2000, and 2001. Ambient air data are represented by two graphs – a summary of estimated off-site dose as compared to a 10 Mrem per year standard, and air concentrations at perimeter sample locations expressed as a percentage of EPA's air concentration-based dose limit for members of the public. Meteorological data are represented by one windrose and a climatic summary for each month in the reporting period.

Compliance data in support of the Site National Pollutant Discharge Elimination System (NPDES) permit are presented for the reporting period. Analytical data collected in support of RFCA will routinely include the following locations: GS01, GS03, GS08, GS10, GS11, GS31, SW022, SW027, and SW093. Data include the hydrograph, mean daily flow and available water quality measurements for each location during the reporting period. Other stations may appear or be deleted, as performance monitoring locations are added or dropped, as well as any new source detection locations that may be required. These additional Surface Water stations are presented in the same manner as the routine stations. Some locations, like GS32, have no flow monitoring capabilities and only analytical data are provided. The last section provides quarterly summary information for the Incidental Waters program.

Airborne Effluent

Complete isotopic analytical data through November 2001 are included in this report. All data are within the normally observed ranges of concentrations for their respective locations. Consistent with all other uses of these data, only positive values are included in the total release calculation (the negative values are treated as zeros). The uncertainty calculation reflects all data.

Ambient Air

Complete isotopic analytical data through September 2001 for coarse (>10 micrometers) and fine (≤10 micrometers) ambient air samples are included in this report. All data are within the normally observed ranges of concentrations for their respective locations. .

Two new ambient air samplers were added to the network during September 2001: Sampler 114 on the east side of the Industrial Area and Sampler 212 south of the 903 Pad near the C-2 pond.

Beginning this quarter, an additional section, Demolition and Remediation Project-Specific Air Monitoring is included. It will provide air monitoring results related to current demolition and remediation activities. Monitoring data from the Building 111 demolition begun in November 2001 and continuing through December 2001 are included for this reporting period.

Meteorology and Climatology

Meteorological data are routinely measured from instruments on a 61-meter tower located in the west buffer zone at an elevation of 1,870 meters (6,140 feet) above sea level. All meteorological data are collected on a real-time basis and are transmitted as 15-minute averaged values to the Computer Assisted Protective Action Recommendations System (CAPARS) model for emergency response purposes. The same data are logged at the tower and downloaded for air quality and surface water modeling purposes.

Climatic summaries and wind roses for October, November and December 2001 are included in this report.

As a result of the protocols used to validate the meteorological data, each 15-minute averaged observation is validated, rather than the entire observation record for the same time period (which might contain 70 different observations -- i.e., temperature, wind speed, etc.). Missing data are reported with respect to the wind speed and wind direction values, for example, rather than recording all observations missing for the same 15-minute period. There were no missing wind speed and/or direction data during the quarter.

The semi-annual audit of meteorological tower instruments was completed in November 2001. The findings of the audit did not impact data quality.

Surface Water

Surface water analytical data collected during the reporting period for NPDES permit compliance are presented in this report. The Site reported a one time exceedance of the daily effluent limitation for nitrite; on December 11th; a level of 4.8 mg/l was measured where the limitation is 4.5 mg/l. It is likely that the failure of a blower motor at the aeration basin during the early part of the week was the cause for the elevated measurement. The blower motor was replaced and the new motor back in service as of December 12th. Subsequent nitrite measurements for the month of December 2001 were below the limitation. All other reported data for the quarter were typical of historical measurements and within permit limitations.

Included in this report are two surface water locations that monitor the Mound Site area. These locations are SW061 and SW132 and are sampled quarterly for isotopic Pu/Am, selected total and dissolved metals, and EPA VOA Method 8260.

Hydrologic Monitoring and Rocky Flats Cleanup Agreement (RFCA) Monitoring

All available analytical data collected during the reporting period from samples supporting RFCA and Hydrologic Monitoring programs are included in this report.

Six additional RFCA monitoring stations (GS22, GS42, GS51, GS52, GS53, and GS54) were included with this report. Refer to the flow data and hydrographs in this section for location descriptions, monitoring areas, and analytes collected.

Incidental Water Monitoring

A summary of Incidental Waters dispositioned during the reporting period are presented in this report.

1.0 AIR DATA

1.1 EFFLUENT AIR DATA

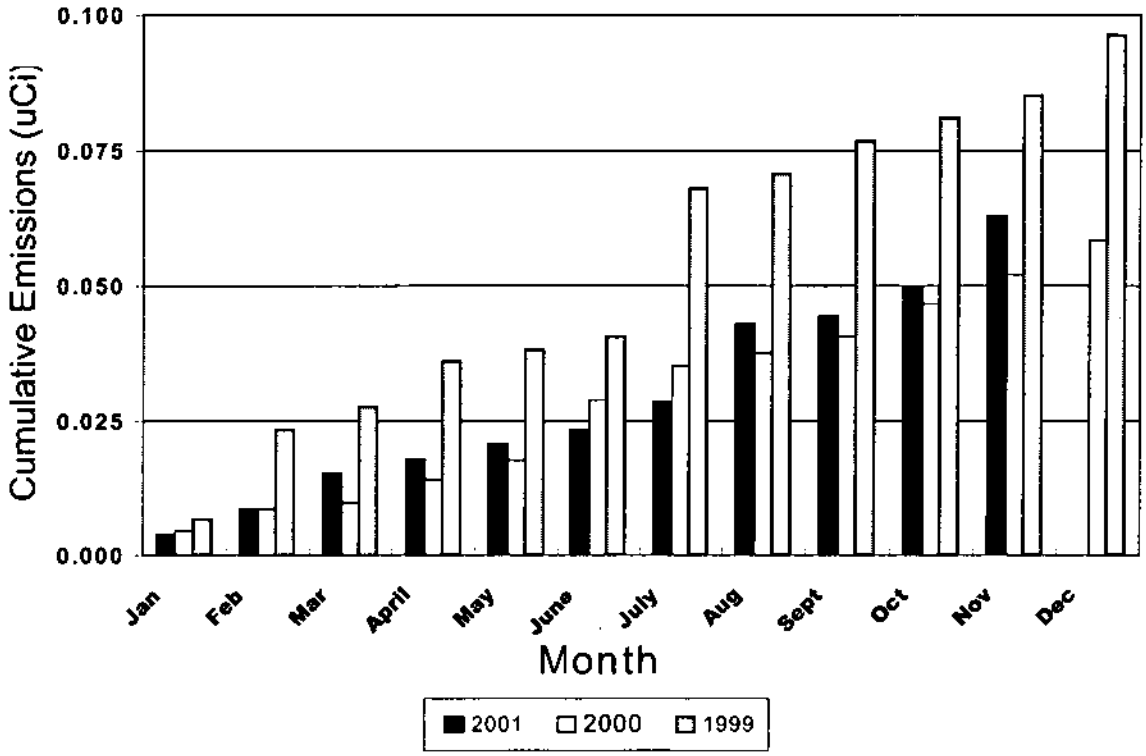
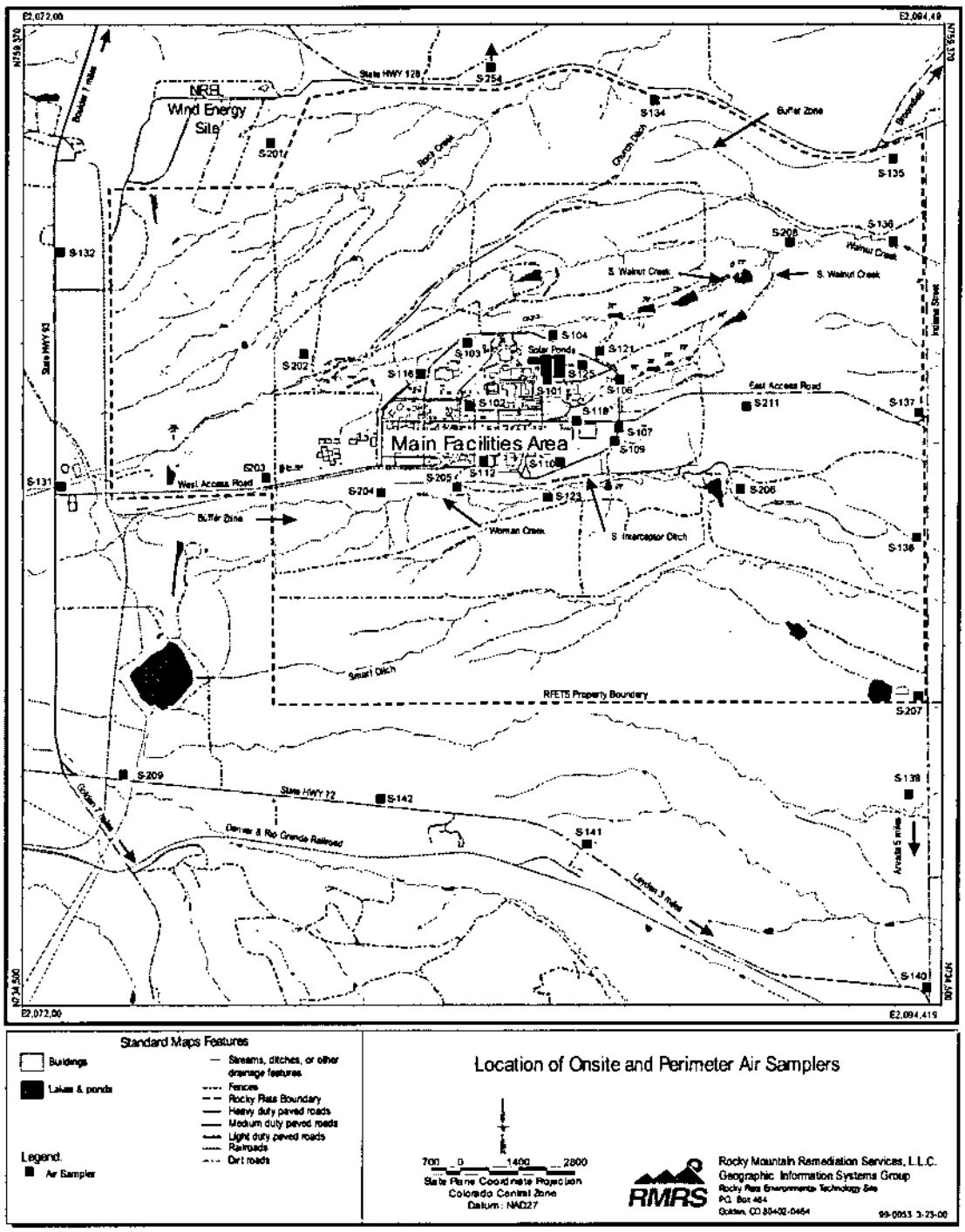


Figure 1-1 Cumulative Plutonium Airborne Effluent Emissions

The above graph shows the cumulative airborne effluent emissions of plutonium from the Site building stacks. Results from the most recently analyzed effluent stack samples (September, October and November 2001) were consistent with previously measured plutonium concentrations, with a cumulative, year-to-date (November 2001) plutonium emission of 0.0629 micro curies (μCi).

Americium and uranium emissions for September, October and November 2001, while somewhat higher than respective 2000 data, were consistent with the levels seen in the past three years.

Map 1-1. Location of Onsite and Perimeter Air Samplers



2.0 AMBIENT AIR DATA

2.1.1 Perimeter Sampler Locations

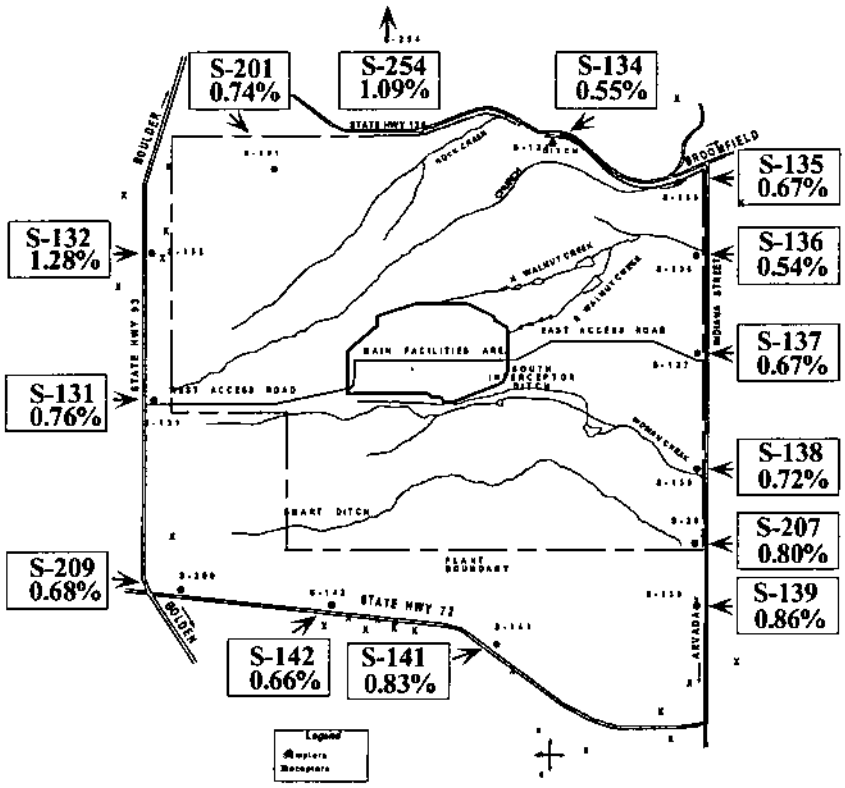


Figure 2-1. Perimeter Samplers Dose Map

The above map illustrates the perimeter Radioactive Ambient Air Monitoring Program (RAAMP) sampler locations and the twelve-month rolling-average maximum potential dose through September 2001, expressed as a percentage of EPA's air concentration-based dose limit for members of the public. The percentage values are based on the measured air concentrations, averaged over the year and converted as a percent of the Rad NESHAP concentration limits.

The percentages include the naturally occurring uranium isotopes as well as the isotopes from site contributions. The average concentration observed at location S-132 (northwest corner of Site) equates to the highest potential dose of 1.28% of the Rad NESHAP concentration limit. All perimeter samplers show percentages consistent with the previously reported results ranging from 0.54 % at S-136 (northeast corner of Site) to the high at S-132 stated previously.

2.1.2 Perimeter Sampler Locations – Dose Rate Graphs

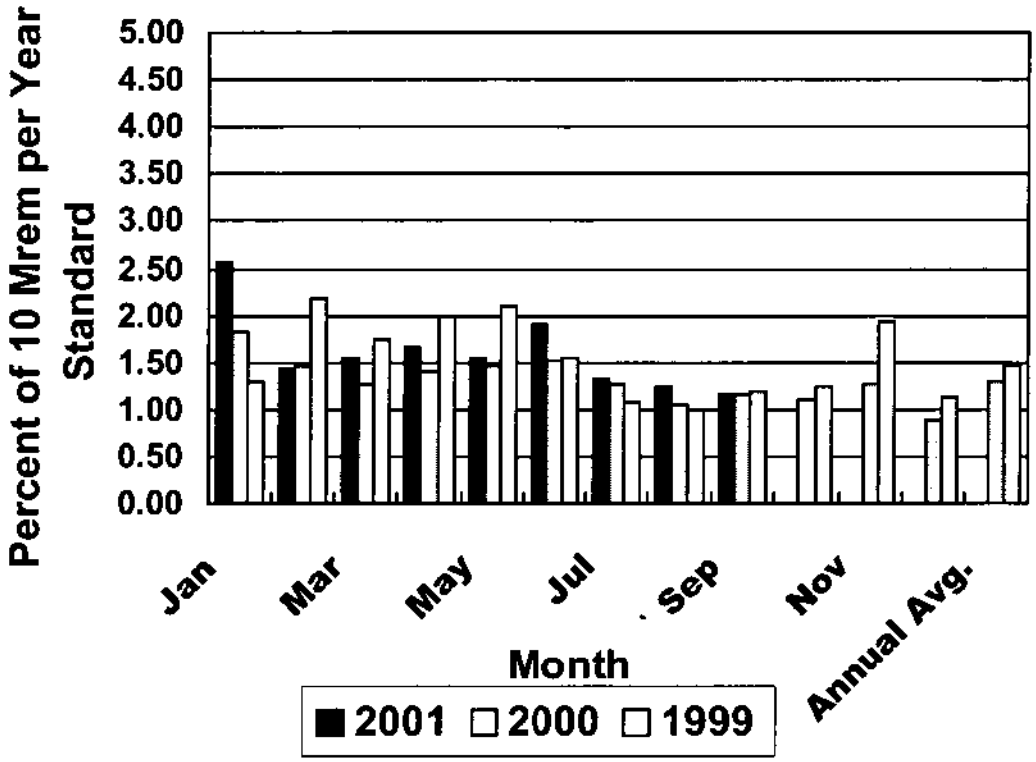


Figure 2-2. Offsite Dose Rate Summary

The above graph illustrates the monthly estimated maximum potential dose rates at the perimeter sampler showing the highest total radionuclide concentrations, including contributions from naturally occurring uranium isotopes. The highest dose rate for September 2001 was seen at location S-141.

2.2.2 Perimeter Sampler Locations – Dose Rate Graphs, continued

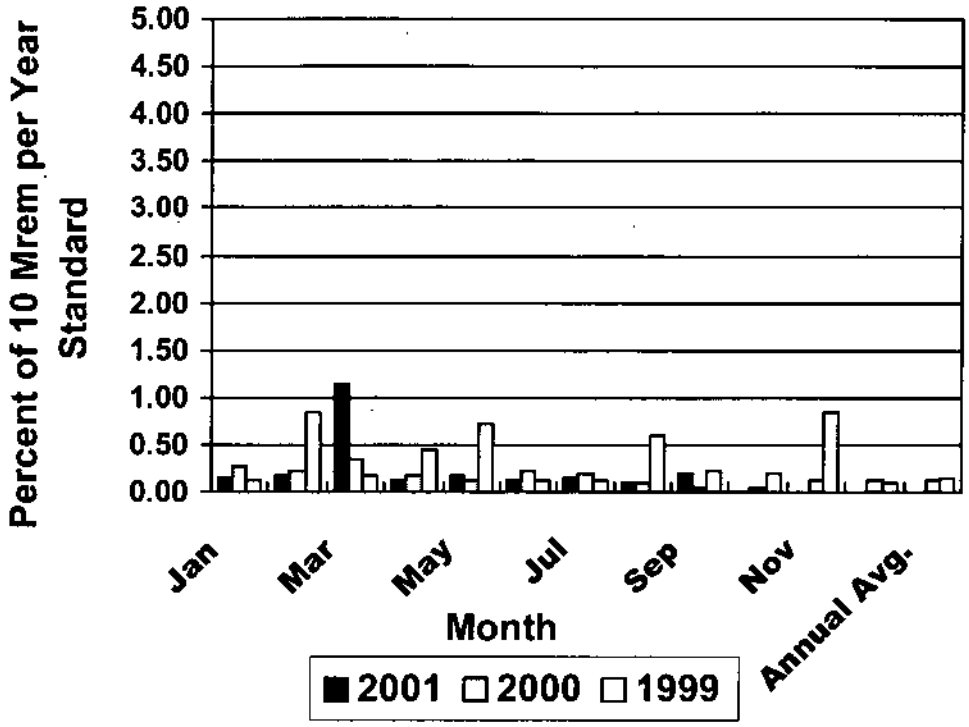


Figure 2-3. Offsite Dose Rate Summary Without U-234 and U-238

Omitting the dose contributions from uranium 234 and 238 may better reflect the contribution from Site operations at the same sampling location, since these two isotopes of uranium occur naturally in Colorado soils. This view displays the maximum offsite dose rate, resulting from Site activities, to be less than 1.2 percent of the 10 mrem standard. The highest does rate for September was found at S-136.

Ambient concentrations and dose rates for 2001 are consistent with data from 1998 through 2000 for each respective month.

2.1.3 Demolition and Remediation Project Specific Air Monitoring

2.1.3.1. Monitoring Data

Beginning this quarter, the Air Monitoring Program will be presenting data from ongoing demolition and remediation projects. In November 2001, Building 111 underwent demolition activities. The Air Program monitored these activities with two site networks, collecting samples for beryllium (Be) and radionuclide (Rad) assessment. The following tables present data from the Performance Rad and Be Monitoring networks.

