

**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE  
QUARTERLY  
ENVIRONMENTAL MONITORING REPORT  
APRIL - JUNE 2001**



US Department of Energy, Rocky Flats Field Office  
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**AUGUST 2001**

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**PREPARED BY ROCKY MOUNTAIN REMEDIATION SERVICES, L.L.C.**

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**AUGUST 2001**

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## **HIGHLIGHTS FOR APRIL - JUNE 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 include the following locations: GS01, GS03, GS08, GS10, GS11, GS31, GS43, SW022, SW027, SW091, and SW093. Data include the hydrograph, mean daily flow and available water quality measurements for each location during the reporting period. Additional surface water locations supporting the Industrial Area Interim Measures/Interim Remedial Action (IA IM/IRA) program are GS27, GS32, GS39 and GS40 and are presented in the same manner as RFCA locations. 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. Some locations, like GS32, have no flow monitoring capabilities and only analytical data are provided. An additional section provides quarterly summary information for the Incidental Waters program.

### **Airborne Effluent**

Complete isotopic analytical data through May 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.

Effluent calibrations were performed in April 2001.

During June and July 2001, velocity profiling was performed on all effluent locations. The coefficient of variation for these measurements, which compare the most recent flow rate measurement to previous measurements to confirm constant flow rate, was well within the acceptance range of  $\pm 20$  percent.

## **Ambient Air**

Complete isotopic analytical data through May 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.

During the quarterly sample flow verification in March, all ambient air samplers were observed to have acceptable sample flow of 40 cubic feet per minute (cfm) ± 4 cfm.

## **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 April to June 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 calibration of all meteorological instruments was performed in April and all instruments were found to be operating within acceptable tolerances.

## **Surface Water**

Surface water analytical data collected during third quarter of FY01 (April, May, and June) for NPDES permit compliance are presented in this report.

During the month of May 2001, the Sewage Treatment Plant removal efficiency for carbonaceous biochemical oxygen demand (CBOD) removal was 84% where a minimum of 85% is required. While there were no elevated levels of CBOD in the effluent, influent levels appear to be low. In fact, some influent results were so low (including one non-detect) that the reduction in removal efficiency was initially suspected to be either an analytical or sampling error. Subsequent evaluations of influent configuration, sampler location, and analytical methods have determined that the inlet of the influent sample collection line was resting on the bottom of the influent splitter box and not providing a representative sample. The collection line was reconfigured to more appropriately sample the influent stream. No problems with sample composite collection or analytical errors were identified.

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 third quarter of FY01 (April, May, and June) from samples supporting RFCA and Hydrologic Monitoring programs are included in this report. Three new RFCA stations were added the routine monitoring program during the quarter. Gaging station GS50 was installed in support remediation activities for the Solar Ponds and the ongoing GS10 Source Evaluation efforts and monitors runoff from the south side of the Solar Ponds area. SW119 was also installed in support of the remediation activities for the Solar Ponds and monitors the runoff from the east and north sides of the Solar Ponds area. And finally, SW055 was installed in support of the remediation activities for the 903 Pad and Lip area and monitors runoff from the southeast side of the 903 Pad area.

### **Incidental Water Monitoring**

A summary of Incidental Waters dispositioned during third quarter of FY01 (April, May, and June) are presented in this report.

## 1.0 AIR DATA

### 1.1 EFFLUENT AIR DATA

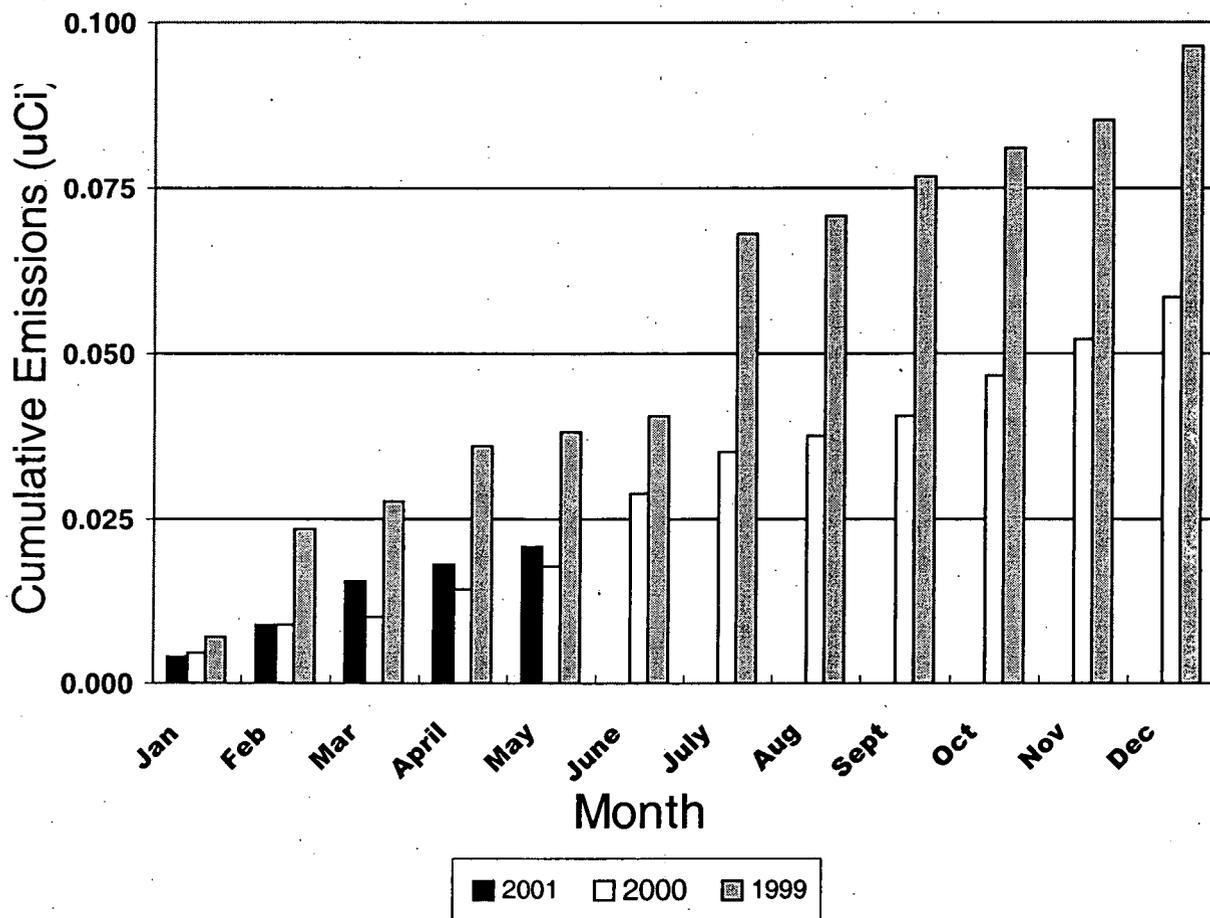
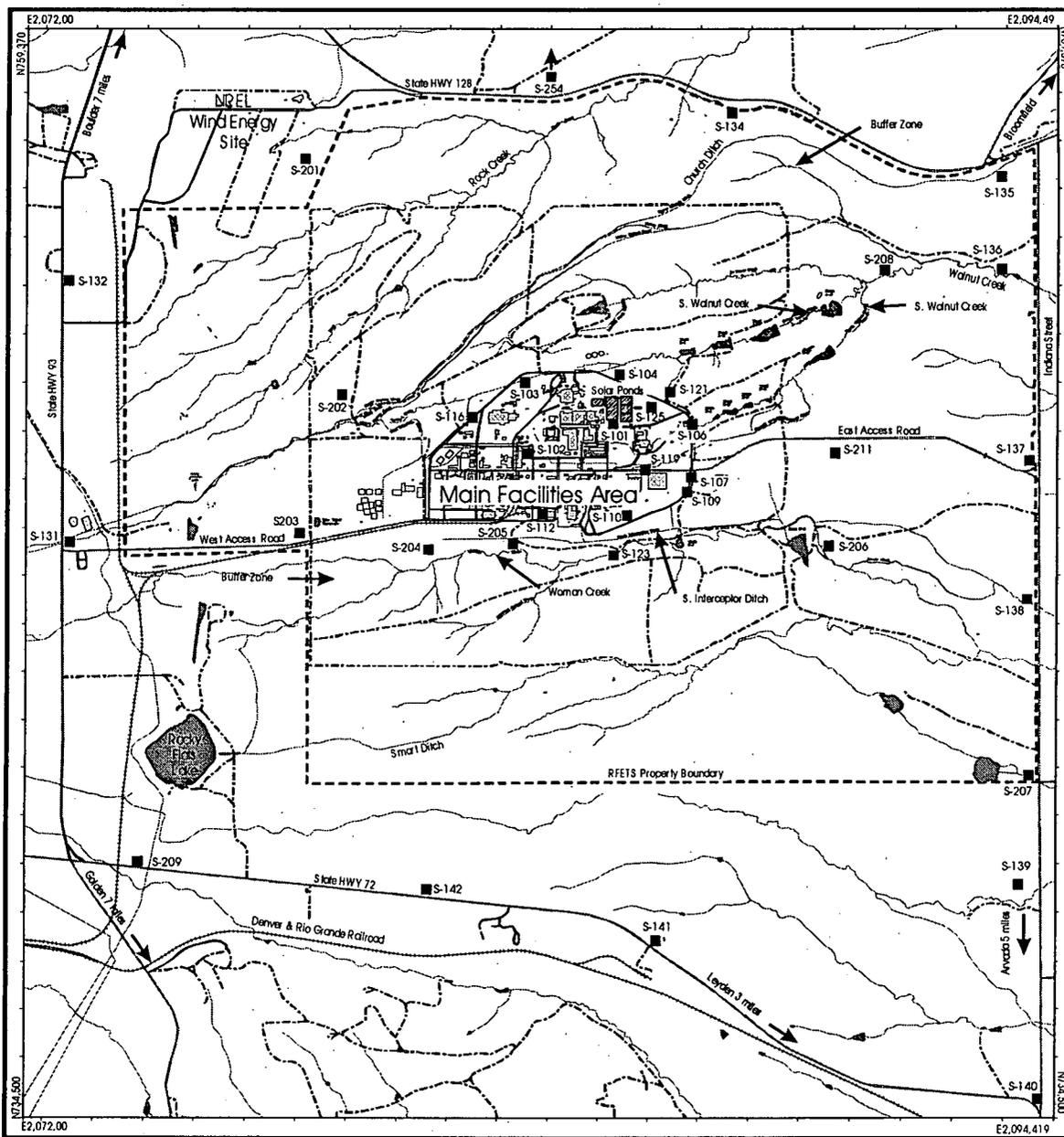