Table 2-1. Be 30-Day Rolling Average Concentration, by Location

Date Range	Filter ID	Sampler Location	Sample Conc. (mg/m3)
11/07/01-12/07/01	B1	N	1.67E-05
	B2	E	1.72E-05
	B3	SE	1.68E-05
	B4	SW	1.39E-05
	B5	WSW	1.69E-05
	B6	WNW	1.26E-05
11/14/01-12/14/01	B1	N	1.65E-05
	B2	E	1.95E-05
	B3	SE	1.86E-05
	B4	SW	1.60E-05
	B5	WSW	1.80E-05
	B6	WNW	1.37E-05
11/20/01-12/20/01	B1	N	1.52E-05
	B2	E	2.05E-05
	B3	SE	1.97E-05
	B4	SW	1.87E-05
	B5	WSW	2.60E-05
	B6	WNW	1.38E-05

Note: Standard Deviation of 30-day Rolling Averages: 3.12E-06

Table 2-2. Be Baseline Sampling Statistics

Statistic	Beryllium Conc. (mg/m3)
Average	1.93E-05
Median	1.48E-05
Min	4.34E-06
Mix	2.05E-04
Std Dev	1.98E-05
MDL	5.69E-06
NESHAP 30-day standard	1.00E-02

Table 2-3. Gross Alpha Derived Performance Concentrations, by Location

Date Range	Ambient Network ID	Filter Concentration (pCi/m3)	Filter Error (pCi/m3)
11/07/01-11/14/01	S-114	0.0015079	0.00128946
	S-116	0.0005631	0.00123744
	S-103	0.0004597	0.00123677
	S-104	0.0002517	0.00098504
	S-121	0.0003964	0.00110097
	S-106	0.0012226	0.00126721
	S-119	0.0009024	0.00111755
	S-212	0.0009994	0.00117260
	S-123	0.0010145	0.00107668
	S-205	0.0015020	0.00123070
11/14/01-11/20/01	S-114	0.0005270	0.00141561
	S-116	0.0018726	0.00134688
	S-103	0.0019058	0.00168872
	S-104	0.0008942	0.00128124
	S-121	0.0015933	0.00127242
	S-106	0.0007560	0.00137781
	S-119	0.0005821	0.00138992
	S-212	0.0009138	0.00136521
	S-123	0.0009179	0.00130162
	S-205	0.0015419	0.00155181
11/20/01-11/28/01	S-114	0.0001307	0.00105456
	S-116	0.0001895	0.00101950
	S-103	0.0005787	0.00113269
	S-104	0.0003191	0.00094933
	S-121	0.0002441	0.00096742
	S-106	0.0002593	0.00098502
	S-119	0.0009959	0.00109521
	S-212	0.0001867	0.00104185
	S-123	0.0005337	0.00090561
	S-205	0.0000903	0.00104571

Table 2-3. Gross Alpha Derived Performance Concentration, by Location, continued

Date Range	Ambient Network ID	Filter Concentration (pCi/m3)	Filter Error (pCi/m3)
11/28/01-12/05/01	S-114	0.0011778	0.00115247
	S-116	0.0009925	0.00109875
	S-103	0.0003458	0.00137945
	S-104	0.0002669	0.00120561
	S-121	0.0001126	0.00117881
	S-106	0.0011000	0.00122762
	S-119	0.0007677	0.00119758
	S-212	0.0006980	0.00115664
	S-123	0.0016013	0.00112214
	S-205	0.0003491	0.00124015
12/5/01-12/12/01	S-114	0.0006824	0.00118467
	S-116	0.0008531	0.00117080
	S-103	0.0006486	0.00140659
	S-104	-0.0000483	0.00113785
	S-121	0.0006144	0.00111937
	S-106	0.0007429	0.00125793
	S-119	0.0006138	0.00117202
	S-212	0.0000401	0.00112314
	S-123	0.0001396	0.00113434
	S-205	0.0004913	0.00117354
12/12/01-12/19/01	S-114	0.0003218	0.00117444
	S-116	0.0003380	0.00129508
	S-103	0.0005860	0.00136589
	S-104	0.0005119	0.00116358
	S-121	0.0000497	0.00110265
	S-106	0.0010921	0.00119816
	S-119	0.0002889	0.00114655
	S-212	0.0002168	0.00098658
	S-123	0.0002353	0.00124721
	S-205	0.0000101	0.00115709

2.1.3.2. Project Specific Maps/Figures

These two figures illustrate the sampling locations used during Building 111 demolition activities for Performance Radionuclide and Beryllium, respectively.

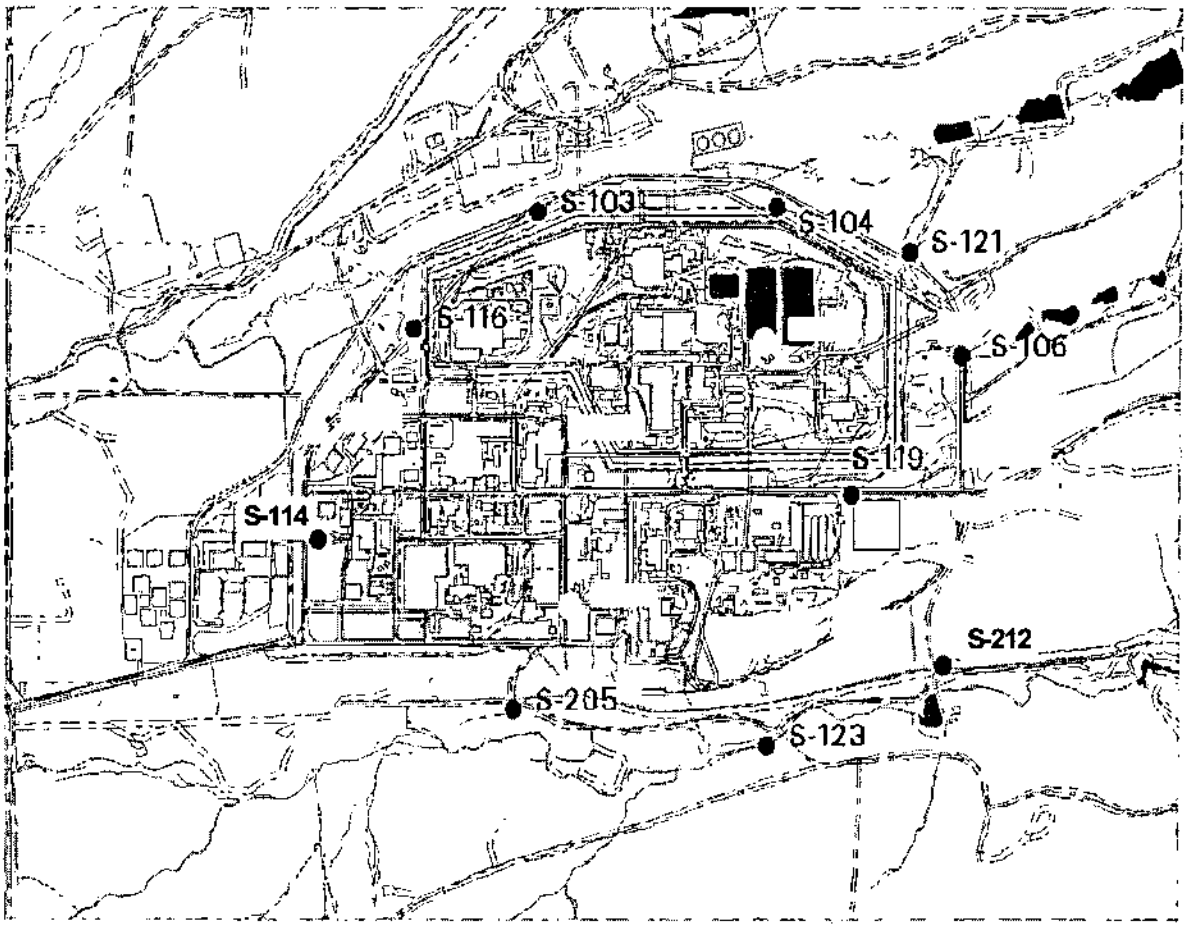


Figure 2-4. Performance Radionuclide Monitoring Network, Bldg. 111

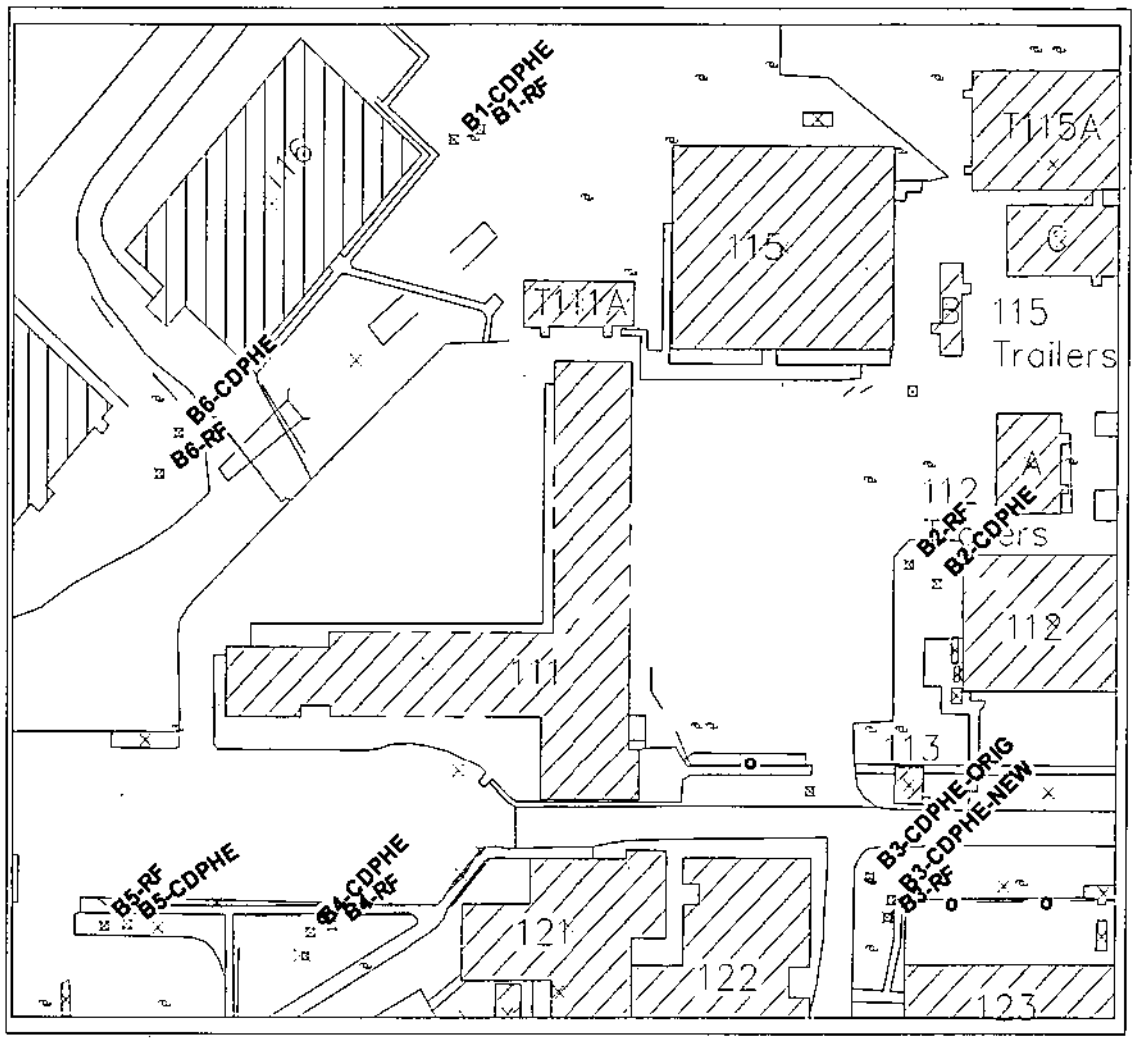


Figure 2-5. Be Monitoring Network, Bldg. 111

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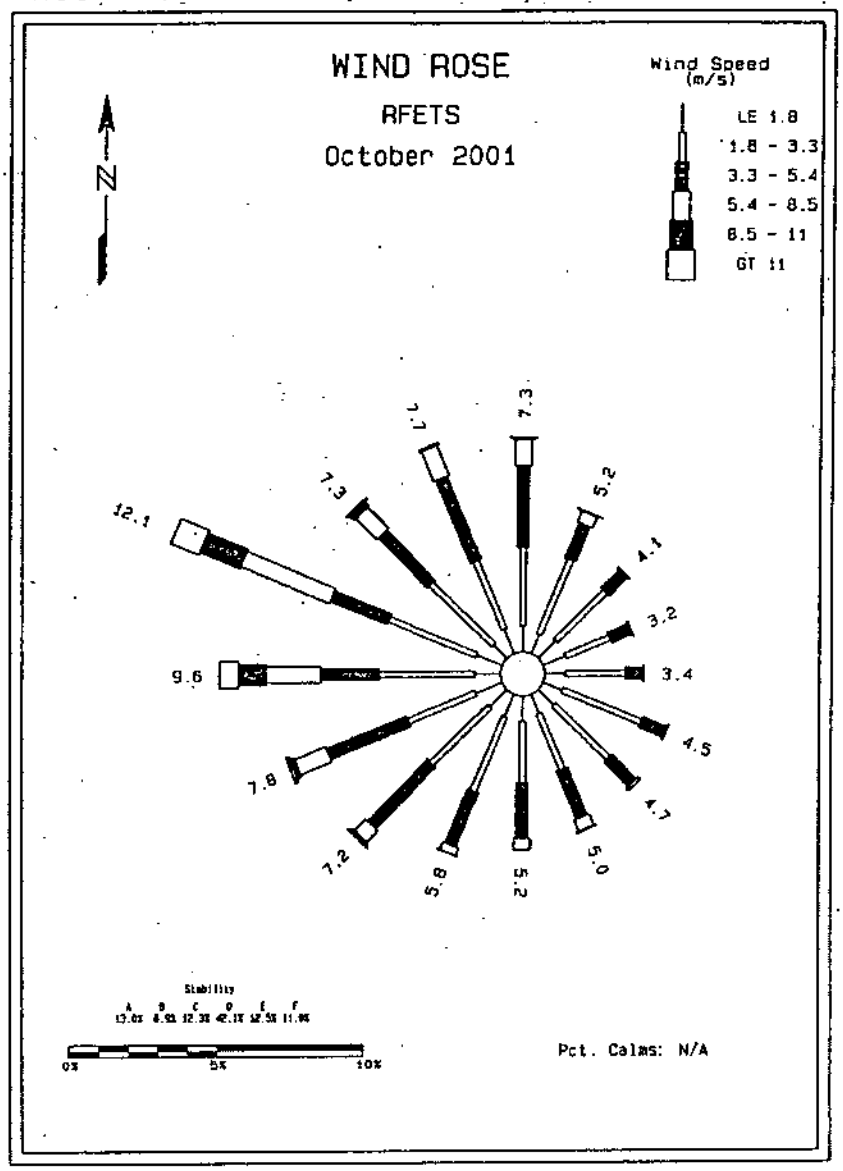
3.0 METEOROLOGY AND CLIMATOLOGY

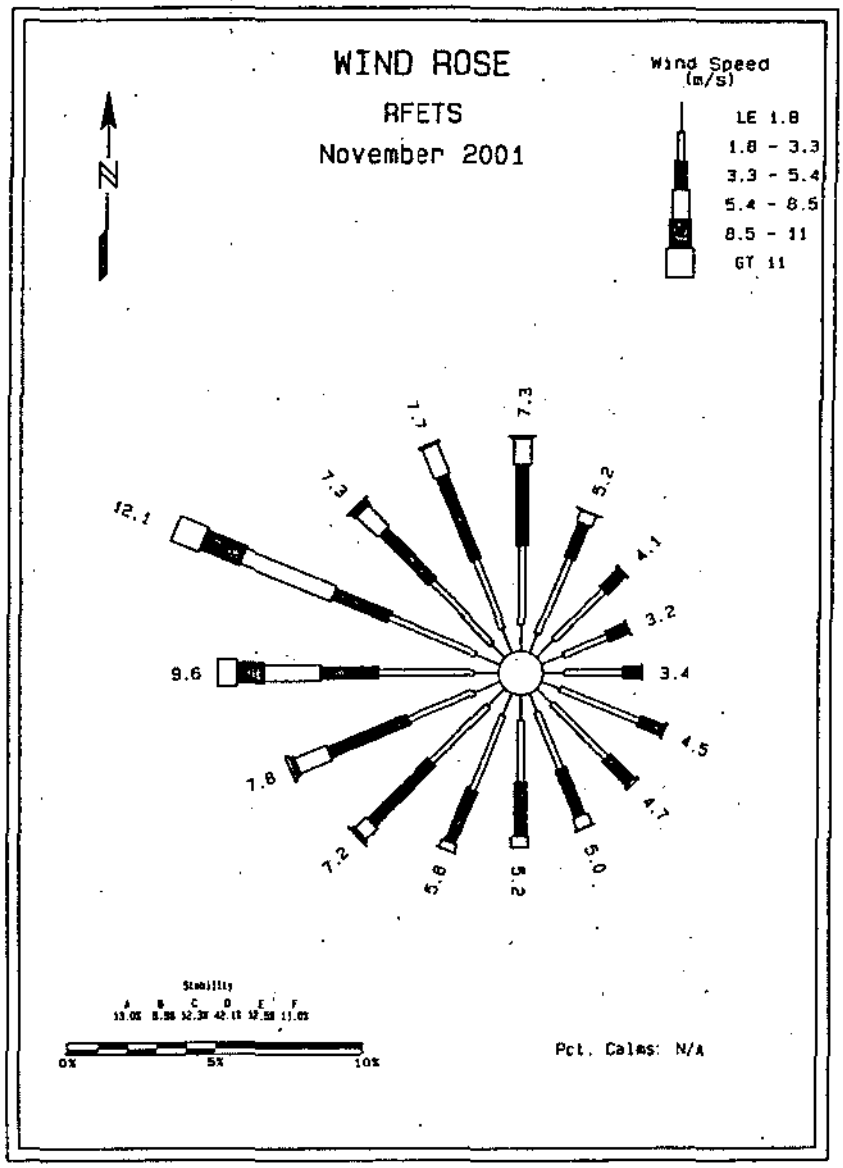
3.1 WIND ROSES FOR OCTOBER, NOVEMBER, AND DECEMBER 2001



Monthly Climatic Summary

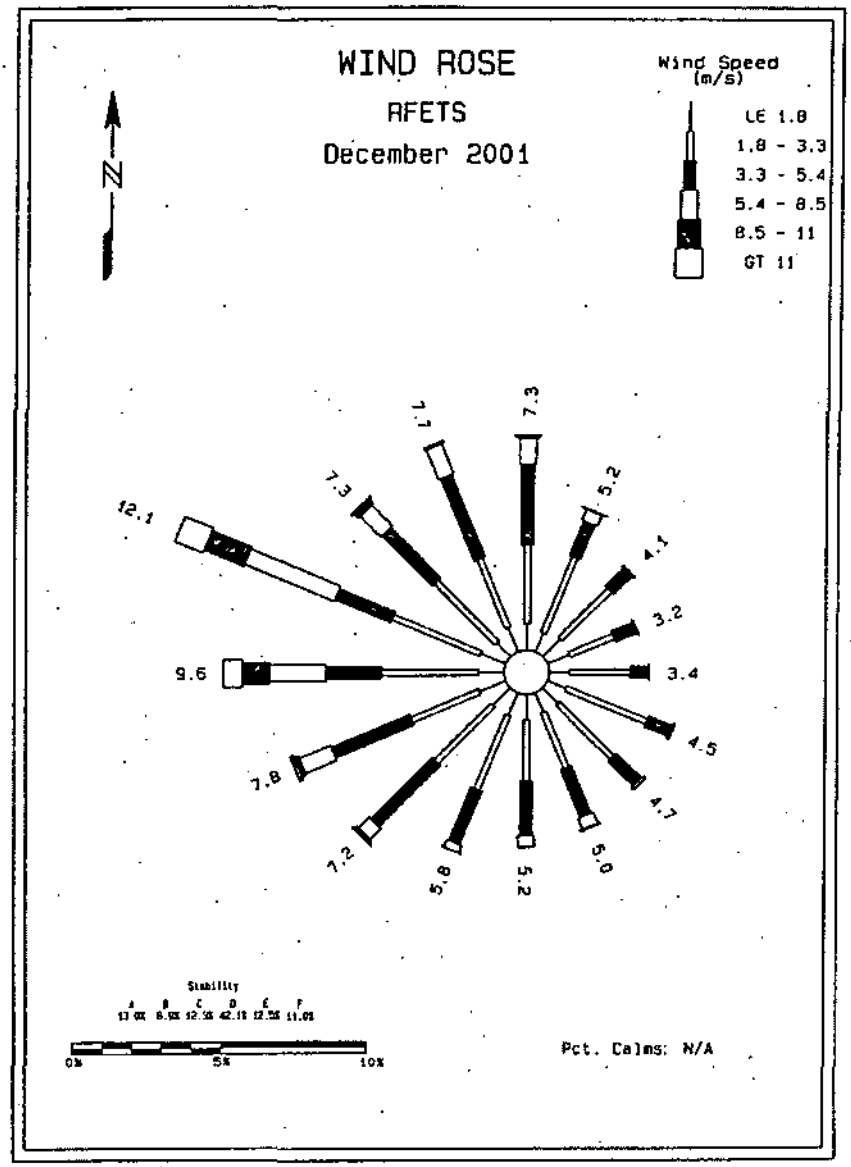
Month	Temperature (°F) Mean Daily High	Mean Daily Low	Daily Mean	Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph) Mean	Max	Pressure Mean (mb)	Solar Total (kW-h/m²)	Precipitation (in) Total	Max
Oct-01	62.74	40.66	52.39	34.7	57.9	9.9	77.2	814.2	108.1	0.36	0.03

Figure 3-1. Wind Rose for Rocky Flats Environmental Technology Site for October 2001



Monthly Climatic Summary											
	Temperature (°F)			Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph)		Pressure	Solar	Precipitation (in)	
Month	Mean Daily High	Mean Daily Low	Daily Mean			Mean	Max	Mean (mb)	Total (kW-h/m²)	Total	Max
Nov-01	52.29	34.05	43.84	28.1	64.9	7.4	57.1	814.1	88.6	0.87	0.03

Figure 3-2. Wind Rose for Rocky Flats Environmental Technology Site for November 2001



Monthly Climatic Summary

Month	Temperature (°F) Mean Daily High	Mean Daily Low	Daily Mean	Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph) Mean	Max	Pressure Mean (mb)	Solar Total (kW-h/m²)	Precipitation (in) Total	Max
Dec-01	43.09	24.67	34.63	20.7	63.5	9.0	69.4	810.2	76.7	0.38	0.04

Figure 3-3. Wind Rose for Rocky Flats Environmental Technology Site for December 2001

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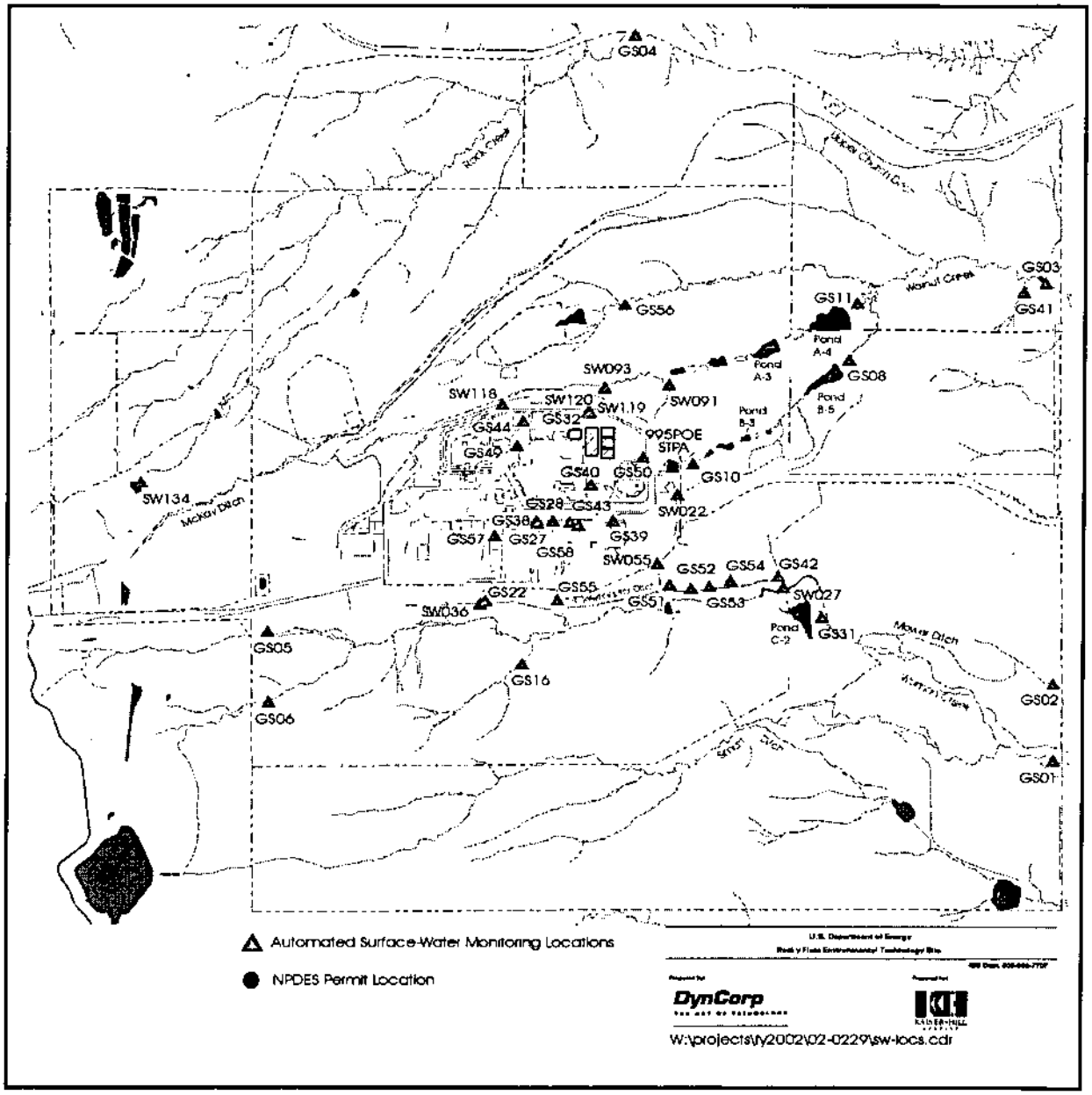
4.0 SURFACE WATER DATA

Map 4-1. Holding Ponds and Liquid Effluent Water Courses



4.1 NPDES SUMMARY DATA

Table 4-1. Sewage Treatment Plant (Outfall STP1)
Dates of discharge: 10/01/01 – 12/31/01

Parameter & Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Minimum	Limit Daily Minimum	Measured Daily Maximum	Limit Daily Maximum	Measured Result	% Removal (calc.)	% Removal Minimum
pH, SU	N/A	N/A	N/A	N/A	6.7 – 6.8	6.5	8.1 – 8.9	9.0	N/A	N/A	N/A
TSS, mg/l	<5	15	N/A	N/A	N/A	N/A	<4 - 10	25	N/A	N/A	N/A
TSS (Influent), mg/l	78 - 129	a	N/A	N/A	N/A	N/A	187 - 227	a	N/A	N/A	N/A
TSS, % removal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95% - 97%	85%
Total Phos., mg/l	2 - 3	8	N/A	N/A	N/A	N/A	4 - 11	12	N/A	N/A	N/A
Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A	<2	50	N/A	N/A	N/A
Potentially Dissolved Ag, ug/l	<0.3	0.6	N/A	N/A	N/A	N/A	0.04 – 0.46	3.8	N/A	N/A	N/A
F. Coliform, #/100ml	<2 - 6	200b	<2 - 28	400b	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CBOD5, mg/l	<4 - 5	8	N/A	N/A	N/A	N/A	7 - 19	20	N/A	N/A	N/A
CBOD5 (Influent), mg/l	88 - 108	a	N/A	N/A	N/A	N/A	184 - 202	a	N/A	N/A	N/A
CBOD5, % removal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95% - 97%	85%
Oil & Grease	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	c	N/A	N/A
NO3/NO2 as N, mg/l	N/A	N/A	N/A	N/A	N/A	N/A	4 - 8	a	N/A	N/A	N/A
NO2 as N, mg/l	N/A	N/A	N/A	N/A	N/A	N/A	2.1 – 4.8	4.5	N/A	N/A	N/A
Ammonia as N, mg/l	N/A	N/A	N/A	N/A	N/A	N/A	3 - 15	a	N/A	N/A	N/A
Alkalinity, mg/l	N/A	N/A	N/A	N/A	N/A	N/A	121 - 138	a	N/A	N/A	N/A

a Report Only
b Geometric Mean
c No Sheen Observed
N/A Not Applicable
CBOD5 Carbonaceous Biochemical Oxygen Demand, 5-Day Test
TSS Total Suspended Solids
SU Standard Units
Note: Results are the range of value(s) measured during the reporting period.

Table 4-1. Sewage Treatment Plant (Outfall STP1), continued

Parameter & Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Minimum	Limit Daily Minimum	Measured Daily Maximum	Limit Daily Maximum	Measured Result	% Removal (calc.)	% Removal Minimum
Gross alpha, pCi/l	<1	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross beta, pCi/l	5 - 8	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ceriodaphnia Acute test	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100 pass	N/A	N/A
Fathead Minnows Acute test	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100 pass	N/A	N/A
Ceriodaphnia Chronic test	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass	N/A	N/A
Fathead Minnows Chronic test	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass	N/A	N/A
Carbon tetrachloride, ug/l	<1	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2 dichloro-ethane, ug/l	<1	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene, ug/l	<1	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1 dichloro-ethylene, ug/l	<1	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1 trichloro-ethane, ug/l	<1	200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2 dichloro-ethylene (transl), ug/l	<1	70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloro-ethylene, ug/l	<1	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloro -ethylene, ug/l	<1	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A Not Applicable
NS Not sampled

4.2 MOUND PLUME SUMMARY DATA

Table 4-2. Mound Plume Locations SW061 and SW132

Analyte	SW061	SW132
	12/04/01	12/04/01
Pu 239/240, pCi/l	0.115 +/- 0.055	0.029 +/- 0.024
Am 241, pCi/l	0.065 +/- 0.043	0.025 +/- 0.025
Silver, dissolved, ug/l	<0.15	<0.15
Aluminum, total, ug/l	932	705
Arsenic, total, ug/l	2.3	1.6
Barium, total, ug/l	581	323
Beryllium, total, ug/l	0.09	0.07
Cadmium, dissolved, ug/l	0.35	0.08
Copper, dissolved, ug/l	1.6	1.2
Iron, total, ug/l	5300	2420
Mercury, total, ug/l	<0.10	<0.10
Manganese, total, ug/l	203	199
Nickel, dissolved, ug/l	1.9	1.4
Lead, dissolved, ug/l	0.51	0.48
Antimony, total, ug/l	0.54	4.6
Selenium, dissolved, ug/l	2.2	0.71
Zinc, dissolved, ug/l	44.0	46.2
EPA VOA Method 8260, compounds found >RFCA Seg 5 Action Level	None detected	None detected

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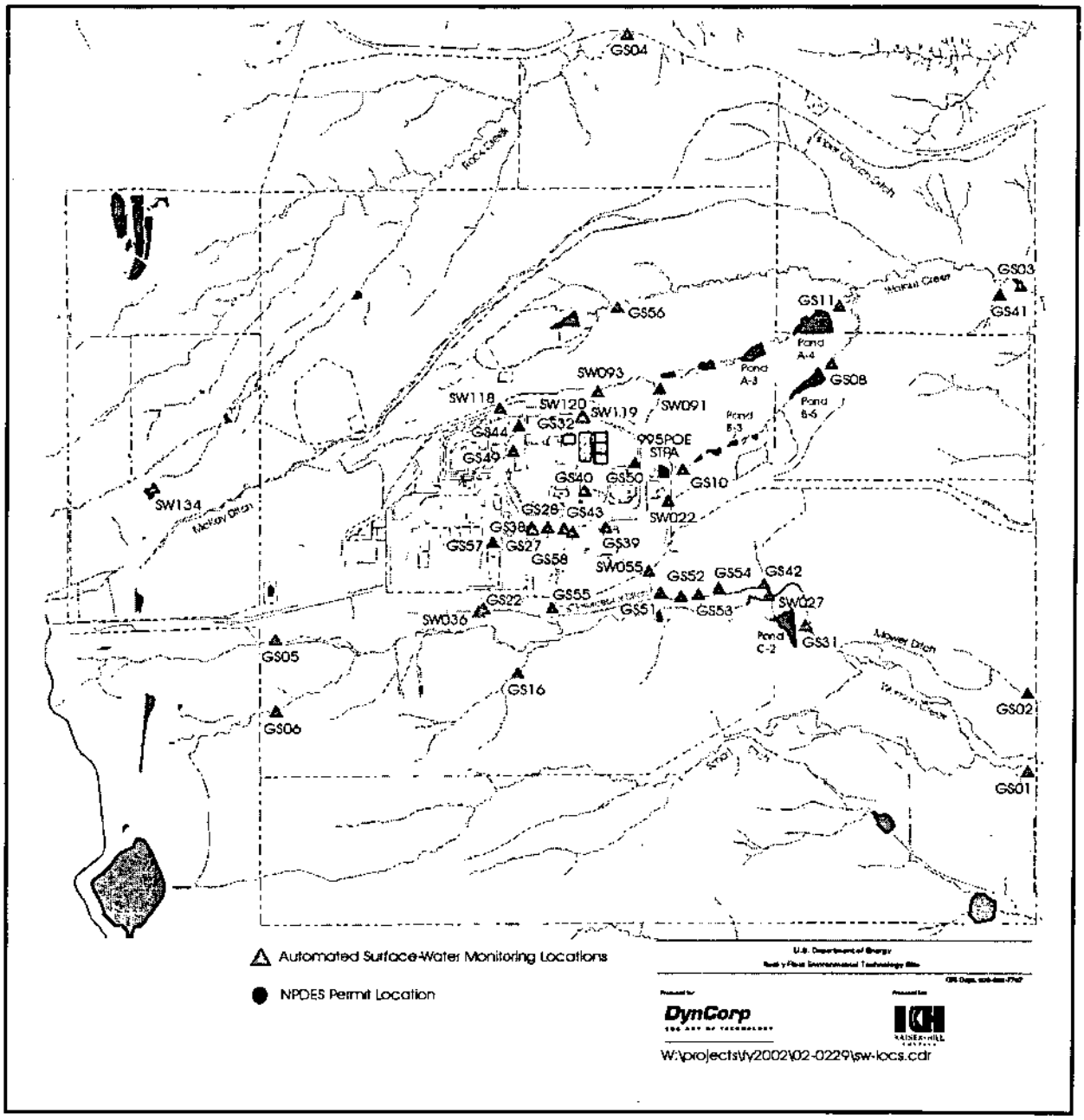
5.0 HYDROLOGIC AND ROCKY FLATS CLEAN-UP AGREEMENT (RFCA) DATA

Map 5-1. Gaging Station Locations



5.1 FLOW MONITORING

Table 5-1. Gaging Station GS01: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.072a
5	0.000	0.000	0.105
6	0.000	0.000	0.101
7	0.000	0.000	0.083
8	0.000	0.000	0.077
9	0.000	0.000	0.078
10	0.000	0.000	0.085
11	0.000	0.000	0.103
12	0.000	0.000	0.089
13	0.000	0.000	0.080a
14	0.000	0.000	0.083
15	0.000	0.000	0.089
16	0.000	0.000	0.103
17	0.000	0.000	0.142
18	0.000	0.000	0.155
19	0.000	0.000	0.122
20	0.000	0.000	0.111
21	0.000	0.000	0.119
22	0.000	0.000	0.113
23	0.000	0.000	0.084a
24	0.000	0.000	0.068a
25	0.000	0.000	0.056a
26	0.000	0.000	0.050
27	0.000	0.000	0.049
28	0.000	0.000	0.045
29	0.000	0.000	0.051
30	0.000	0.000	0.061a
31	0.000	NA	0.058a
Monthly Average (cfs)	0.000	0.000	0.078

Monthly Discharge

Cubic Feet	0	0	209993
Gallons	0	0	1570854
Acre-Feet	0.00	0.00	4.82

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS01 is located at 39° 52' 40"N, 105° 09' 55"W, at Woman Creek and Indiana Street (See Section 4 Map). This station is a RFCA Point of Compliance, a Buffer Zone Monitoring Location and a monitoring point for water leaving the Site and flowing to Woman Creek Reservoir. This station collects samples for selected radionuclides using continuous flow-paced sampling and storm event sampling for selected water quality parameters, metals, and major ions.

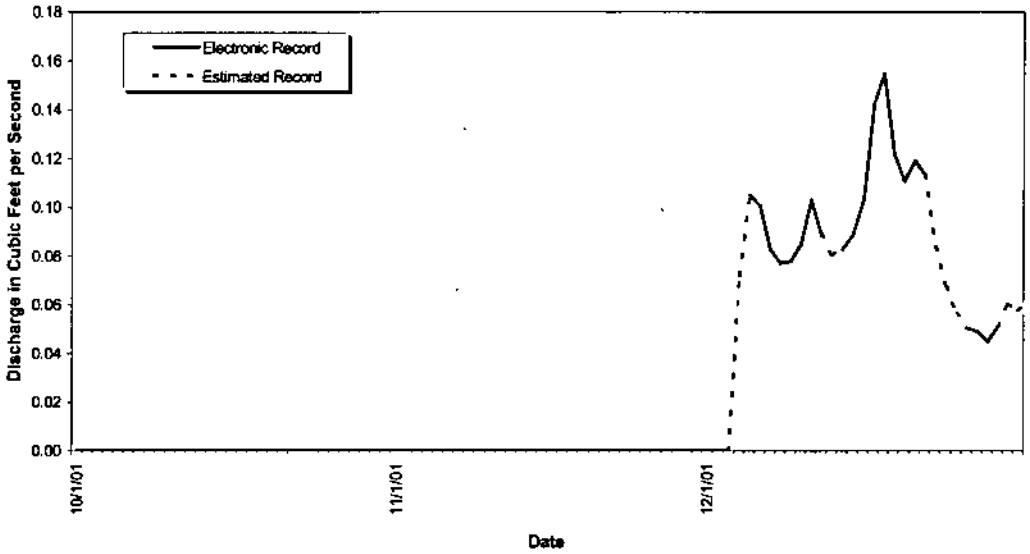


Figure 5-1. Mean Daily Discharge at GS01, Water Year 2002 (October, November, and December)

Table 5-2. Gaging Station GS02: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Buffer Zone Hydrologic monitoring location GS02 is located at state plane 2093817, 746302 on Mower Ditch 200 feet west of Indiana Street. This station monitors runoff from an area north of Mower Ditch between Pond C-2 and Indiana Street. The GS02 drainage area is approximately 157.7 acres. This station collects samples for sediment/sand, Ca, Mg, Na, K, Cl, F, SO4, HCO3, and TSS using storm-event, rising-limb, flow-paced composite sampling.

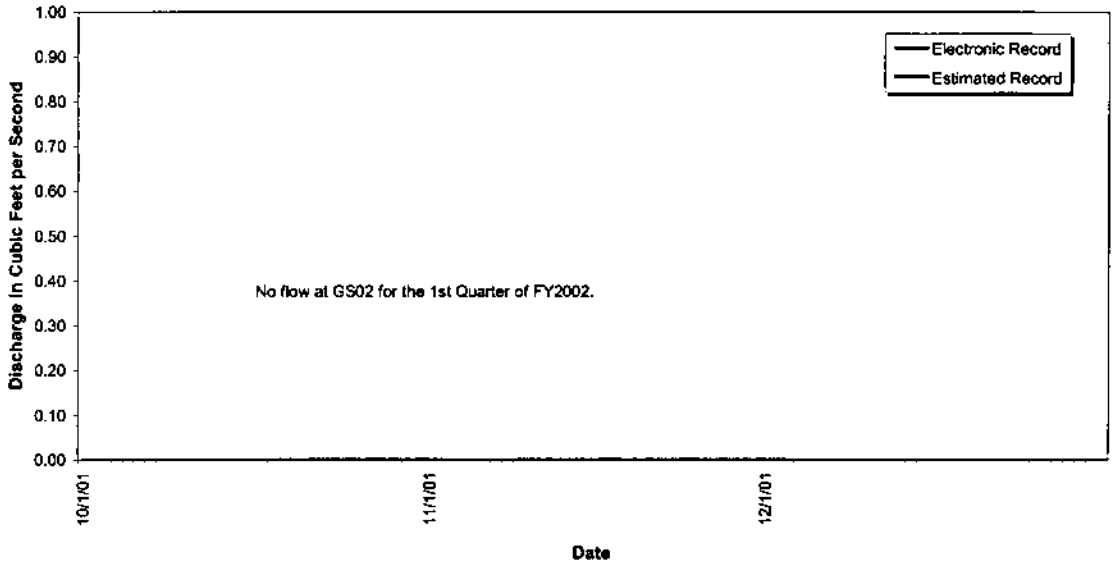


Figure 5-2. Mean Daily Discharge at GS02, Water Year 2002 (October, November, and December)

Table 5-3. Gaging Station GS03: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.001	1.562
2	0.000	0.001	1.515
3	0.392	0.001	1.233
4	1.492	0.002	1.174
5	1.554	0.002	0.993
6	0.941	0.001	0.852
7	0.402	0.002	0.788
8	1.018	0.005	0.755
9	1.394	0.001	0.588
10	1.269	0.000	0.613
11	1.235	0.000	0.211
12	1.197	0.000	0.006
13	1.072	0.000	0.004
14	1.011	0.000	0.004
15	1.191	0.000	0.005
16	0.581	0.000	0.004
17	0.008a	0.000	0.003
18	0.002	0.000	0.001
19	0.004	0.000	0.001
20	0.012	0.000	0.001
21	0.015	0.000	0.001
22	0.014	0.000	0.001
23	0.014	0.000	0.001
24	0.013	0.000	0.000
25	0.012	0.000	0.000
26	0.011	0.000	0.000
27	0.009	0.000	0.000
28	0.004	0.000	0.000
29	0.001	0.000	0.000
30	0.008	0.495	0.000
31	0.002	NA	0.000
Monthly Average (cfs)	0.480	0.017	0.333

Monthly Discharge

Cubic Feet	1285362	44400	891262
Gallons	9615177	332135	6667101
Acre-Feet	29.51	1.02	20.46

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS03 is located at 39° 54' 7"N, 105° 9' 59"W, at Walnut Creek and Indiana Street (See Section 4 Map). This station is a RFCA Point of Compliance, a Buffer Zone Monitoring Location and a monitoring point for water leaving the Site and flowing to the Broomfield Diversion Ditch. This station collects samples for selected radionuclides using continuous flow-paced sampling and storm event sampling for selected water quality parameters, metals, and major ions.

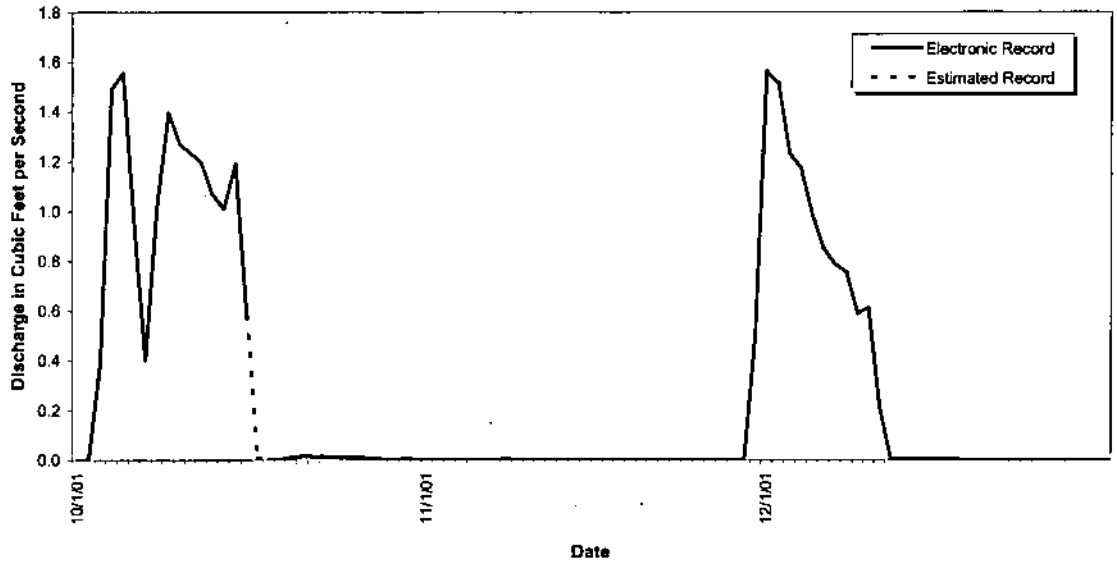


Figure 5-3. Mean Daily Discharge at GS03, Water Year 2002 (October, November, and December)

Table 5-4. Gaging Station GS04: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.006	0.145
2	0.000	0.000	0.181
3	0.000	0.000	0.210
4	0.000	0.001	0.178
5	0.000	0.023	0.150
6	0.000	0.033	0.133
7	0.000	0.036	0.122
8	0.000	0.079	0.110
9	0.000	0.158	0.101
10	0.000	0.150	0.106
11	0.000	0.130	0.106
12	0.000	0.122	0.085
13	0.000	0.117	0.080
14	0.000	0.106	0.082
15	0.000	0.097	0.105
16	0.000	0.094	0.126
17	0.000	0.096	0.185
18	0.000	0.099	0.188
19	0.000	0.146	0.154
20	0.000	0.162	0.161
21	0.000	0.141	0.152
22	0.000	0.142	0.146
23	0.000	0.154	0.110
24	0.000	0.142	0.081
25	0.000	0.140	0.064
26	0.000	0.154	0.048
27	0.000	0.140	0.042
28	0.000	0.113	0.056
29	0.000	0.102	0.077
30	0.000	0.120	0.088
31	0.000	NA	0.077
Monthly Average (cfs)	0.000	0.100	0.118

Monthly Discharge

Cubic Feet	27	259096	315542
Gallons	199	1938174	2360420
Acre-Feet	0.00	5.95	7.24

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Buffer Zone Hydrologic monitoring location GS04 is located at state plane 2085568, 758145 on Rock Creek 300 feet upstream of the box culvert under Hwy. 128. This station monitors runoff from the Rock Creek drainage in the northwest Buffer Zone. The GS04 drainage area is approximately 1500 acres. This station collects samples for sediment/sand, Ca, Mg, Na, K, Cl, F, SO4, HCO3, and TSS using storm-event, rising-limb, flow-paced composite sampling.