Figure 1-1 Cumulative Plutonium Airborne Effluent Emissions

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 (March, April and May 2001) while slightly higher than respective 2000 data, were consistent with previously measured plutonium concentrations, with a cumulative, year-to-date (May 2001) plutonium emission of 0.021 micro curies (uCi).

Americium and uranium emissions for March, April and May 2001, while slightly higher than respective 1999 and 2000 data, were consistent with the levels seen in 1998, 1999, and 2000.

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



<p><b>Standard Maps Features</b></p> <ul style="list-style-type: none"> <li> Buildings</li> <li> Lakes &amp; ponds</li> <li> Streams, ditches, or other drainage features</li> <li> Fences</li> <li> Rocky Flats Boundary</li> <li> Heavy duty paved roads</li> <li> Medium duty paved roads</li> <li> Light duty paved roads</li> <li> Railroads</li> <li> Dirt roads</li> </ul>		<p><b>Location of Onsite and Perimeter Air Samplers</b></p> <p>700 0 1400 2800                  State Plane Coordinate Projection                  Colorado Central Zone                  Datum: NAD27</p>	
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li> Air Sampler</li> </ul>		<p>Rocky Mountain Remediation Services, L.L.C.                  Geographic Information Systems Group                  Rocky Flats Environmental Technology Site                  P.O. Box 484                  Golden, CO 80402-0484</p> <p>99-0053_3-23-00</p>	

## 2.0 AMBIENT AIR DATA

### 2.1.1 Perimeter Sampler Locations

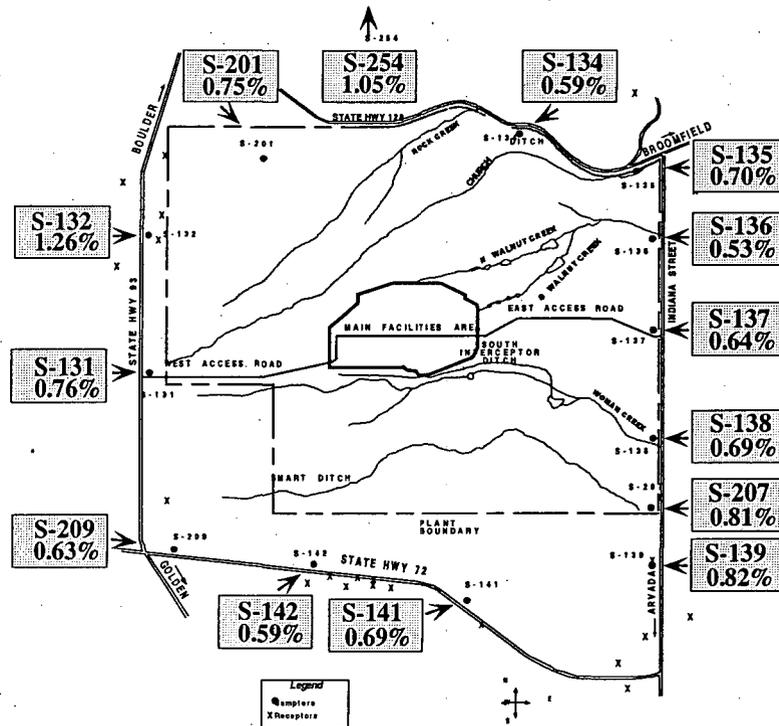


Figure 2-1. Perimeter Samplers Dose Map

The above map illustrates the perimeter Radioactive Ambient Air Monitoring Program (RAAMP) sampler locations and the twelve-month rolling-average maximum potential dose through May 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 or 1.26% of the Rad NESHAP concentration limit. All perimeter samplers show percentages consistent with the previously reported results ranging from 0.53 % at S-136 (northeast corner of Site) to the high at S-132 stated previously.

2.1.2 Perimeter Sampler Locations – Dose Rate Graphs

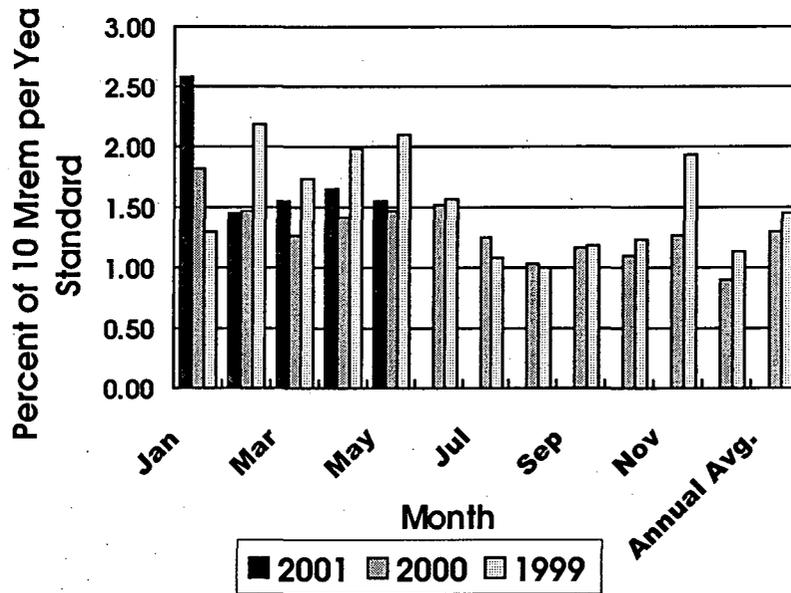


Figure 2-2. Offsite Dose Rate Summary

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 rates for March, April and May of 2001 were seen at locations S-138, S-132 and S-254, respectively. The maximum offsite dose rate remains below 2.5 percent of the 10 mrem standard at all locations except S-254, where the dose rate was 2.6 percent. This reflects the elevated concentrations of naturally occurring uranium (U-234 and 238) due to a heavily loaded filter in January 2001, as mentioned in the May 2001 Quarterly Report.

**2.2.2 Perimeter Sampler Locations – Dose Rate Graphs, continued**

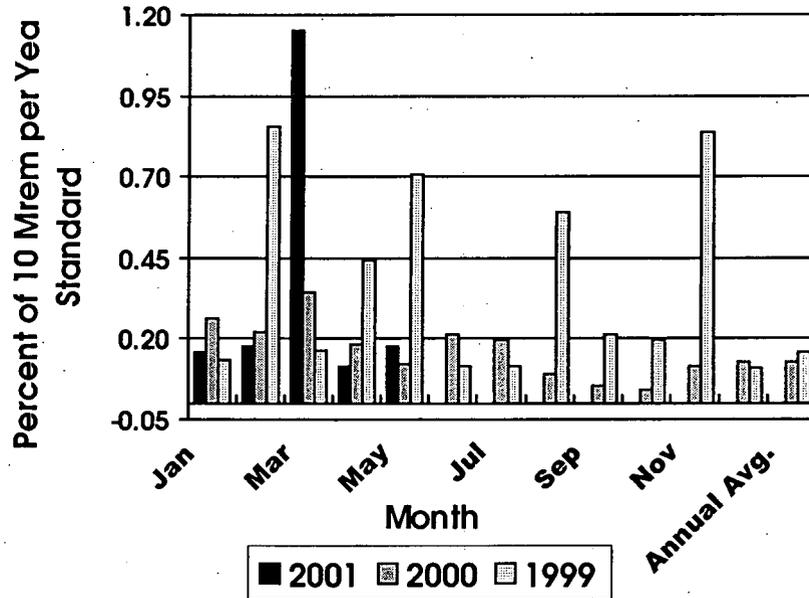


Figure 2-3. Offsite Dose Rate Summary Without U-234 and U-238

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 dose rates during this period were at S-138 for both March and April and S-131 for May.