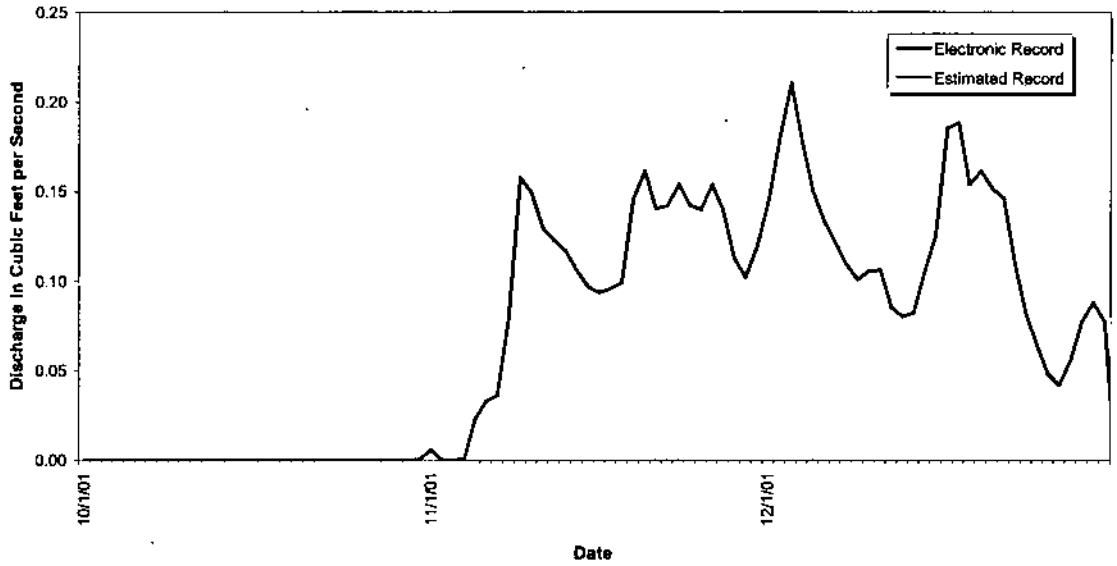


Figure 5-4. Mean Daily Discharge at GS04, Water Year 2002 (October, November, and December)

Table 5-5. Gaging Station GS05: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.001	0.036	0.071
2	0.001	0.047	0.076
3	0.001	0.047	0.070
4	0.000	0.046	0.066
5	0.025	0.048	0.057
6	0.020	0.051	0.054
7	0.020	0.055	0.049
8	0.021	0.098	0.064
9	0.021	0.071	0.069
10	0.021	0.064	0.069
11	0.020	0.067	0.068
12	0.020	0.067	0.059
13	0.019	0.069	WR
14	0.018	0.070	WR
15	0.035	0.073	WR
16	0.035	0.074	WR
17	0.037	0.064	0.071
18	0.036	0.077	0.069
19	0.034	0.089	0.094
20	0.032	0.077	0.084
21	0.031	0.074	0.105
22	0.031	0.073	0.077
23	0.030	0.080	0.119
24	0.027	0.059	0.162
25	0.024	0.068	WR
26	0.023	0.078	WR
27	0.022	0.070	0.139
28	0.021	0.078	0.077
29	0.033	0.076	0.041
30	0.042	0.065	0.042
31	0.044	NA	WR
Monthly Average (cfs)	0.024	0.067	0.077

Monthly Discharge

Cubic Feet	64341	173410	159910
Gallons	481301	1297195	1196207
Acre-Feet	1.48	3.98	3.67

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
WR – No data or unacceptable data due to winter icing conditions.

Buffer Zone Hydrologic monitoring location GS05 is located at state plane 2078428, 747260 on Woman Creek 320 feet east of the west Buffer Zone fence. This station monitors runoff from the Woman Creek drainage southwest of the Site including areas west of Hwy. 93. This station collects samples for sediment/sand, Ca, Mg, Na, K, Cl, F, SO4, HCO3, and TSS using storm-event, rising-limb, flow-paced composite sampling.

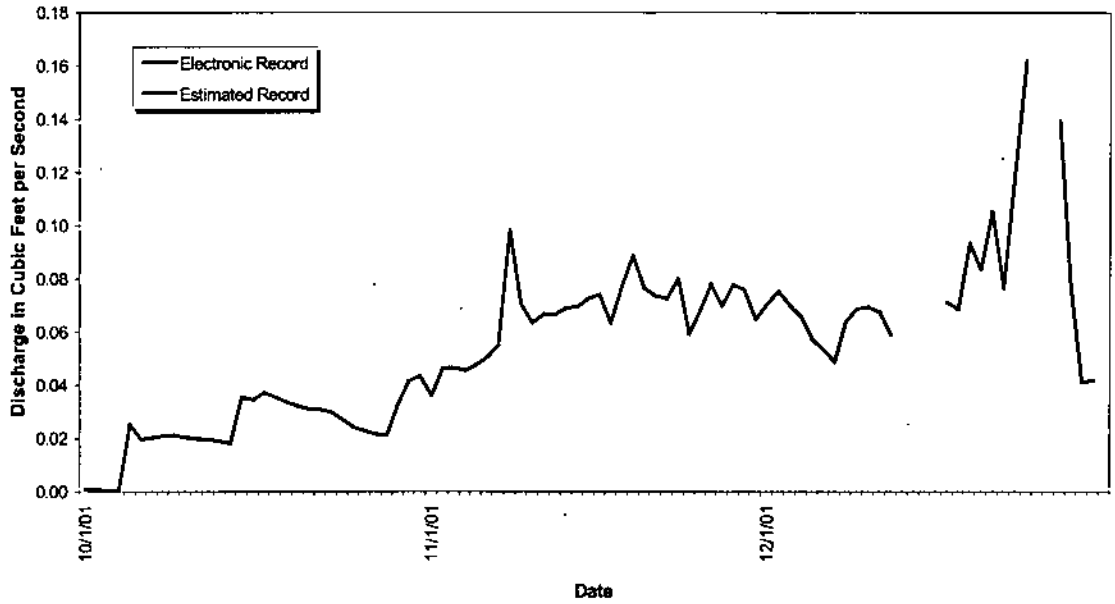


Figure 5-5. Mean Daily Discharge at GS05, Water Year 2002 (October, November, and December)

Table 5-6. Gaging Station GS06: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000a
2	0.000	0.000	0.000a
3	0.000	0.000	0.000a
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000a	0.000
15	0.000	0.000a	0.000
16	0.000	0.000a	0.000
17	0.000	0.000a	0.000
18	0.000	0.000a	0.000
19	0.000	0.000a	0.000
20	0.000	0.000a	0.000
21	0.000	0.000a	0.000
22	0.000	0.000a	0.000
23	0.000	0.000a	0.000
24	0.000	0.000a	0.000
25	0.000	0.000a	0.000
26	0.000	0.000a	0.000
27	0.000	0.000a	0.000
28	0.000	0.000a	0.000
29	0.000	0.000a	0.000
30	0.000	0.000a	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	27
Gallons	0	0	200
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Buffer Zone Hydrologic monitoring location GS06 is located at state plane 2078449, 745968 on the Owl Branch to Woman Creek 330 feet east of the west Buffer Zone fence. This station monitors runoff from the area northeast of Rocky Flats Lake. This station collects samples for sediment/sand, Ca, Mg, Na, K, Cl, F, SO4, HCO3, and TSS using storm-event, rising-limb, flow-paced composite sampling.

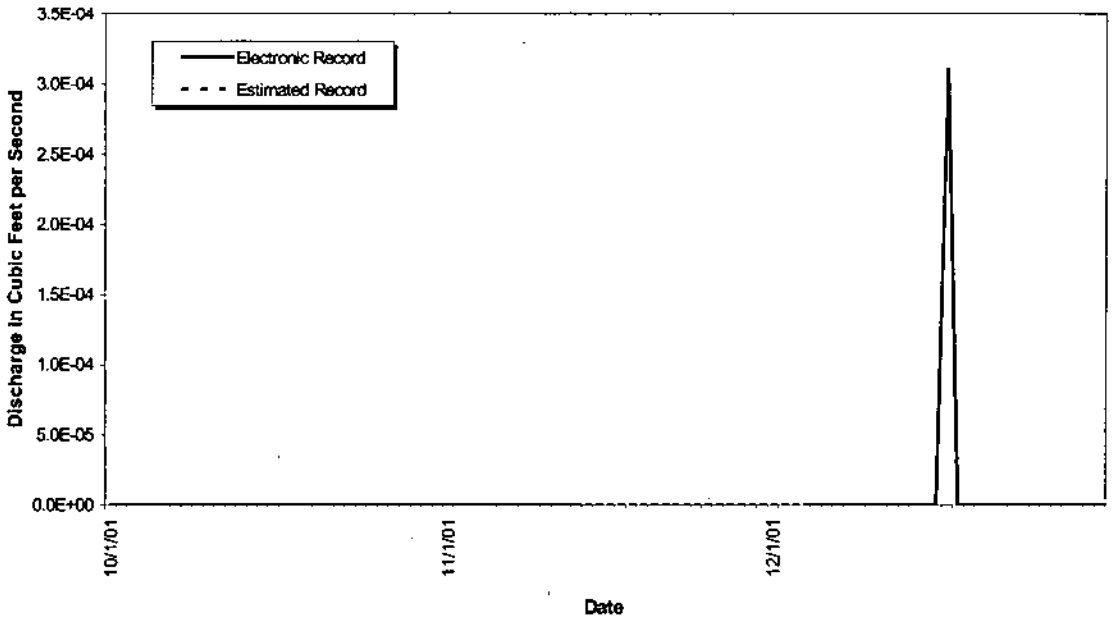


Figure 5-6. Mean Daily Discharge at GS06, Water Year 2002 (October, November, and December)

Table 5-7. Gaging Station GS08: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	2.301
2	0.000	0.000	2.147
3	1.501	0.000	1.706
4	2.346	0.000	1.580
5	2.142	0.000	1.307
6	1.210	0.000	1.123
7	0.629	0.000	1.060
8	1.566	0.000	0.975
9	1.852	0.000	0.751
10	1.672	0.000	0.834
11	1.629	0.000	0.171
12	1.575	0.000	0.000
13	1.382	0.000	0.000
14	1.244	0.000	0.000
15	1.507	0.000	0.000
16	0.509	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	1.325	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.670	0.044	0.450

Monthly Discharge

Cubic Feet	1793947	114446	1205492
Gallons	13419657	856119	9017707
Acre-Feet	41.18	2.63	27.67

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station GS08 is located 39° 53' 54"N, 105° 10' 48"W, at the Pond B-5 Outfall on South Walnut Creek (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond B-5 to South Walnut Creek. This station collects samples for selected radionuclides using continuous flow-paced sampling.

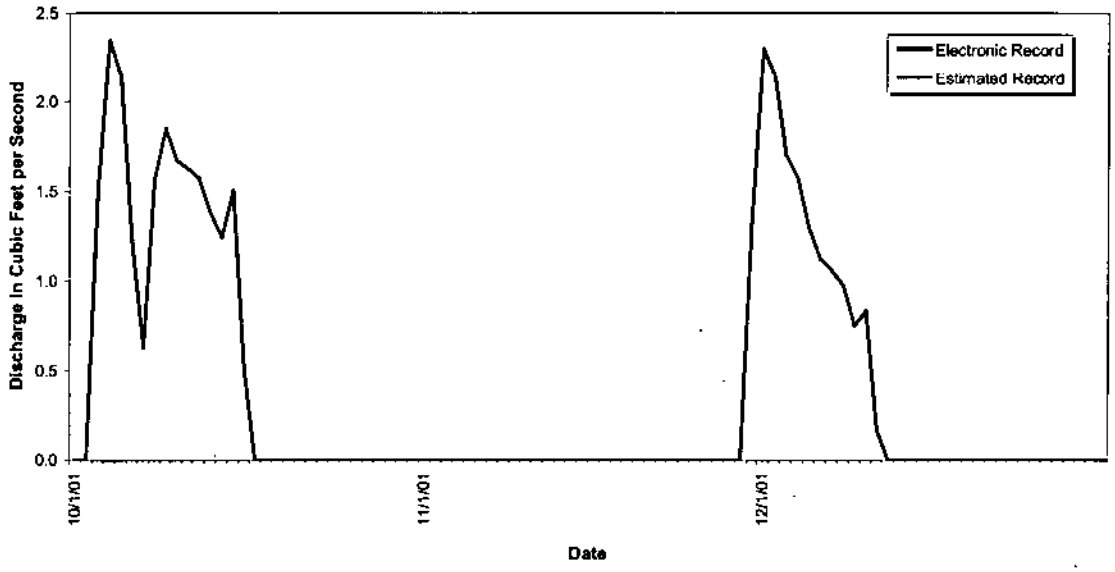


Figure 5-7. Mean Daily Discharge at GS08, Water Year 2002 (October, November, and December)

Table 5-8. Gaging Station GS10: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.061	0.048	0.043
2	0.061	0.048	0.047
3	0.065	0.049	0.044
4	0.072	0.048	0.039
5	0.135	0.049	0.038
6	0.054	0.052	0.037
7	0.051	0.075	0.037
8	0.049	0.272	0.034
9	0.068	0.076	0.037
10	0.045	0.048	0.036
11	0.044	0.045	0.036
12	0.041	0.047	0.036
13	0.046	0.047	0.033
14	0.049	0.048	0.038
15	0.100	0.047	0.038
16	0.038	0.047	0.074
17	0.039	0.045	0.087
18	0.040	0.089	0.046
19	0.039	0.068	0.039
20	0.040	0.039	0.039
21	0.041	0.036	0.041
22	0.042	0.037	0.039
23	0.043a	0.102	0.038
24	0.040	0.034	0.037
25	0.044	0.036	0.038
26	0.042	0.129	0.044
27	0.043	0.047	0.045
28	0.043	0.033	0.049
29	0.043	0.036	0.045
30	0.047	0.040	0.044
31	0.049	NA	0.045
Monthly Average (cfs)	0.052	0.061	0.043

Monthly Discharge

Cubic Feet	139488	156971	114279
Gallons	1043440	1174227	854866
Acre-Feet	3.20	3.60	2.62

Note: mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS10 is located 39° 53' 35"N, 105° 11' 27"W on South Walnut Creek above the Pond B-1 Bypass (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water leaving the Site Industrial Area and entering the B-Series Ponds and South Walnut Creek. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

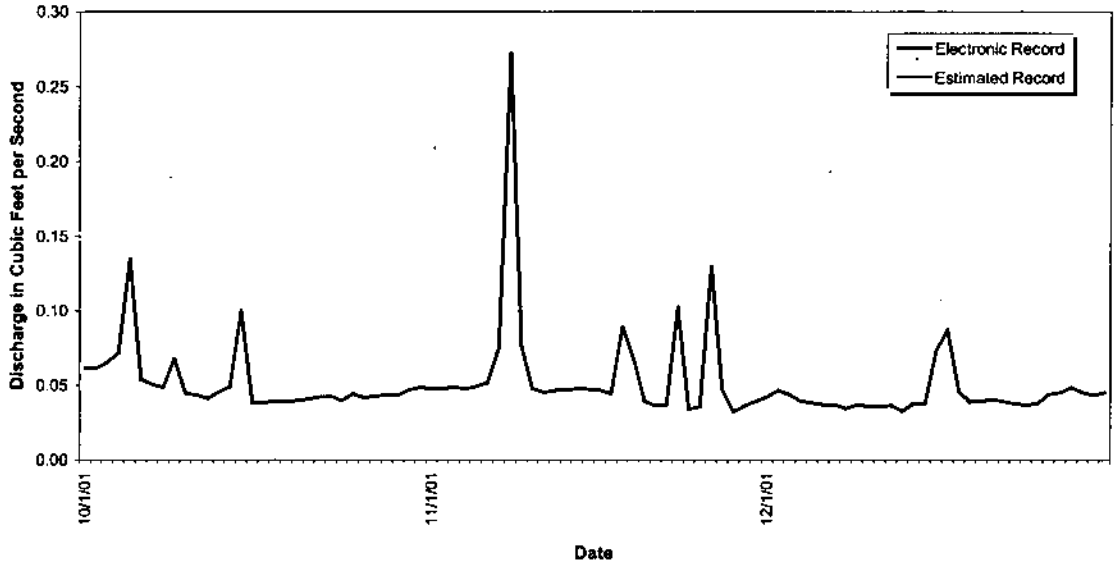


Figure 5-8. Mean Daily Discharge at GS10, Water Year 2002 (October, November, and December)

Table 5-9. Gaging Station GS11: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station GS11 is located 39° 54' 3"N, 105° 10' 47"W, at the Pond A-4 Outfall on North Walnut Creek (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond A-4 to North Walnut Creek. This station collects samples for selected radionuclides using continuous flow-paced sampling.

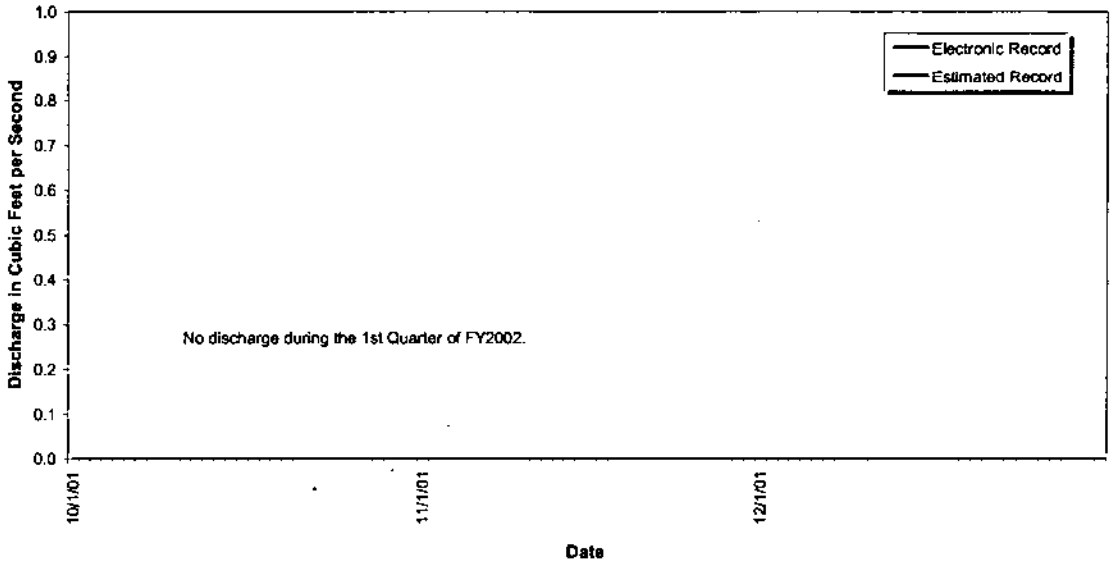


Figure 5-9. Mean Daily Discharge at GS11 Water Year 2002 (October, November, and December)

Table 5-10. Gaging Station GS16: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.057	0.082	WR
2	0.052	0.082	0.131a
3	0.054	0.079	0.104
4	0.063	0.076	0.088a
5	0.109	0.072	0.081a
6	0.076	0.071	0.078
7	0.071	0.077	0.074a
8	0.066	0.147	WR
9	0.079	0.111	WR
10	0.071	0.085	WR
11	0.074	0.080	WR
12	0.068	0.078	WR
13	0.067	0.079	WR
14	0.072	0.077	WR
15	0.104	0.077	WR
16	0.083	0.078	WR
17	0.079	0.078	WR
18	0.077	0.093	WR
19	0.076	0.114	WR
20	0.080	0.090a	WR
21	0.083	0.086a	WR
22	0.083	0.085	WR
23	0.079	0.106	WR
24	0.073	0.083a	WR
25	0.079	0.087a	WR
26	0.080	0.093a	WR
27	0.084	WR	WR
28	0.087	WR	WR
29	0.086	WR	WR
30	0.091	WR	WR
31	0.085	NA	WR
Monthly Average (cfs)	0.077	0.087	0.093

Monthly Discharge

Cubic Feet	206546	195972	48071
Gallons	1545070	1465975	359593
Acre-Feet	4.74	4.50	1.10

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.
WR – No data or unacceptable data due to winter icing conditions.

Buffer Zone Hydrologic monitoring location GS16 is located at state plane 2083406, 746659 on Antelope Springs Creek 970 feet upstream of Woman Creek. This station monitors discharge from Antelope Springs and runoff from the surrounding area. The GS16 drainage area is approximately 105 acres. This station collects flow data only.