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

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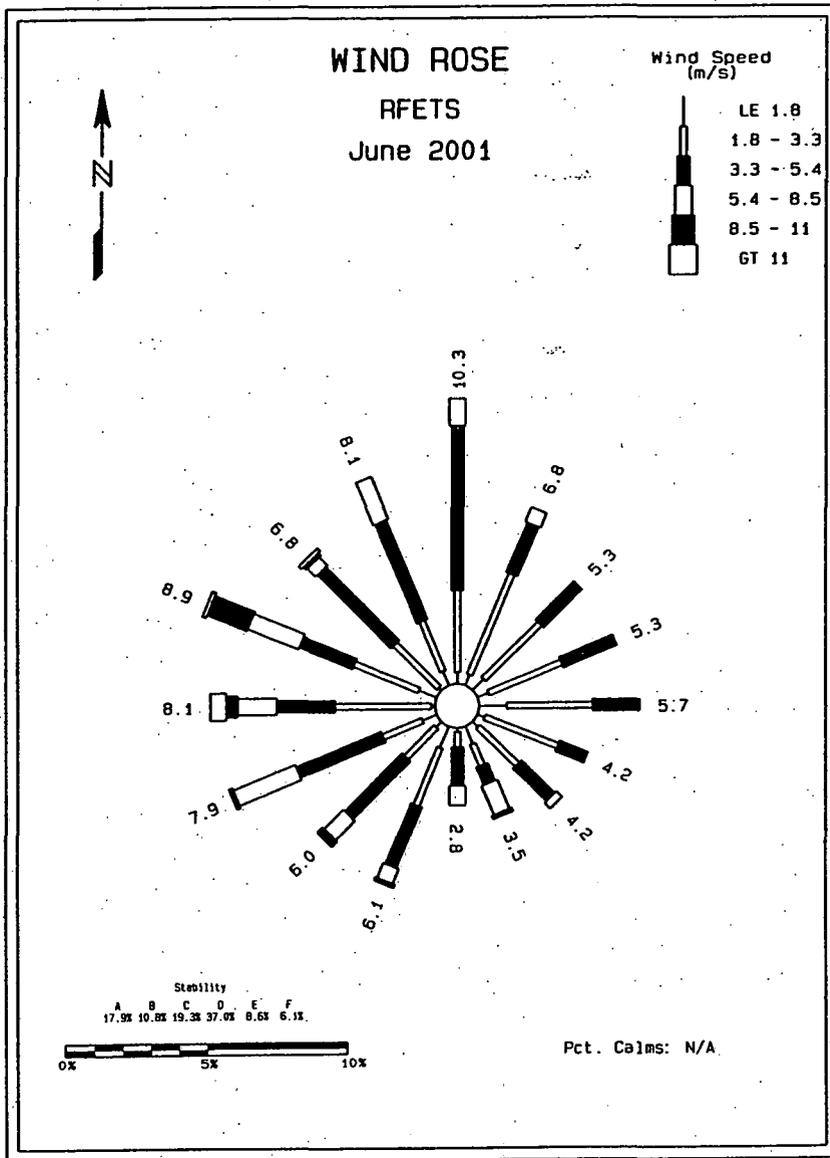


Figure 3-3. Wind Rose for Rocky Flats Environmental Technology Site for June 2001