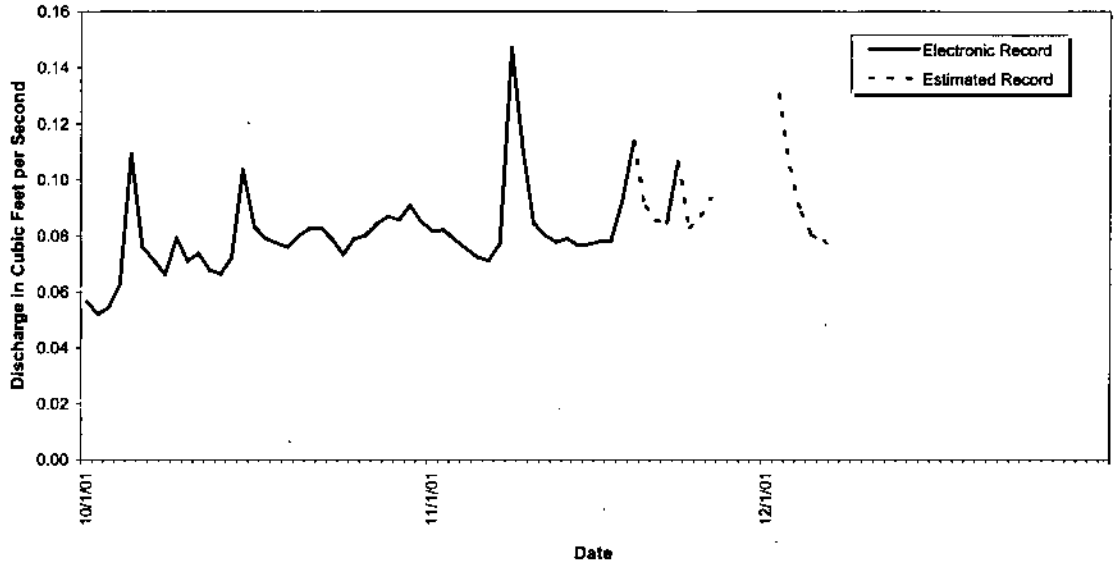


Figure 5-10. Mean Daily Discharge at GS16, Water Year 2002 (October, November, and December)

Table 5-11. Gaging Station GS22: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.010	0.006	0.021
2	0.008	0.005	0.016
3	0.009	0.005	0.014
4	0.036	0.006	0.012
5	0.090	0.006	0.011
6	0.052	0.005	0.010
7	0.013	0.039	0.010
8	0.012	0.123	0.010
9	0.025	0.055	0.010
10	0.011	0.012	0.009
11	0.011	0.011	0.009
12	0.010	0.010	0.015
13	0.009	0.010	0.010
14	0.009	0.009a	0.012
15	0.075	0.010a	0.012
16	0.011	0.011	0.047
17	0.010	0.012	0.068
18	0.009	0.055	0.014
19	0.008	0.047	0.012
20	0.008	0.013	0.011
21	0.008	0.013	0.012
22	0.008	0.013	0.011
23	0.007	0.058	0.010
24	0.007	0.012	0.011
25	0.006	0.013	0.010
26	0.006	0.061	0.010
27	0.006	0.030	0.010
28	0.006	0.017	0.010
29	0.006	0.020	0.010
30	0.006	0.033	0.010
31	0.006	NA	0.010
Monthly Average (cfs)	0.016	0.024	0.014

Monthly Discharge

Cubic Feet	42976	62185	38639
Gallons	321484	465173	289040
Acre-Feet	0.99	1.43	0.89

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging station GS22 was upgraded as a Performance monitoring location in support of D&D activities for the 400 Area. GS22 is located at state plane 2082678, 747820 on the outlet of a culvert draining a portion of the 400 Area immediately upstream from the SID south of B664. The GS22 drainage area is approximately 17.2 acres. This station collects samples for Pu, Am, uranium isotopes, CLP metals, and TSS using continuous flow-paced composite sampling.

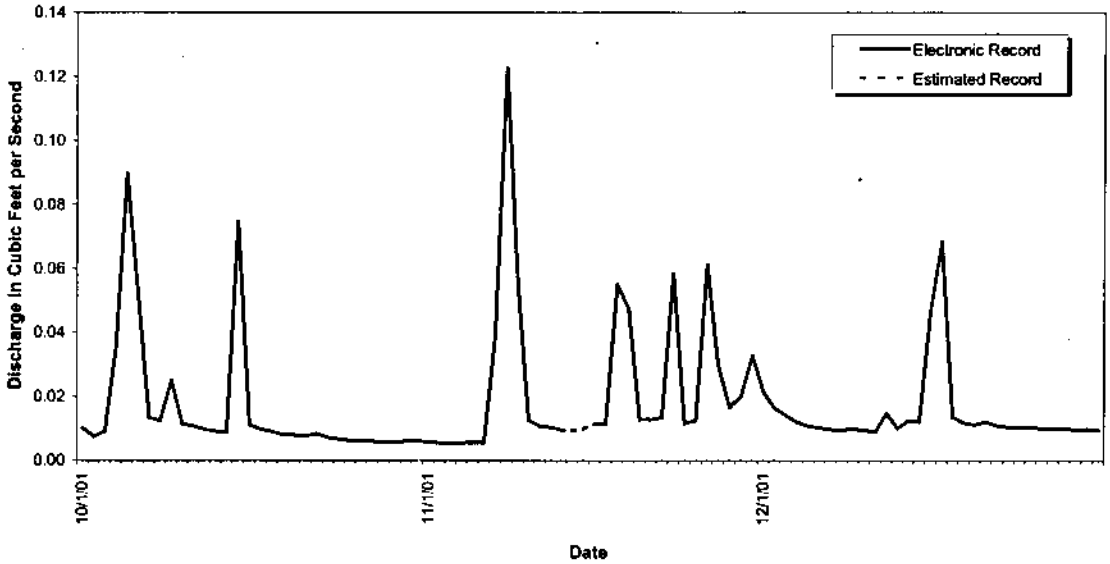


Figure 5-11. Mean Daily Discharge at GS22, Water Year 2002 (October, November, and December)

Table 5-12. Gaging Station GS27: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0003	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000a
17	0.0000	0.0000	0.0001
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0002	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	46	5
Gallons	0	346	41
Acre-Feet	0.00	0.00	0.00

Note: mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS27 is located at State Plane 2080529; 751216, at the small drainage ditch NW of Building 884 (see Section 4 Map). This location is a Performance and Best Management Practices Monitoring Location and monitors water draining from the Building 889 area. This station collects samples for selected radionuclides using continuous, flow-paced sampling.

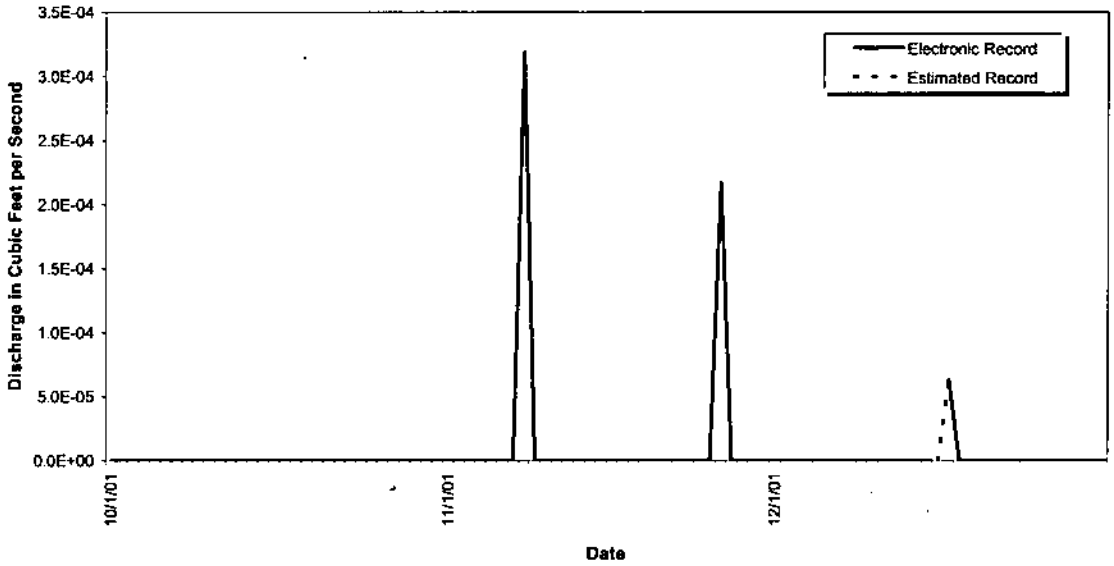


Figure 5-12. Mean Daily Discharge at GS27 Water Year 2002 (October, November, and December)

Table 5-13. Gaging Station GS31: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station GS31 is located at State Plane 2089268: 747506, at the Pond C-2 Outfall (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond C-2. This station collects samples for selected radionuclides using continuous flow-paced sampling.

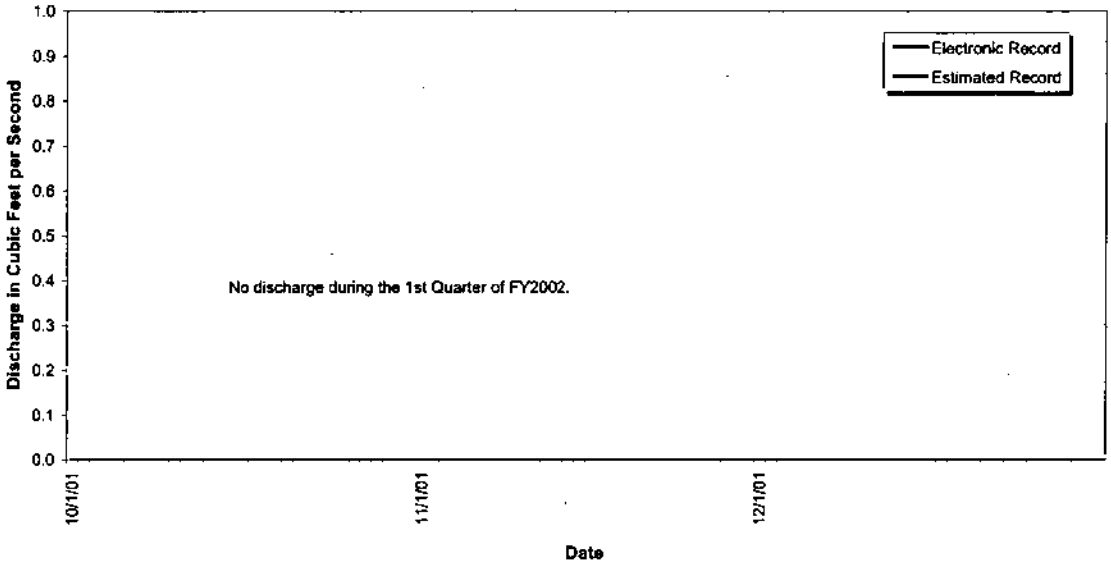


Figure 5-13. Mean Daily Discharge at GS31 Water Year 2002 (October, November, and December)

Table 5-14. Gaging Station GS39: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0001	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0120	0.0000
9	0.0000	0.0000a	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0005	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0013
18	0.0000	0.0000	0.0000a
19	0.0000	0.0020	0.0000
20	0.0000	0.0000a	0.0000
21	0.0000	0.0000a	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0031	0.0000
24	0.0000	0.0000a	0.0000
25	0.0000	0.0000a	0.0000
26	0.0000	0.0022	0.0000
27	0.0000	0.0000a	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0013a	0.0000
30	0.0000	0.0000a	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.001	0.000

Monthly Discharge

Cubic Feet	49	1778	108
Gallons	365	13304	811
Acre-Feet	0.00	0.04	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS39 is located in the drainage ditch northwest of the 904 Pad. This location is a RFCA Source Location station monitoring water flowing from the area of the 903 Pad as well as part of the 904 Pad and contractor yard to South Walnut Creek. This station collects samples for selected radionuclides using continuous, flow-paced sampling.

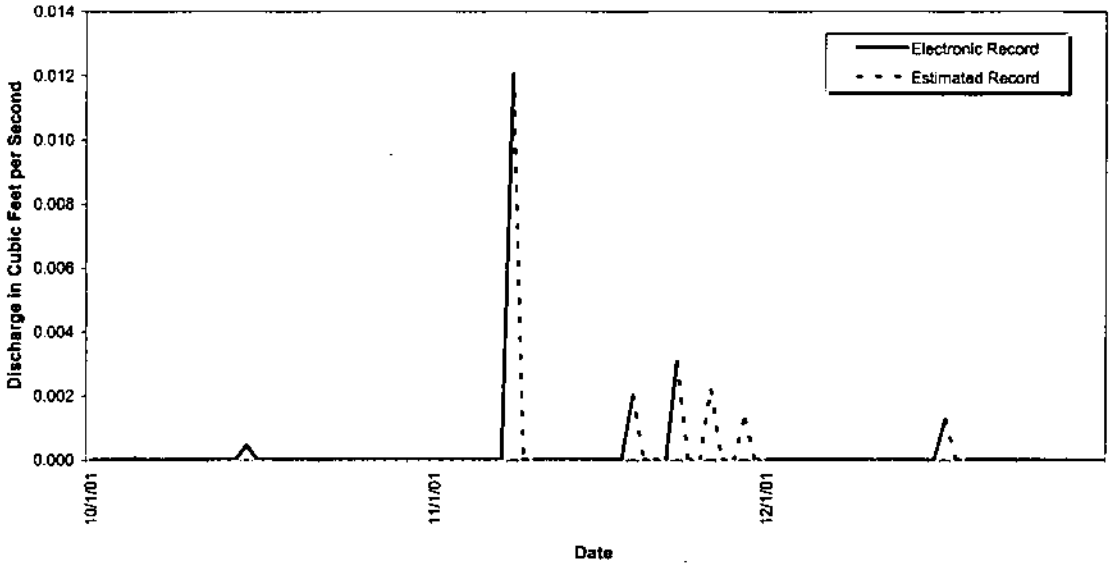


Figure 5-14. Mean Daily Discharge at GS39 Water Year 2002 (October, November, and December)

Table 5-15. Gaging Station GS40: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.036	0.022	0.029
2	0.032	0.020a	0.031
3	0.034	0.017	0.025
4	0.046	0.016	0.022
5	0.082	0.017	0.020
6	0.018	0.018	0.021
7	0.012	0.043	0.022
8	0.010	0.131	0.023
9	0.029	0.052	0.024
10	0.013	0.020	0.024
11	0.012	0.019	0.025
12	0.013	0.018	0.029
13	0.011	0.018	0.023a
14	0.013	0.018	0.020a
15	0.077	0.018	0.021
16	0.013	0.018	0.055
17	0.010	0.018	0.063
18	0.013	0.059	0.026
19	0.014	0.048	0.020
20	0.020	0.020	0.020
21	0.028	0.019	0.020
22	0.024	0.020	0.019
23	0.021	0.066	0.020a
24	0.024	0.021	0.021a
25	0.026	0.023	0.023a
26	0.021	0.081	0.020a
27	0.016	0.037	0.022
28	0.018	0.024a	0.020
29	0.024	0.024a	0.021
30	0.025	0.026a	0.018a
31	0.026	NA	0.017a
Monthly Average (cfs)	0.025	0.032	0.025

Monthly Discharge

Cubic Feet	65873	82318	66022
Gallons	492765	615785	493878
Acre-Feet	1.51	1.89	1.52

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS40 is located on the concrete spillway east of Tenth Street, south of Building 997. This location is a RFCA Performance Monitoring Location monitoring water flowing from the 700 area to South Walnut Creek. This station samples for selected radionuclides using continuous, flow-paced sampling.

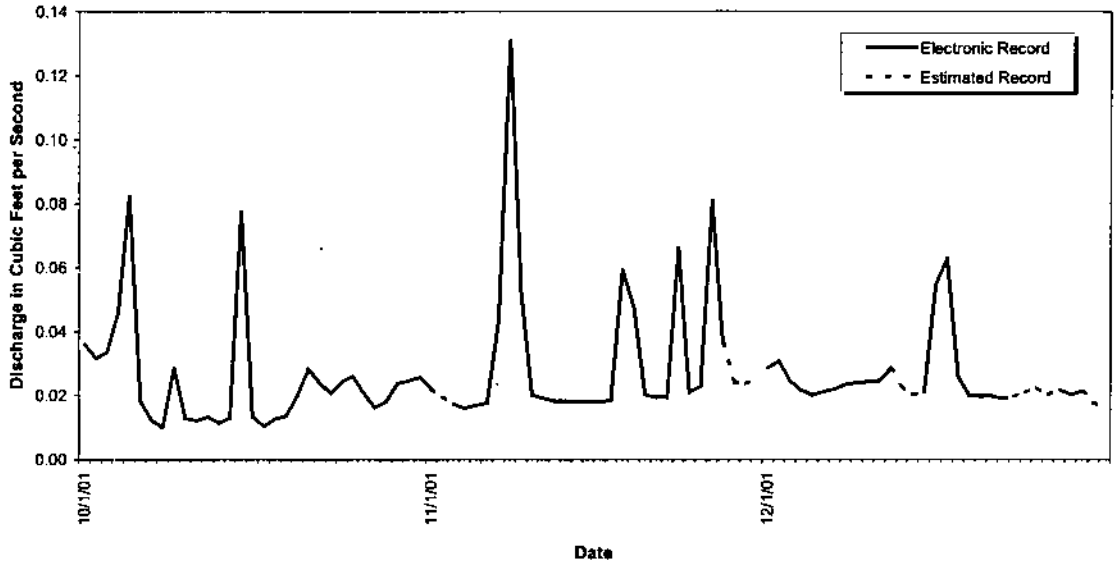


Figure 5-15. Mean Daily discharge at GS40 Water Year 2002 (October, November, and December)

Table 5-16. Gaging Station GS42: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging station GS42 was upgraded as a Performance monitoring location in support of characterization activities for the 903 Pad and Lip Area. GS42 is located at state plane 2088476, 748236 on a drainage swale immediately upstream from the SID north of Pond C-2. The GS42 drainage area is approximately 45.2 acres. This station collects samples for Pu, Am, uranium isotopes, and TSS using continuous flow-paced composite sampling.

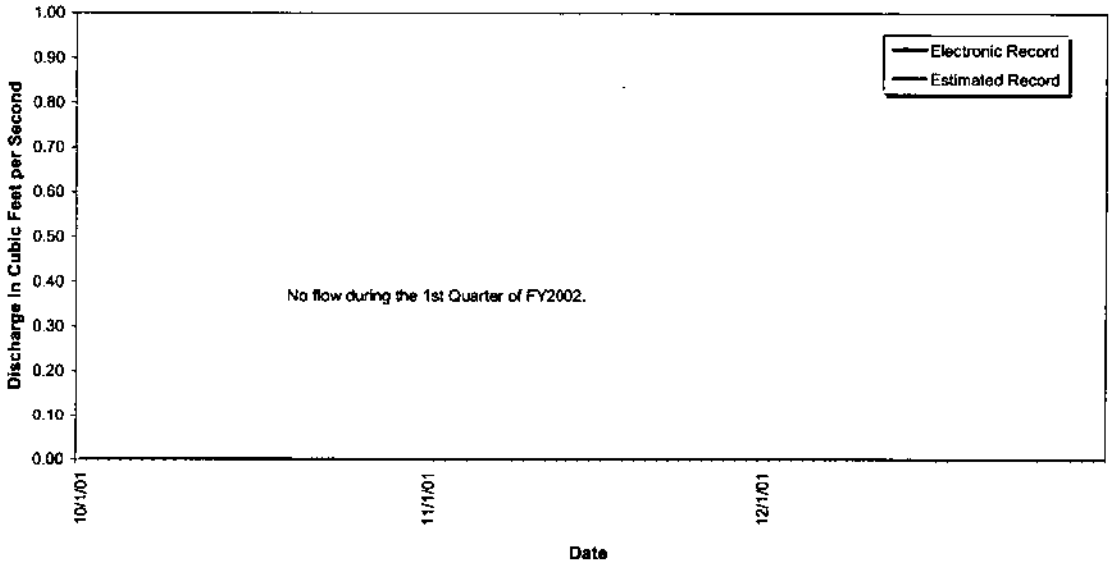


Figure 5-16. Mean Daily Discharge at GS42, Water Year 2002 (October, November, and December)

Table 5-17. Gaging Station GS43: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000a	0.0000	0.0000
6	0.0000a	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0041a
21	0.0000	0.0000	0.0051a
22	0.0000	0.0000	0.0000
23	0.0000	0.0000a	0.0000
24	0.0000	0.0000a	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	802
Gallons	0	0	6002
Acre-Feet	0.00	0.00	0.02

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging station GS43 is located in the ditch at the northeast corner of T886A. This location is a RFCA Performance Monitoring Location monitoring runoff from the eastern portion of the 800 area including Building 875, T886A, and the eastern half of Building 886. Water passing this monitoring location continues to South Walnut Creek. This station samples for selected radionuclides and metals using continuous, flow-paced sampling.

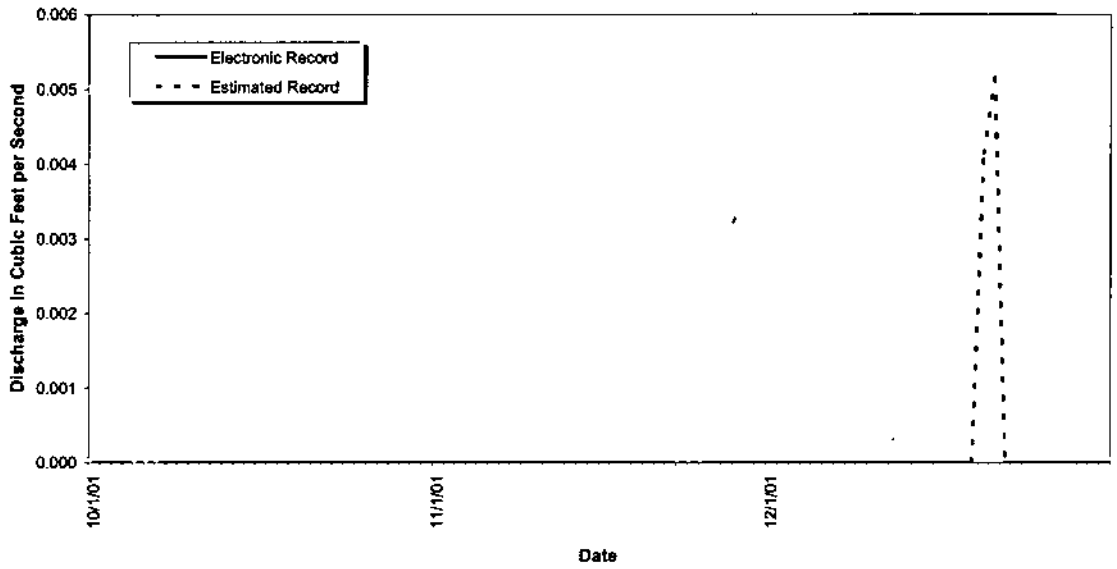


Figure 5-17. Mean Daily Discharge at GS43, Water Year 2002 (October, November, and December)

Table 5-18. Gaging Station GS44 Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0004	0.0011a
2	0.0000	0.0008a	0.0009
3	0.0000	0.0006	0.0009a
4	0.0000	0.0003	0.0007a
5	0.0022	0.0000	0.0007a
6	0.0001	0.0000	0.0006a
7	0.0000	0.0009	0.0006a
8	0.0000	0.0058a	0.0007a
9	0.0004	0.0010a	0.0008a
10	0.0000	0.0011a	0.0008a
11	0.0000	0.0008a	0.0008a
12	0.0000	0.0007	0.0008a
13	0.0000	0.0009	0.0008a
14	0.0000	0.0007	0.0008a
15	0.0034a	0.0008	0.0009a
16	0.0008a	0.0001a	0.0009a
17	0.0006	0.0000	0.0024a
18	0.0006	0.0020	0.0009a
19	0.0007	0.0013a	0.0010a
20	0.0007	0.0005a	0.0009a
21	0.0002	0.0003a	0.0010a
22	0.0000	0.0002	0.0009a
23	0.0000	0.0031a	0.0008a
24	0.0000	0.0008a	WR
25	0.0000	0.0009a	WR
26	0.0004	0.0047a	WR
27	0.0012	0.0021a	WR
28	0.0006	0.0011a	WR
29	0.0008	0.0010a	WR
30	0.0008	0.0011a	WR
31	0.0004	NA	WR
Monthly Average (cfs)	0.000	0.001	0.001

Monthly Discharge

Cubic Feet	1212	2934	1782
Gallons	9065	21947	13331
Acre-Feet	0.03	0.07	0.04

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.
WR – No data or unacceptable data due to winter icing conditions.

Gaging station GS44 is located at state plane 2083411, 751100 on a drainage ditch between T771F and T771L. This station is a Performance Monitoring Location and monitors runoff from the west side of B771 and includes B771 footing drain water. This station collects samples for selected radionuclides and water quality parameters using continuous flow-paced composite sampling.

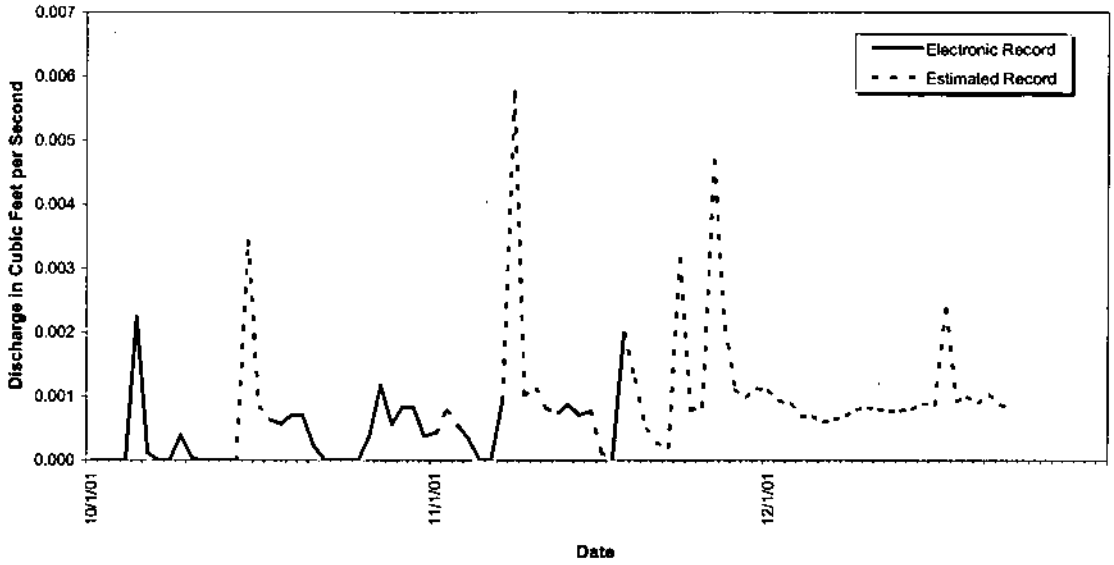


Figure 5-18. Mean Daily Discharge at GS44 Water Year 2002 (October, November, and December)

Table 5-19. Gaging Station GS49 Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0008a
2	0.0000	0.0000	0.0019a
3	0.0000	0.0000	0.0008a
4	0.0006	0.0000	0.0001
5	0.0026a	0.0000	0.0000
6	0.0002a	0.0000	0.0000
7	0.0000	0.0001	0.0000
8	0.0000	0.0068a	0.0000
9	0.0007	0.0037a	0.0000
10	0.0000	0.0027a	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0003a
13	0.0000	0.0000	0.0000a
14	0.0000	0.0000	0.0000
15	0.0020a	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0027a
18	0.0000	0.0005	0.0019a
19	0.0000	0.0027a	0.0006a
20	0.0000	0.0001a	0.0000a
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0021	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0017a	0.0000
27	0.0000	0.0000a	0.0000
28	0.0000	0.0000a	0.0000
29	0.0000	0.0000a	0.0000
30	0.0000	0.0000a	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.001	0.000

Monthly Discharge

Cubic Feet	531	1749	801
Gallons	3974	13082	5995
Acre-Feet	0.01	0.04	0.02

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging station GS49 is located at state plane 2083292, 750652 on a drainage ditch northwest of B566. This station is a Performance Monitoring location and has been installed in support of D&D activities for Building 776/777. This station monitors runoff from the west side of the B776/777 complex. The GS49 drainage area is approximately 3.3 acres. This station collects samples for selected isotopes, metals, tritium, and TSS using continuous flow-paced composite sampling.

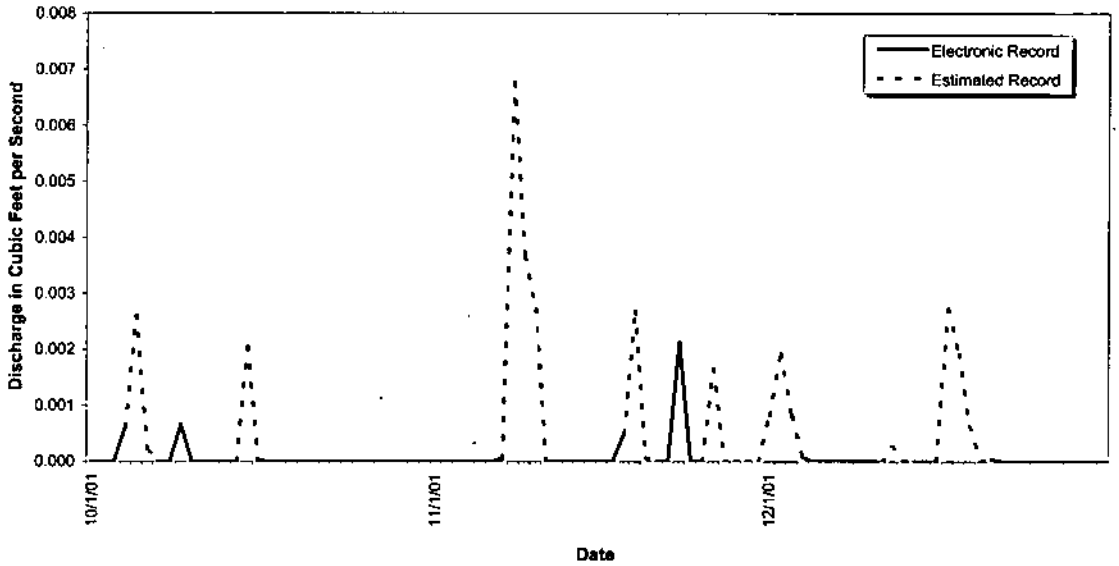


Figure 5-19. Mean Daily Discharge at GS49 Water Year 2002 (October, November, and December)

Table 5-20. Gaging Station GS50 Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging station GS50 is located at state plane 2085760, 750441 on a drainage ditch northeast of B990. This station is a performance monitoring location that was installed in support of remediation activities for the Solar Ponds and the ongoing GS10 Source Evaluation effort.. This station monitors runoff from the south side of the Solar Ponds and Triangle Area. The GS50 drainage area is approximately 4.1 acres. This station collects samples for Pu, Am, uranium isotopes, CLP metals, and TSS using continuous flow-paced composite sampling.

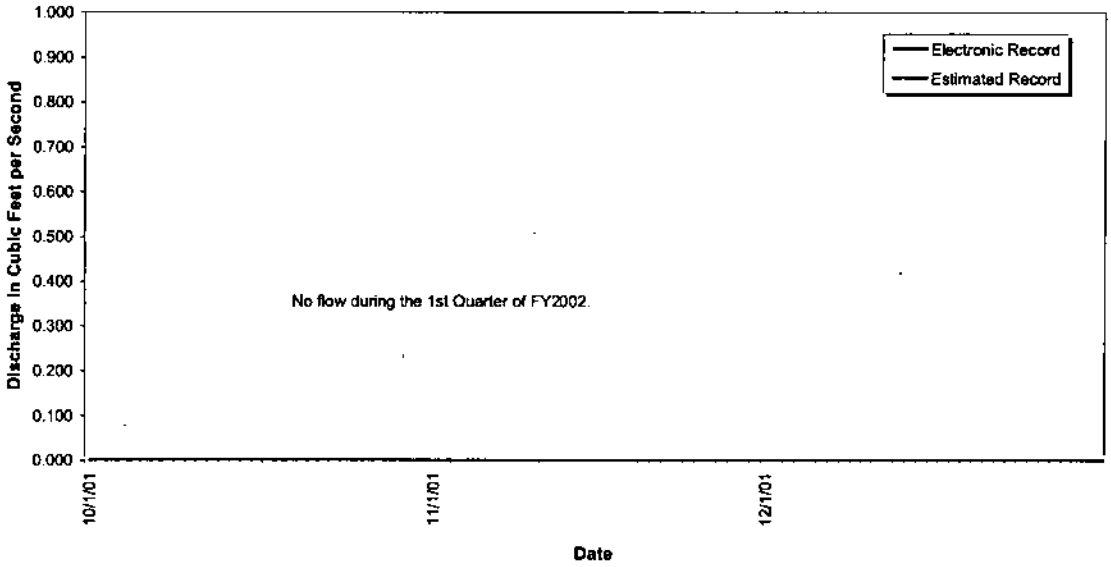


Figure 5-20. Mean Daily Discharge at GS50 Water Year 2002 (October, November, and December)

Table 5-21. Gaging Station GS51: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.000	0.0000
2	0.0000	0.000	0.0000
3	0.0000	0.000	0.0000
4	0.0000	0.000	0.0000
5	0.0000	0.000	0.0002
6	0.0000	0.000	0.0000
7	0.0000	0.000	0.0000
8	0.0000	0.000	0.0000
9	0.0000	0.000	0.0000
10	0.0000	0.000	0.0000
11	0.0000	0.000	0.0000
12	0.0000	0.000	0.0000
13	0.0000	0.000	0.0000
14	0.0000	0.000	0.0000
15	0.0000	0.000	0.0000
16	0.0000	0.000	0.0000
17	0.0000	0.000	0.0000
18	0.0000	0.000	0.0000a
19	0.0000	0.000	0.0000a
20	0.0000	0.000a	0.0000
21	0.0000	0.000	0.0000
22	0.0000	0.000	0.0000
23	0.0000	0.000	0.0000
24	0.0000a	0.000a	0.0000
25	0.0000a	0.000	0.0000
26	0.0000	0.000a	0.0000
27	0.0000	0.000a	0.0000
28	0.0000	0.000a	0.0000
29	0.0000	0.000	0.0000
30	0.0000	0.000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	19
Gallons	0	0	144
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

A new Performance monitoring location was installed in support of characterization activities for the 903 Pad and Lip Area. Gaging station GS51 is located at state plane 2086295, 748107 on a drainage ditch southeast of the 903 Pad immediately upstream from the SID. The GS51 drainage area is approximately 3.9 acres. This station collects samples for Pu, Am, uranium isotopes, and TSS using continuous flow-paced composite sampling.

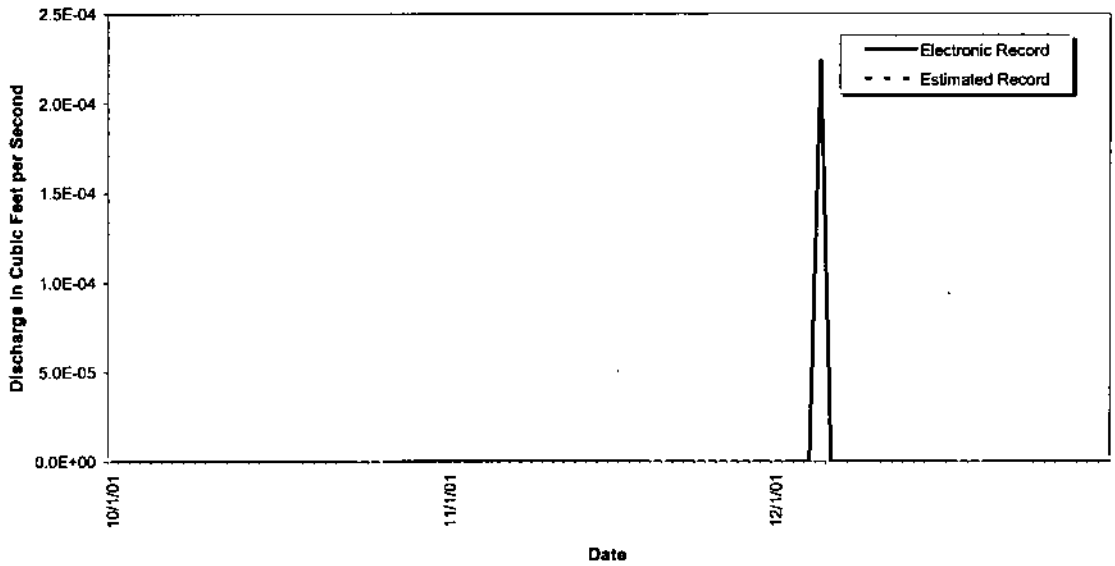


Figure 5-21. Mean Daily Discharge at GS51, Water Year 2002 (October, November, and December)

Table 5-22. Gaging Station GS52: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

A new Performance monitoring location was installed in support of characterization activities for the 903 Pad and Lip Area. Gaging station GS52 is located at state plane 2086715, 748043 on a gully southeast of the 903 Pad immediately upstream from the SID. The GS52 drainage area is approximately 4.3 acres. This station collects samples for Pu, Am, uranium isotopes, and TSS using continuous flow-paced composite sampling.

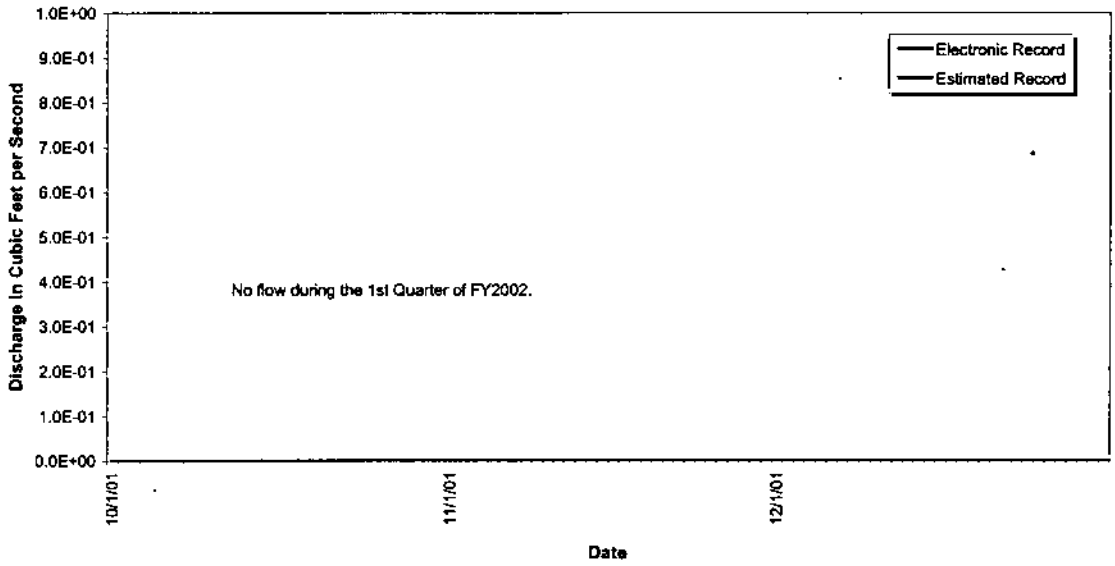


Figure 5-22. Mean Daily Discharge at GS52, Water Year 2002 (October, November, and December)

Table 5-23. Gaging Station GS53: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

A new Performance monitoring location was installed in support of characterization activities for the 903 Pad and Lip Area. Gaging station GS53 is located at state plane 2087071, 748074 on a gully east-southeast of the 903 Pad immediately upstream from the SID. The GS53 drainage area is approximately 10.1 acres. This station collects samples for Pu, Am, uranium isotopes, and TSS using continuous flow-paced composite sampling.

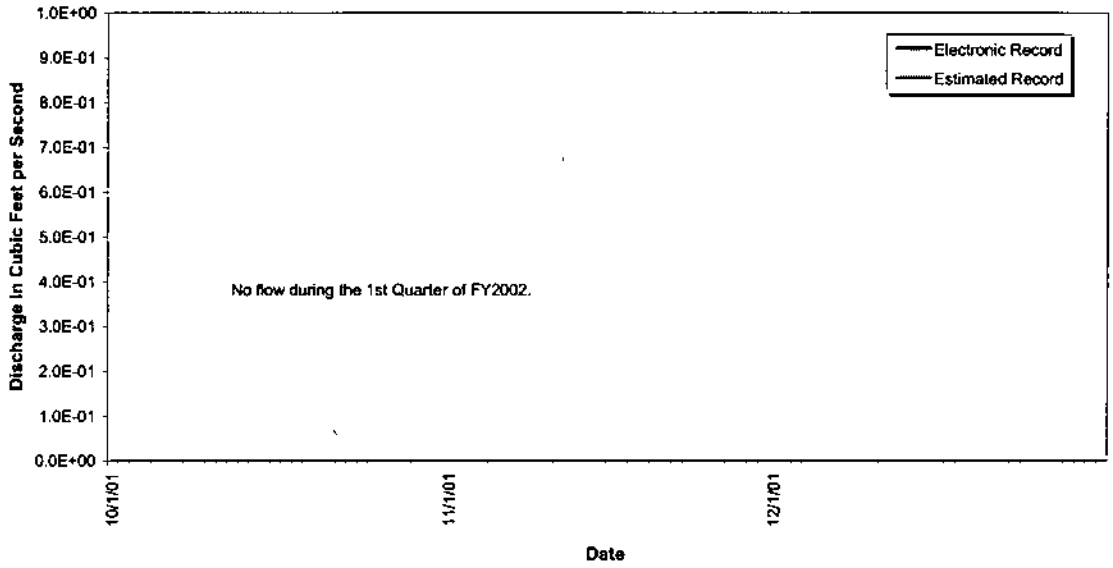


Figure 5-23. Mean Daily Discharge at GS53, Water Year 2002 (October, November, and December

Table 5-24. Gaging Station GS54: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

A new Performance monitoring location was installed in support of characterization activities for the 903 Pad and Lip Area. Gaging station GS54 is located at state plane 2087476, 748188 on a gully east-southeast of the 903 Pad immediately upstream from the SID. The GS54 drainage area is approximately 9.5 acres. This station collects samples for Pu, Am, uranium isotopes, and TSS using continuous flow-paced composite sampling.

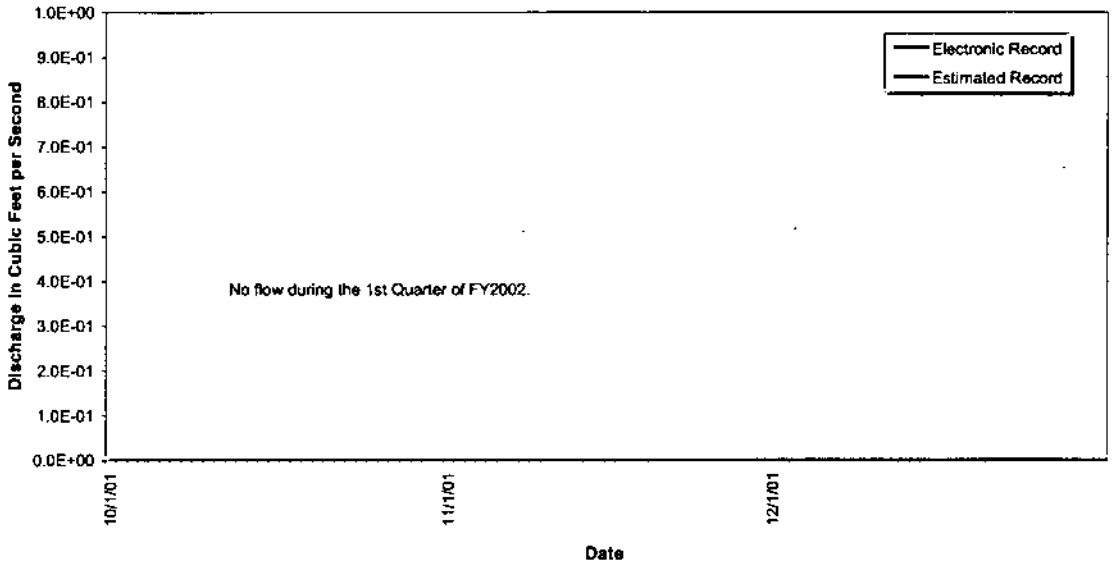


Figure 5-24. Mean Daily Discharge at GS54, Water Year 2002 (October, November, and December)

Table 5-25. Gaging Station 995 POE Mean Daily Discharge (cubic feet per second)a

Day	Oct-01	Nov-01	Dec-01
1	0.224	0.236	0.153
2	0.201	0.182	0.190
3	0.189	0.184	0.183
4	0.171	0.179	0.165
5	0.154	0.205	0.274
6	0.187	0.161	0.202
7	0.311	0.167	0.134
8	0.270	0.197	0.147
9	0.173	0.133	0.172
10	0.201	0.179	0.188
11	0.216	0.177	0.177
12	0.135	0.174	0.200
13	0.139	0.141	0.131
14	0.231	0.079	0.140
15	0.217	0.181	0.169
16	0.116	0.095	0.233
17	0.190	0.113	0.138
18	0.199	0.348	0.200
19	0.115	0.139	0.174
20	0.283	0.094	0.142
21	0.298	0.149	0.141
22	0.159	0.213	0.180
23	0.184	0.178	0.175
24	0.195	0.158	0.127
25	0.180	0.197	0.218
26	0.139	0.200	0.129
27	0.168	0.200	0.234
28	0.222	0.207	0.306
29	0.171	0.245	0.110
30	0.254	0.186	0.136
31	0.174	NA	0.172
Monthly Average (cfs)	0.196	0.177	0.176

Monthly Discharge

Cubic Feet	524282	457736	470088
Gallons	3921900	3424100	3516500
Acre-Feet	12.04	10.51	10.79

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
a – Flow data provided above for this location is measured using the totalizier at B995.