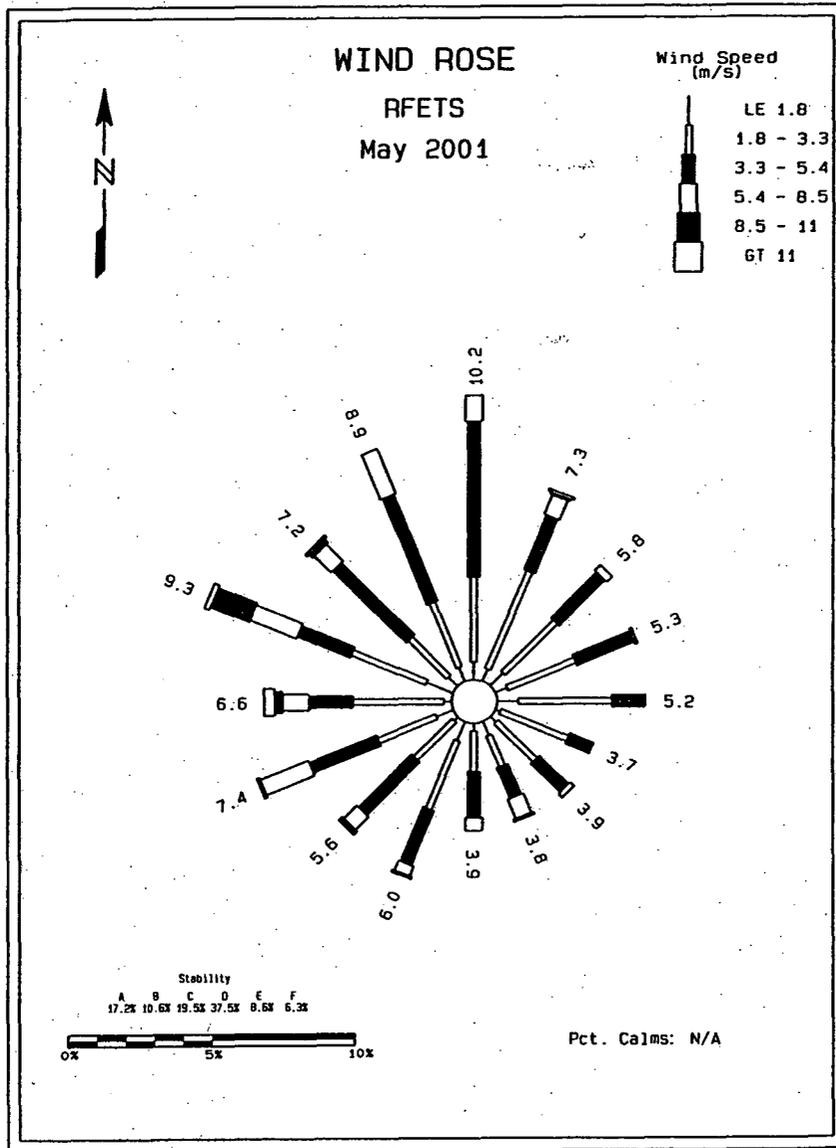


Figure 3-2. Wind Rose for Rocky Flats Environmental Technology Site for May 2001

### 3.0 METEOROLOGY AND CLIMATOLOGY

#### 3.1 WIND ROSES FOR APRIL, MAY, AND JUNE 2001

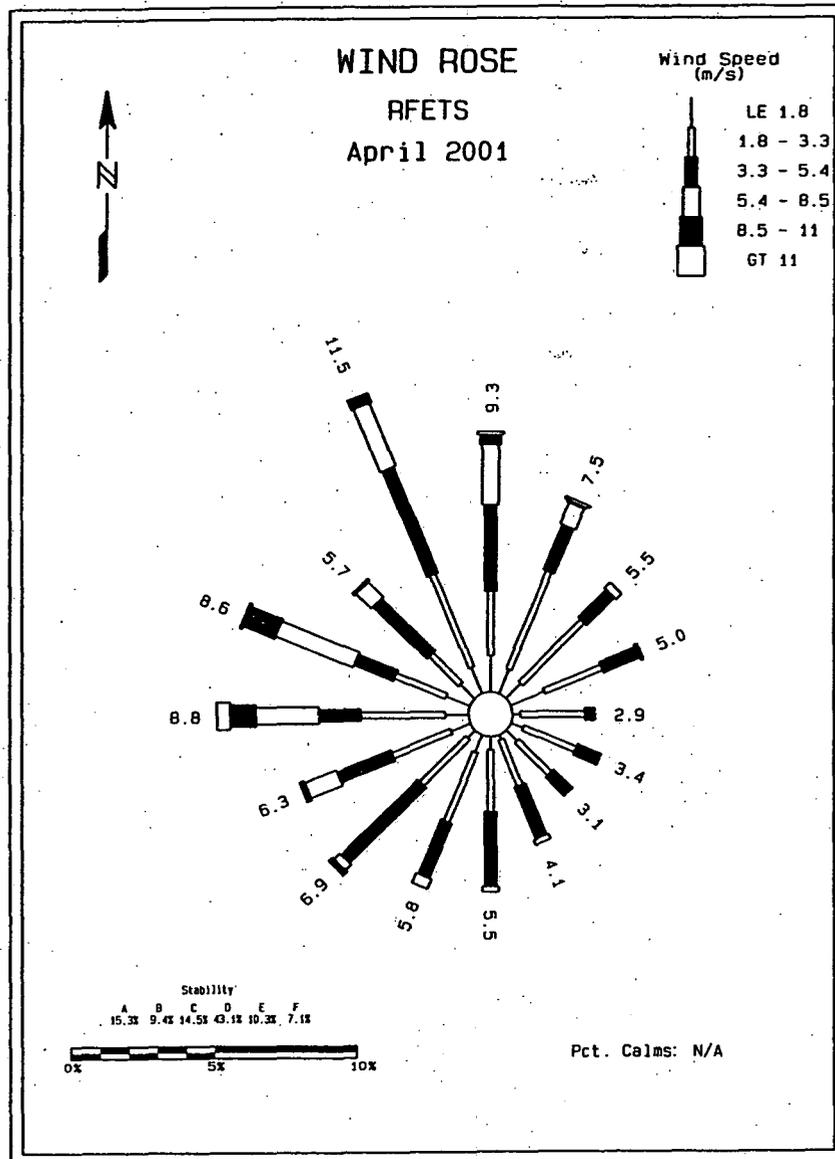


Figure 3-1. Wind Rose for Rocky Flats Environmental Technology Site for April 2001