Gaging station 995POE is located on the Building 995 (WWTP) effluent flow stream at the V-notch weir immediately below the UV disinfection equipment. This station is a RFCA Action Level Framework Point of Evaluation and monitors effluent from the Site wastewater treatment plant. This station collects samples for selected radionuclides using continuous flow-paced composite sampling.

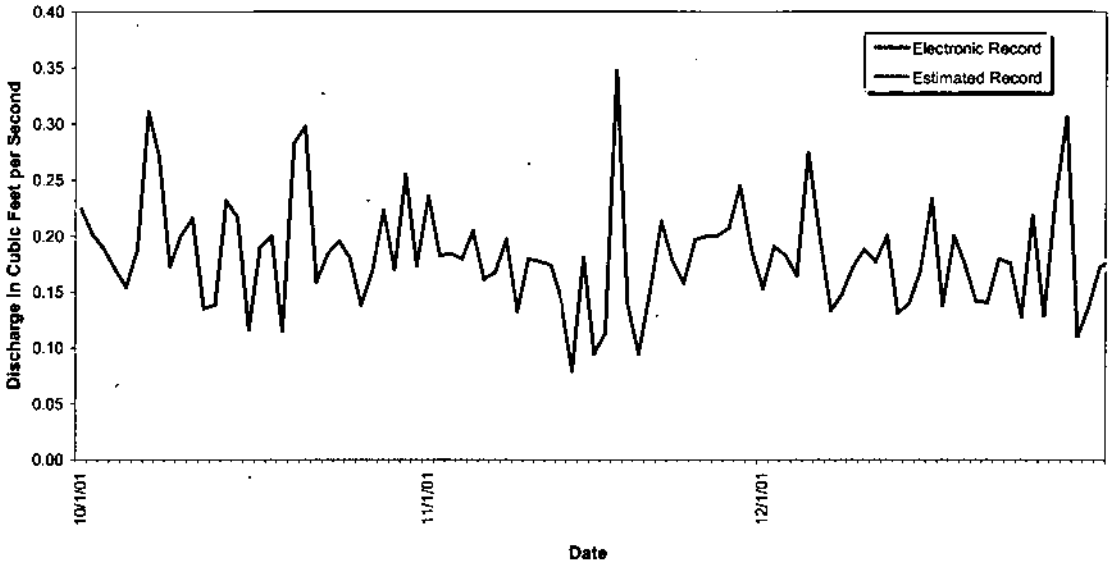


Figure 5-25. Mean Daily Discharge at 995 POE Water Year 2002 (October, November, and December)

Table 5-26. Gaging Station SW022: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.013	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.001	0.000
8	0.000	0.142	0.000
9	0.000	0.002a	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.014	0.000	0.000
16	0.000	0.000	0.006a
17	0.000	0.000	0.022a
18	0.000	0.018	0.003a
19	0.000	0.013a	0.000
20	0.000	0.001a	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.043	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.071a	0.000
27	0.000	0.013a	0.000
28	0.000	0.000a	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.001	0.010	0.001

Monthly Discharge

Cubic Feet	2356	26265	2724
Gallons	17623	196475	20381
Acre-Feet	0.05	0.60	0.06

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station SW022 is located 39° 53' 30"N, 105° 11' 30"W, at the Central Avenue Ditch at the Inner East Gate (See Section 4 Map). This location is a RFCA New Source Detection Location and monitors water in the Central Avenue Ditch entering the B-Series Ponds and South Walnut Creek. Storm event samples are collected for selected radionuclides.

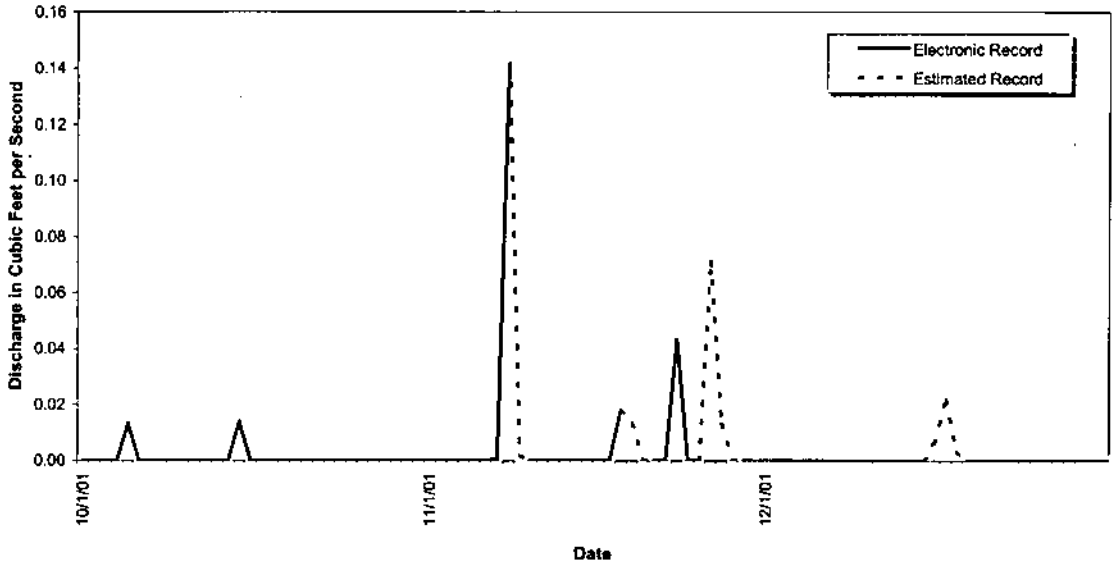


Figure 5-26. Mean Daily Discharge at SW022, Water Year 2002 (October, November, and December)

Table 5-27. Gaging Station SW027: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station SW027 is located 39° 53' 12" N, 105° 11' 4"W, at the South Interceptor Ditch above Pond C-2 (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water in the South Interceptor Ditch entering Pond C-2. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

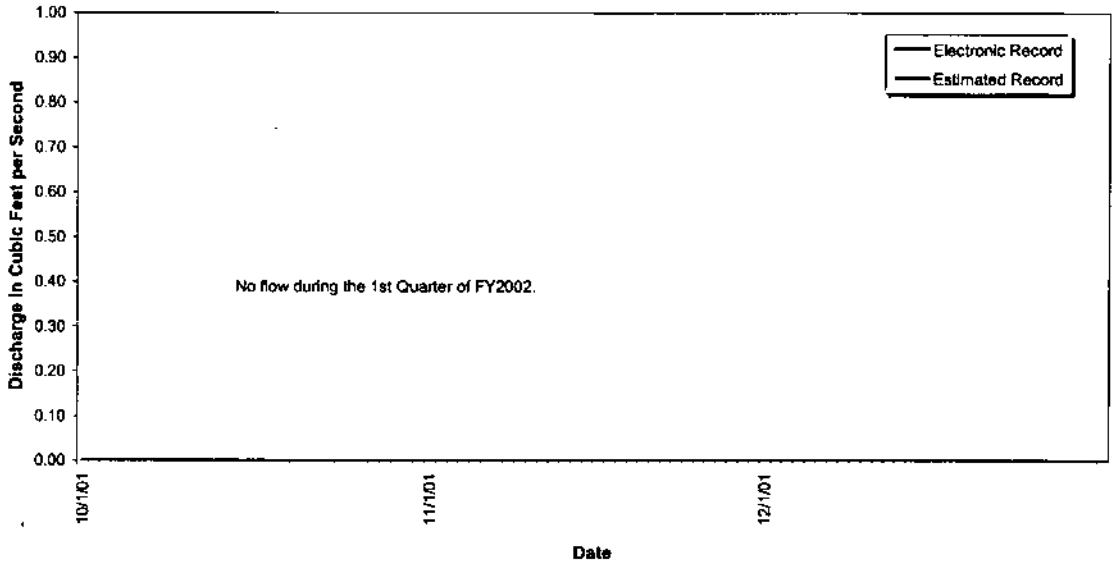


Figure 5-27. Mean Daily Discharge at SW027, Water Year 2002 (October, November, and December)

Table 5-28. Gaging Station SW055: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000a
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000a	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000a	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000a	0.0000
24	0.0000	0.0000a	0.0000
25	0.0000	0.0000a	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000a	0.0000
30	0.0000	0.0000a	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

A new Performance monitoring location was installed in support of remediation activities for the 903 Pad and Lip Area. Gaging station SW055 is located at state plane 2086059, 748501 on a drainage ditch southeast of the 903 Pad just inside of the inner security fence. This station monitors runoff from the southeast side of the 903 Pad area. The SW055 drainage area is approximately 17.3 acres. This station collects samples for Pu, Am, and TSS using continuous flow-paced composite sampling.

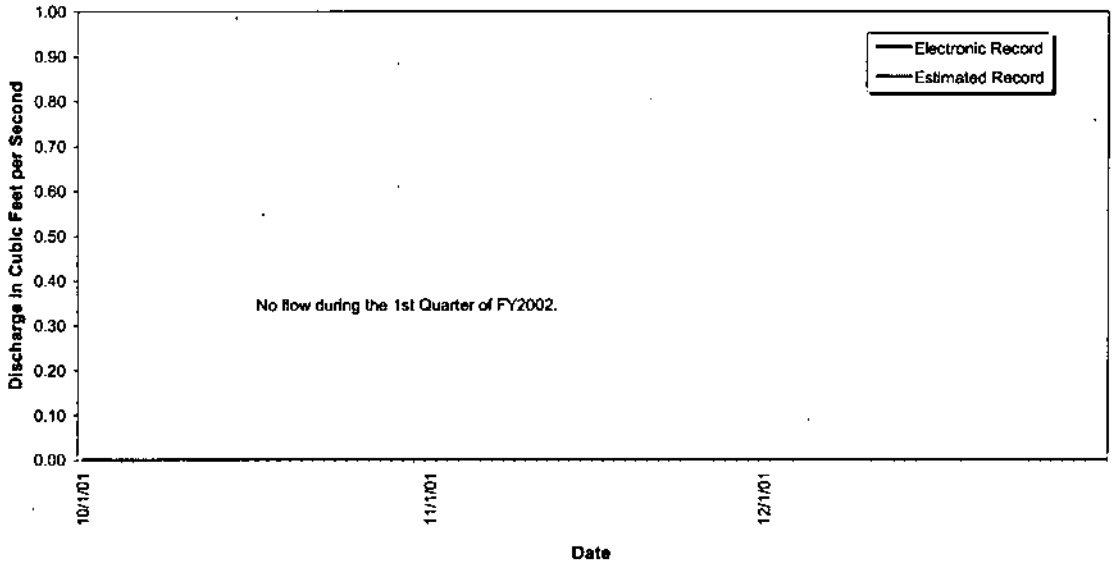


Figure 5-28. Mean Daily Discharge at SW055, Water Year 2002 (October, November, and December)

Table 5-29. Gaging Station SW091: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station SW091 is located at State Plane 2086064; 751322, along the drainage NE of the Solar Ponds draining to the A-Series Ponds (See Section 4 Map). This location is a RFCA New Source Detection Location and monitors water draining from the area NE of the Solar Ponds. Storm event samples are collected for selected radionuclides.

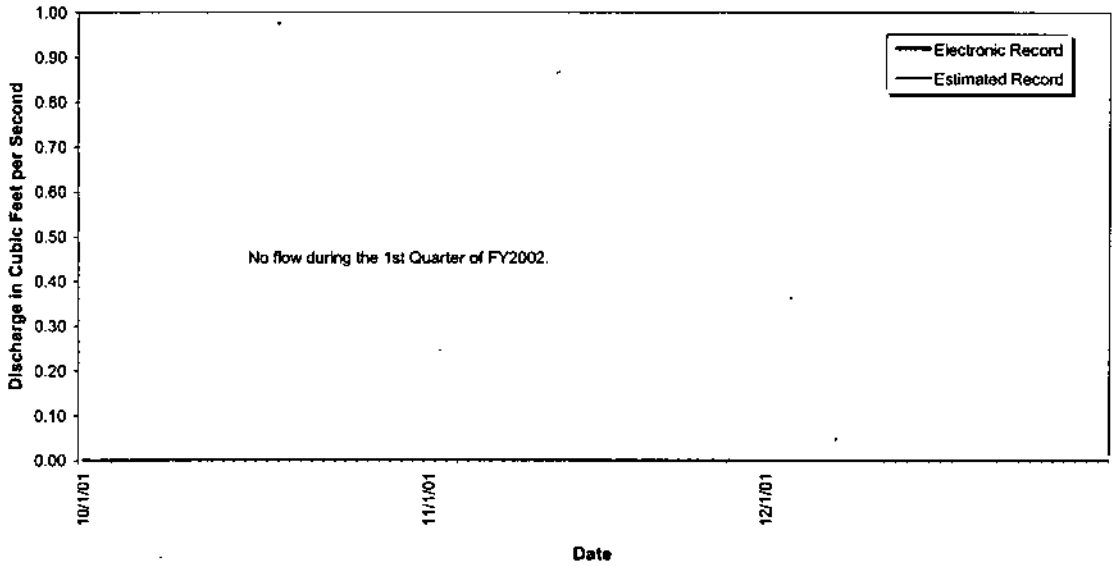


Figure 5-29. Mean Daily Discharge at SW091, Water Year 2002 (October, November, and December)

Table 5-30. Gaging Station SW093: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.093a	0.088	0.074
2	0.082a	0.084	0.089
3	0.086a	0.086	0.096
4	0.088a	0.089	0.090
5	0.162a	0.096	0.085
6	0.089a	0.099	0.088
7	0.087a	0.108	0.087
8	0.085a	0.323	0.081
9	0.087a	0.132	0.087
10	0.091a	0.104	0.085
11	0.101a	0.098	0.083
12	0.103a	0.097	0.080
13	0.109a	0.100	0.074
14	0.105a	0.095	0.089
15	0.168a	0.094	0.089
16	0.091a	0.093	0.109
17	0.092a	0.094	0.135
18	0.092a	0.153	0.112
19	0.083a	0.128	0.093
20	0.086a	0.106	0.088
21	0.074a	0.100	0.078
22	0.078a	0.100	0.069
23	0.080a	0.168	0.056
24	0.081	0.100	0.050
25	0.085	0.099	0.052
26	0.083	0.160	0.053
27	0.082	0.072	0.058
28	0.087	0.048	0.057
29	0.088	0.070	0.053
30	0.095	0.074	0.051
31	0.087	NA	0.059
Monthly Average (cfs)	0.094	0.109	0.079

Monthly Discharge

Cubic Feet	250665	281510	211885
Gallons	1875104	2105840	1585010
Acre-Feet	5.75	6.46	4.86

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station SW093 is located 39° 53' 51"N, 105° 11' 48"W, along North Walnut Creek at the 72" culvert 1000 feet above the Pond A-1 Bypass (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water leaving the Site Industrial Area and entering the A-Series Ponds and North Walnut Creek. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

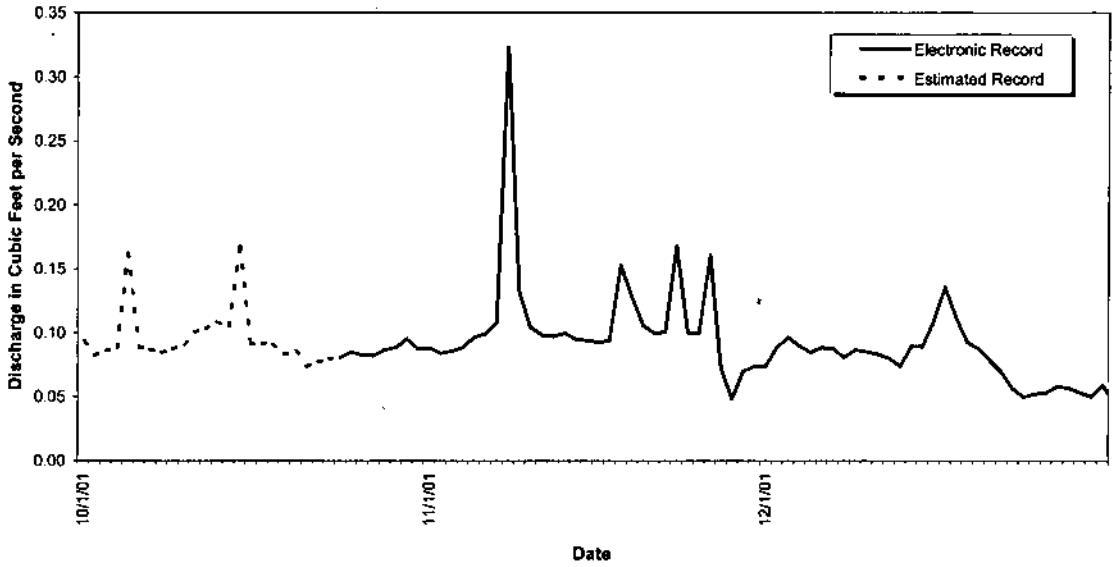


Figure 5-30. Mean Daily Discharge at SW093, Water Year 2002 (October, November, and December)

Table 5-31. Gaging Station SW118: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.000	0.000	WR
2	0.000	0.003	WR
3	0.000	0.003	WR
4	0.000	0.003	WR
5	0.021	0.003	WR
6	0.009	0.003	WR
7	0.003	0.003	WR
8	0.001	0.018	WR
9	0.003	0.011	WR
10	0.003	0.010a	WR
11	0.007	0.009	WR
12	0.003	0.006	WR
13	0.003	0.006	WR
14	0.005	0.005	WR
15	0.017	0.006	WR
16	0.010	0.006	WR
17	0.005	0.007	WR
18	0.003	0.010	WR
19	0.002	0.014	WR
20	0.001	WR	WR
21	0.008	WR	WR
22	0.007	WR	WR
23	0.003a	WR	WR
24	0.000	WR	WR
25	0.004	WR	WR
26	0.010	WR	WR
27	0.007	WR	WR
28	0.003	WR	WR
29	0.004	WR	WR
30	0.004	WR	WR
31	0.002	NA	WR
Monthly Average (cfs)	0.005	0.007	No Data

Monthly Discharge

Cubic Feet	12814	10843	0
Gallons	95857	81108	0
Acre-Feet	0.29	0.25	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.
WR – No data or unacceptable data due to winter icing conditions.

Buffer Zone Hydrologic monitoring location SW118 is located at state plane 2082961, 751417 on North Walnut Creek northeast of B371 along the IA Perimeter Road. This station monitors runoff from the area northwest of the former PA. The SW118 drainage area is approximately 50 acres. This station collects flow data only.

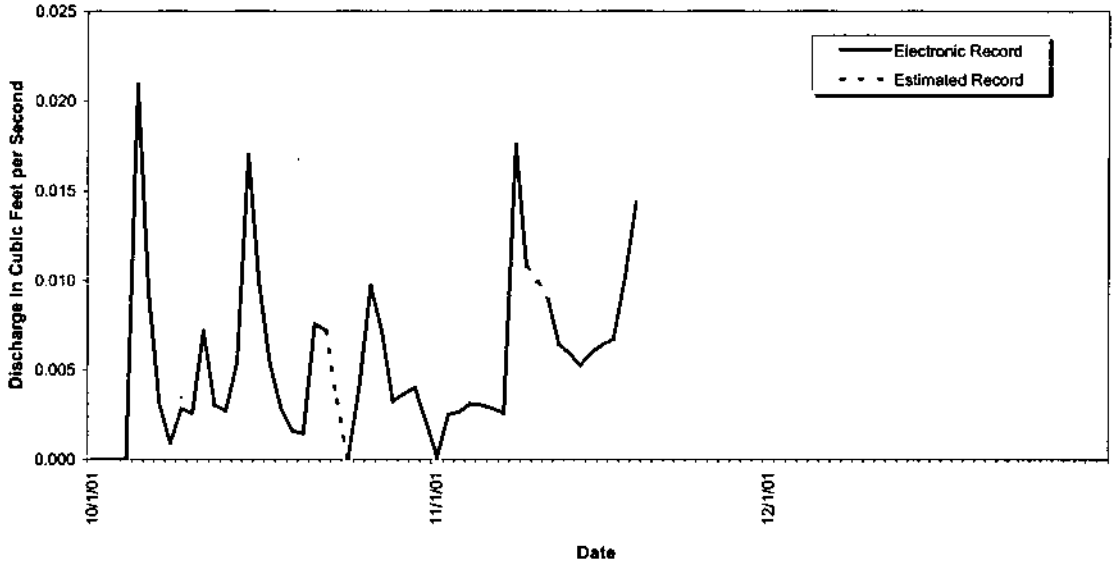


Figure 5-31. Mean Daily Discharge at SW118, Water Year 2002 (October, November, and December)

Table 5-32. Gaging Station SW119: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0010	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0001	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	3	92	7
Gallons	25	685	55
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging station SW119 is located at state plane 2084723, 751268 on a drainage ditch north of Solar Pond 207A along the PA perimeter road and was installed in support of remediation activities for the Solar Ponds. This performance monitoring station monitors runoff from the east and north sides of the Solar Ponds and Triangle Area. The SW119 drainage area is approximately 7.6 acres. This station collects samples for Pu, Am, uranium isotopes, CLP metals, and TSS using continuous flow-paced composite sampling.

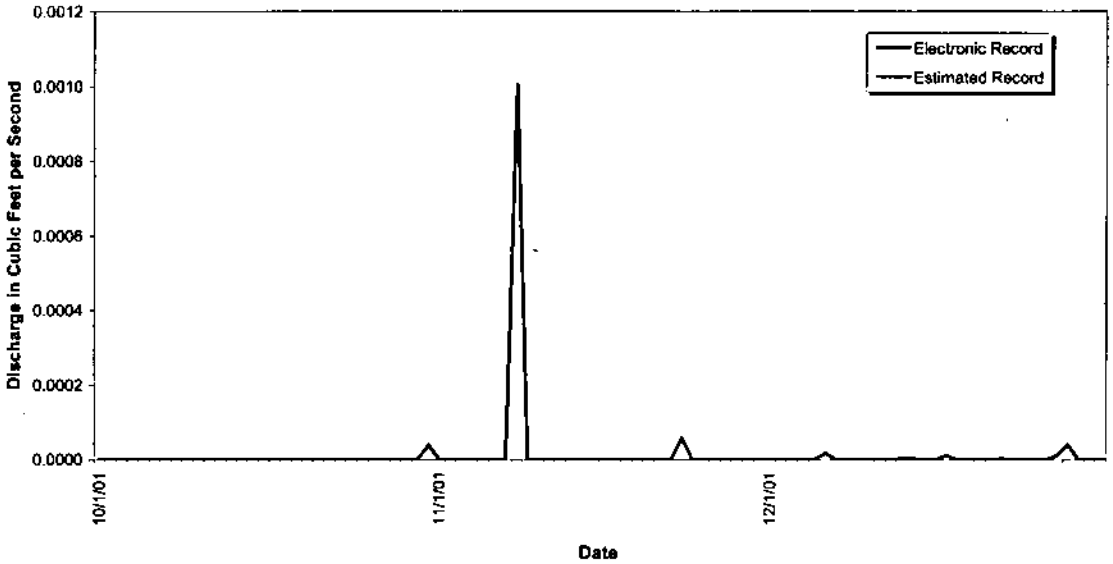


Figure 5-32. Mean Daily Discharge at SW119, Water Year 2002 (October, November, and December)

Table 5-33. Gaging Station SW120: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0010	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0001	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	3	92	7
Gallons	25	685	55
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.
[a] Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station SW120 is located at state plane 2084681.6 E 751269 N, in the drainage ditch north of the Solar Ponds along the south side of the PA Perimeter Road. This location is a Performance monitoring location in support of D&D activities for the B771/774 area. SW120 also serves as a Source Location monitoring point in support of Source Evaluation efforts for POE SW093. This location collects continuous flow-paced samples that are analyzed for Pu, U, Am, CLP metals, and TSS.

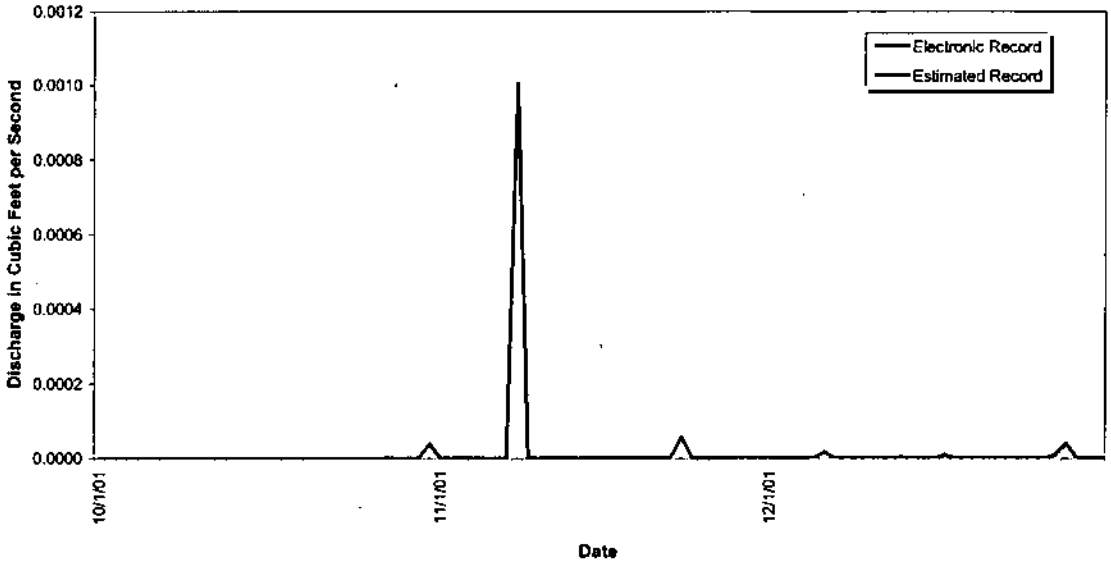


Figure 5-33. Mean Daily Discharge at SW120, Water Year 2002 (October, November, and December)

Table 5-34. Gaging Station SW134: Mean Daily Discharge (cubic feet per second)

Day	Oct-01	Nov-01	Dec-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0734
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.1700	0.0505	0.0000
17	0.0000	0.0474	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	0.1272	NA	0.0000
Monthly Average (cfs)	0.010	0.003	0.002

Monthly Discharge

Cubic Feet	25684	8461	6340
Gallons	192132	63293	47426
Acre-Feet	0.59	0.19	0.15

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Buffer Zone Hydrologic monitoring location SW134 is located at state plane 2075942, 750049 on a tributary to Rock Creek at the northeast corner of the gravel pits north of the West Access Road. This station monitors runoff and pumped discharges from the gravel pits. This station collects samples for sediment/sand, Ca, Mg, Na, K, Cl, F, SO4, HCO3, and TSS using rising-limb, flow-paced composite sampling.

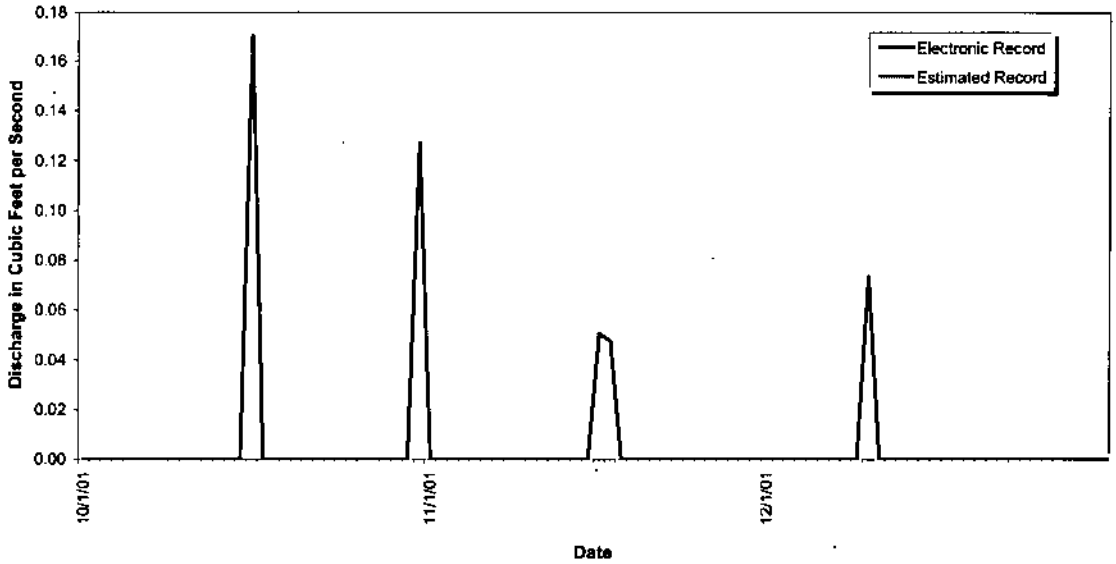


Figure 5-34. Mean Daily Discharge at SW134, Water Year 2002 (October, November, and December)

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5.2 WATER QUALITY DATA

Table 5-35. Radionuclides, Water Year 2002 (October, November, and December)

Location	Sample Dates	Result Pu-239, -240 [pCi/l]	Result Am-241 [pCi/l]	Result Total Uranium [pCi/l]	Result Tritium [pCi/l]
GS01	6/26 - 12/5/01	0.017	0.001	a	-106
GS01	12/5 - 12/18/01	-0.001	0.006	a	0
GS01	12/18/01 - 1/2/02	0.004	0.007	a	0
GS03	10/3 - 10/9/01	0.004	-0.003	a	-123
GS03	10/9 - 10/17/01	0.015	-0.005	a	-182
GS03	10/17 - 11/1/01	0.000	-0.005	a	55
GS03	11/1 - 11/30/01	c	c	a	c
GS03	11/30 - 12/4/01	0.011	0.003	a	-26
GS03	12/4 - 12/12/01	-0.001	-0.003	a	277
GS03	12/12 - 1/24/02	c	c	a	c
GS08	10/3 - 10/9/01	0.011	-0.003	0.788	a
GS08	10/9 - 10/16/01	-0.001	0.006	0.896	a
GS08	11/30 - 12/4/01	-0.003	0.003	0.991	a
GS08	12/4 - 12/11/01	0.005	0.000	1.032	a
GS10	10/1 - 10/11/01	0.001	0.032	4.192	a
GS10	10/11 - 10/23/01	0.010	0.020	4.838	a
GS10	10/23 - 11/6/01	0.013	0.026	5.638	a
GS10	11/6 - 11/20/01	0.039	0.057	3.541	a
GS10	11/20 - 12/10/01	0.011	0.006	4.642	a
GS10	12/10 - 1/9/02	0.025	0.038	4.886	a
GS22	11/15/01 - 1/17/02	b	b	b	a
GS40	10/1 - 11/1/01	-0.003	0.006	4.458	28
GS40	11/1 - 12/24/01	0.007	0.021	3.645	51
GS40	12/24/01 - 1/21/02	b	b	b	55
GS43	7/15/01 -	d	d	d	a
GS44	10/4 - 11/12/01	-0.003	0.018	3.685	26
GS44	11/12/2001 -	d	d	d	d
GS49	7/25 - 11/18/01	0.016	0.003	0.152	0
GS49	11/18/01 - 1/25/02	b	b	b	0
GS50	8/9/01 -	d	d	d	a

a Not applicable
b Incomplete analysis
c Non-sufficient quantity
d Composite sample in progress

Table 5-35. Radionuclides, Water Year 2002 (October, November, and December), continued

Location	Sample Dates	Result Pu-239, -240 [pCi/l]	Result Am-241 [pCi/l]	Result Total Uranium [pCi/l]	Result Tritium [pCi/l]
SW022	9/13 - 12/17/01	-0.001	0.003	1.133	a
SW022	12/17/01 -	c	c	c	a
SW027	8/9/01 - d	0.009	-0.003	0.428	a
SW055	5/28/01 - d	3.160	0.557	2.908	a
SW093	10/1 - 10/19/01	-0.002	0.001	3.369	a
SW093	10/19 - 11/2/01	0.009	0.002	3.704	a
SW093	11/2 - 11/12/01	0.010	0.003	2.563	a
SW093	11/12 - 11/26/01	-0.001	-0.003	3.067	a
SW093	11/26 - 12/17/01	-0.001	0.012	3.403	a
SW093	12/17/01 - 1/9/02	0.006	0.008	4.159	a
SW119	8/9/01 - d	b	b	b	a
SW120	9/13/2001 - d	b	b	b	56
995POE	9/24 - 10/25/01	-0.005	0.003	0.393	-136
995POE	10/25 - 11/28/01	0.003	-0.003	0.471	0
995POE	11/28 - 12/31/01	0.007	0.015	0.263	25
995POE	12/31/01 - 2/7/02	c	c	c	c

a Not applicable
b Incomplete analysis
c Composite sample in progress
d Sampler waiting to trigger on next flow period

Table 5-36. POE Metals, Water Year 2002 (October, November, and December)

Location	Sample Dates	Analyte Be ug/L	Analyte Dissolved Cd ug/L	Analyte Cr ug/L	Analyte Dissolved Ag ug/L
GS10	10/1 - 10/11/01	<0.05	<0.08	0.95	<0.12
GS10	10/11 - 10/23/01	0.070	<0.08	0.24	<0.12
GS10	10/23 - 11/6/01	0.070	<0.08	0.44	<0.12
GS10	11/6 - 11/20/01	0.110	<0.08	1.30	<0.12
GS10	11/20 - 12/10/01	0.060	0.260	1.30	<0.12
GS10	12/10 - 1/9/02	0.080	0.110	0.69	<0.12
SW027	8/9/01 - *	0.40	<0.08	5.60	<0.12
SW093	9/8 - 9/20/01	0.15	<0.08	3.3	<0.12
SW093	9/20 - 10/1/01	<0.05	<0.08	2.90	<0.12
SW093	10/1 - 10/19/01	0.09	<0.08	1.5	<0.12
SW093	10/19 - 11/2/01	0.07	<0.08	0.66	<0.12
SW093	11/2 - 11/12/01	0.06	0.09	0.78	<0.12
SW093	11/12 - 11/26/01	0.07	<0.08	0.78	<0.12
SW093	11/26 - 12/17/01	0.06	0.09	1	<0.12
SW093	12/17/01 - 1/9/02	0.1	<0.08	1.1	<0.12

Table 5-37. Other Metals, Water Year 2002 (October, November, and December)

Analyte ug/l	Result GS22, 11/15/01 – 1/17/02	Result GS40, 10/1/01 – 11/1/01	Result GS4011/1/01 – 12/24/01	Result GS40, 12/24/01 – 1/21/02	Result GS43, 7/15/01 -
Aluminum	1670	585	1750	642	a
Antimony	<0.48	6.7	24.2	8.1	a
Arsenic	0.77	3.4	3.5	1.8	a
Barium	159	433	449	674	a
Beryllium	0.03	0.13	0.06	0.05	a
Cadmium	0.64	0.93	2.3	0.93	a
Calcium	83800	143000	137000	224000	a
Chromium	4	1.1	2.7	1.1	a
Cobalt	0.71	0.71	0.95	1.2	a
Copper	11.8	7.2	7.6	5.6	a
Iron	1490	17200	6220	3830	a
Lead	4.9	3.1	2.9	1.3	a
Lithium	66.2	13.3	47.7	39.1	a
Magnesium	13800	41300	28900	46200	a
Manganese	59.6	1290	706	891	a
Mercury	<0.10	<0.10	<0.10	<0.10	a
Molybdenum	0.67	0.49	1.3	2.3	a
Nickel	2.3	2.4	3.1	2.7	a
Potassium	7810	5870	12000	19900	a
Selenium	<0.90	<0.90	<0.90	<0.90	a
Silver	0.18	<0.12	<0.12	<0.12	a
Sodium	1120000	205000	1110000	1080000	a
Strontium	452	1170	1050	1710	a
Thallium	<1.4	<1.4	0.92	<1.4	a
Tin	0.94	<0.84	<0.84	<0.84	a
Vanadium	3.7	4.9	4.7	1.6	a
Zinc	395	402	362	259	a

a Composite sample in progress

Table 5-37. Other Metals, Water Year 2002 (October, November, and December) continued

Analyte ug/l	Result GS43, 7/15/01 -	Result GS44, 10/4/01 – 11/12/01	Result GS44, 11/12/01 -	Result GS49, 7/25/01 – 11/18/01	Result GS50, 8/9/01 -
Aluminum	198	a	1190	484	a
Antimony	<0.48	a	<0.48	<0.48	a
Arsenic	<0.75	a	<0.75	<0.75	a
Barium	2	a	8	283	a
Beryllium	0.02	a	0.08	<0.02	a
Cadmium	0.08	a	<0.08	2	a
Calcium	1100	a	8570	70900	a
Chromium	0.26	a	2.7	2	a
Cobalt	<0.70	a	0.97	0.52	a
Copper	1.4	a	2.6	23.5	a
Iron	199	a	1580	326	a
Lead	0.85	a	2	0.7	a
Lithium	0.24	a	2.1	9.1	a
Magnesium	236	a	800	8180	a
Manganese	13.9	a	43.1	73.6	a
Mercury	<0.10	a	<0.10	<0.10	a
Molybdenum	0.32	a	<0.28	<0.28	a
Nickel	0.76	a	2.8	3.7	a
Potassium	78.8	a	383	6660	a
Selenium	<0.90	a	<0.90	<0.90	a
Silver	<0.12	a	<0.12	<0.12	a
Sodium	950	a	492	319000	a
Strontium	2	a	10.7	347	a
Thallium	<1.4	a	0.78	<1.4	a
Tin	<0.82	a	<0.82	<0.82	a
Vanadium	0.13	a	1.3	0.83	a
Zinc	3	a	11.5	928	a

a Composite sample in progress

Table 5-37. Other Metals, Water Year 2002 (October, November, and December) continued

Analyte ug/l	Result SW119, 8/9/01 -	Result SW120, 9/13/01 -
Aluminum	b	a
Antimony	b	a
Arsenic	b	a
Barium	b	a
Beryllium	b	a
Cadmium	b	a
Calcium	b	a
Chromium	b	a
Cobalt	b	a
Copper	b	a
Iron	b	a
Lead	b	a
Lithium	b	a
Magnesium	b	a
Manganese	b	a
Mercury	b	a
Molybdenum	b	a
Nickel	b	a
Potassium	b	a
Selenium	b	a
Silver	b	a
Sodium	b	a
Strontium	b	a
Thallium	b	a
Tin	b	a
Vanadium	b	a
Zinc	b	a

a Composite sample in progress

b Incomplete analysis

Table 5-38. Water Quality Parameters, Water Year 2002 (October, November, and December)

Location	Sample Dates	Analyte Hardness mg/L
GS10	10/1 - 10/11/01	347
GS10	10/11 - 10/23/01	377
GS10	10/23 - 11/6/01	417
GS10	11/6 - 11/20/01	280
GS10	11/20 - 12/10/01	502
GS10	12/10 - 1/9/02	488
SW027	8/9/01 - a	73
SW093	10/1 - 10/19/01	335
SW093	10/19 - 11/2/01	401
SW093	11/2 - 11/12/01	340
SW093	11/12 - 11/26/01	367
SW093	11/26 - 12/17/01	671
SW093	12/17/01 - 1/9/02	376

a Sampler waiting to trigger on next flow period

Table 5-39. Buffer Zone/Hydrologic Water Quality Parameters, Water Year 2002 (October, November, and December)

Analyte mg/l	Result SW134, 10/31/01
TSS	<4
Calcium	25.2
Magnesium	6.28
Sodium	15.1
Potassium	1.74
Chloride	11.8
Fluoride	0.52
SO_4	36.1
HCO_3	74.4

6.0 INCIDENTAL WATERS

6.1 INCIDENTAL WATERS DEFINITION AND ROUTING MATRIX

An incidental water is defined as precipitation, surface water, groundwater, utility water, process water, or waste water collecting in one or more of several types of containments. These containments can include excavation sites, foundation drains, secondary containment berms, electrical vaults, utility pits and manholes, or other natural or manmade depressions, which must be dewatered.

Water collected in this manner has the potential to become contaminated via contact with the surrounding containment material. Sampling and disposition of incidental waters is conducted per Site Procedure 1-C91-EPR-SW.01, *Control and Disposition of Incidental Waters.* Incidental waters are typically sampled for pH, nitrates, conductivity, and gross alpha and gross beta (when radionuclides are suspected). Additional testing for volatile organic compounds and metals is performed when a specific potential contaminant source is known to exist. Disposition depends on the analytical results. Routing options for incidental waters are outlined in the following table.

Table 6-1. Incidental Waters Routing Matrix

Incidental Water Routing	Routing Criteria	Treatment Processes
Ground/Storm Drain	• Water meets discharge limits per Incidental Waters procedure	N/A
Building 995 Waste Water Treatment Plant (WWTP)	• Water above discharge to ground limits • Water meets Internal Waste Streams Program review criteria	Activated Sludge w/ tertiary clarifiers Dual media filtration UV disinfection
Building 891 Consolidated Water Treatment Facility (CWTF)	• Water above discharge to ground limits • Water not accepted by WWTP • Water meets CWTF acceptance criteria and has both radionuclide and organic constituents	Chemical precipitation Microfiltration UV/ peroxide oxidation Granular activated carbon Ion exchange
Building 374	• Water above discharge to ground limits • Water not accepted by WWTP • Water has radionuclides, but no organic constituents	Flash evaporation (Steam-heated reactor with spray evaporation)

6.2 QUARTERLY INCIDENTAL WATER DISPOSITIONS

Twenty seven (27) incidental waters were sampled/dispositioned during the first quarter of FY02. The following table summarizes the location and route of disposal.

Table 6-2. Quarterly Incidental Water Dispositions FY2002 (October, November, and December)

Location/Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
111	Ditch	West side of B111	1	Cancelled
215A	Building Pit	Concrete pit	1	To B891
22/47	Manhole	9th & Central	1	To B891
231A	Sump	Inside secondary containment	1	To B891, When Full
231B	Sump	Inside secondary containment	1	To B891, When Full
371	Fire Suppression System	Room 2307	1	To Ground or Storm Drain
440/439	Steam Condensate	Condendsate in cold waterpipes	1	To Ground or Storm Drain
5	Manhole	865	1	To B891
560	Cooling Tower	560 Cooling Tower	1	To B891
664	Leaking Roof	Leaking roof in 664	1	To Ground or Storm Drain
705	Fire Suppression System	South Entrance of Building	1	To Ground or Storm Drain
708	Building Pit	SE of 708 pit where sump pumps water out of manhole to unknown location	1	To Ground or Storm Drain
712	Building Pit	712 Cooling Towers	1	Cancelled
713 CT	Riser Pipes	Underground pipes	1	Cancelled
828	Building Pit		1	To B891
865	Fire Suppression System	NW side	1	To Ground or Storm Drain
881	Ditch	SW of Building	1	To Ground or Storm Drain
881 HILLSID	Collection Pool	South of B881	1	To B995, When Full
881 HILLSID	Collection Pool	Water entering flume	1	To B995
881 HILLSID	Collection Pool	From pipe on hillside	2	To B995, When Full

Table 6-2. Quarterly Incidental Waters Disposition FY02 (October, November, and December), con't.

Location/Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
881CT3	Cooling Tower	East of Building 881	2	To Ground or Storm Drain
883	Ditch	SE Corner of 883	1	To Ground or Storm Drain
886	Electrical Pit	Electrical Pit North of 886	1	To B891
T371H	Manhole	Manhole outside T371H	1	To B891
T690A	Excavation	Pit N/NE side of building	1	To Ground or Storm Drain

The 13 incidental waters requiring treatment were routed to the following Site treatment facilities:

- Building 995 – WWTP 4
- Building 891 – CWTF 9
- Building 374 0