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## 4.0 SURFACE WATER DATA

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

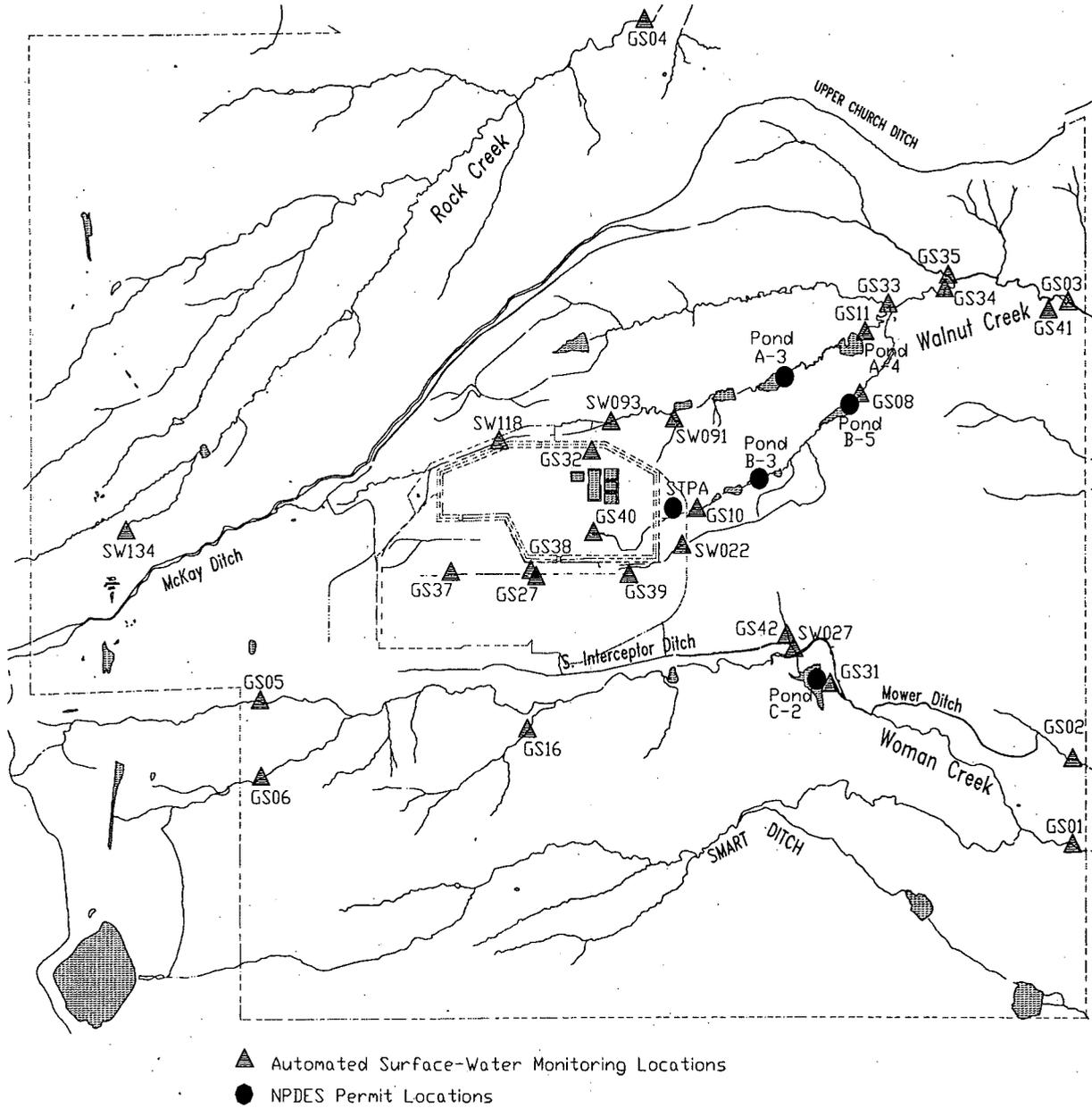




Table 4-1. Sewage Treatment Plant (Outfall STP1), continued

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 - 2	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross beta, pCi/l	4 - 7	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 dichloroethane, 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 dichloroethylene, 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 trichloroethane, ug/l	<1	200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2 dichloroethylene (total), ug/l	<1	70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethylene, ug/l	<1 - 2	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethylene, 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

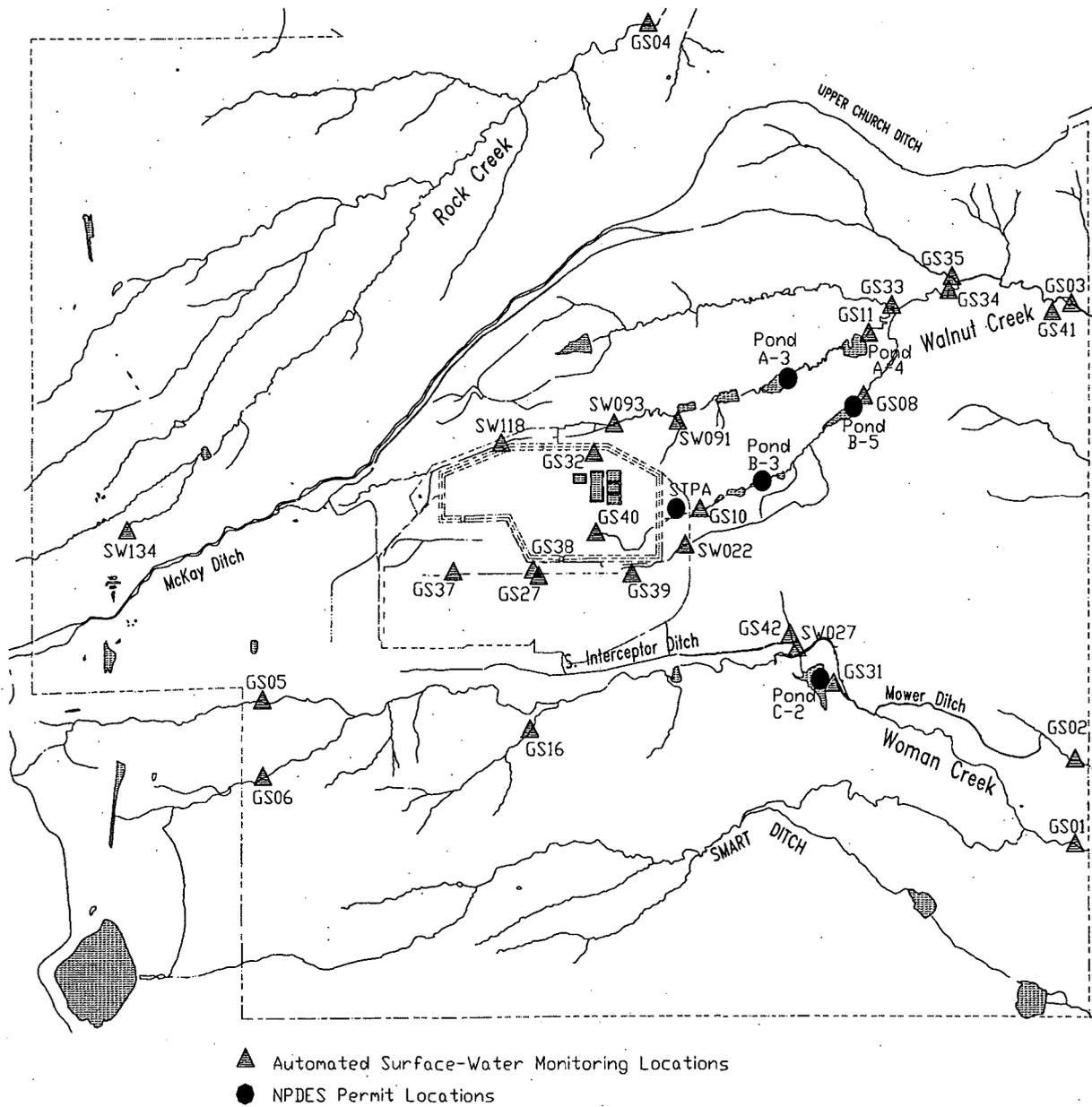
## 4.2 MOUND PLUME SUMMARY DATA

Table 4-2. Mound Plume Locations SW061 and SW132

Analyte	SW061	SW132
	05/15/01	05/15/01
Pu 239/240, pCi/l	0.007 +/- 0.015	-0.002 +/- 0.015
Am 241, pCi/l	0.007 +/- 0.018	0.008 +/- 0.015
Silver, dissolved, ug/l	<0.25	<0.25
Aluminum, total, ug/l	78.9	111
Arsenic, total, ug/l	0.78	0.61
Barium, total, ug/l	324	196
Beryllium, total, ug/l	0.05	0.08
Cadmium, dissolved, ug/l	<0.08	0.51
Copper, dissolved, ug/l	1.8	3.4
Iron, total, ug/l	158	117
Mercury, total, ug/l	<0.10	<0.10
Manganese, total, ug/l	142	11.6
Nickel, dissolved, ug/l	1.6	1.7
Lead, dissolved, ug/l	<0.65	<0.65
Antimony, total, ug/l	<0.48	8.8
Selenium, dissolved, ug/l	1.1	2.5
Zinc, dissolved, ug/l	181	198
EPA VOA Method 8260, compounds found >RFCA Seg 5 Action Level	Carbon tetrachloride 15 ug/l (temp mod 5 ug/l) Tetrachloroethene 10 ug/l (temp mod 5 ug/l) Trichloroethene 7 ug/l (temp mod 5 ug/l)	None detected

## 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	Apr-01	May-01	Jun-01
1	0.304	0.221	0.054
2	0.236	0.319	0.033
3	0.195	1.069	0.027
4	0.178	3.311	0.032
5	0.175	30.979a	0.061
6	0.175	6.208	0.050
7	0.148	1.877	0.024
8	0.127	1.150	0.021
9	0.107	0.794	0.021
10	0.117	0.629	0.026
11	0.407	0.528	0.024
12	1.056	0.438	0.020
13	2.100	0.364	0.023
14	1.863	0.290	0.005
15	1.193	0.253	0.017
16	0.703	0.198	1.086
17	0.542	0.193	1.251
18	0.447	0.296	1.134
19	0.336	0.328	1.301
20	0.253	0.317	1.292
21	0.251	0.543	1.245
22	0.921	0.546	1.334
23	2.765	0.298	1.263
24	3.883	0.185	1.108
25	1.298	0.125	0.141
26	0.746	0.082	0.029
27	0.530	0.067	0.019
28	0.424	0.091	0.009
29	0.363	0.190	0.005
30	0.283	0.132	0.000
31	NA	0.080	NA
Monthly Average (cfs)	0.738	1.681	0.388

Monthly Discharge

Cubic Feet	1911713	4501668	1006774
Gallons	14300608	33674814	7531194
Acre-Feet	43.89	103.34	23.11

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

<sup>a</sup> 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.

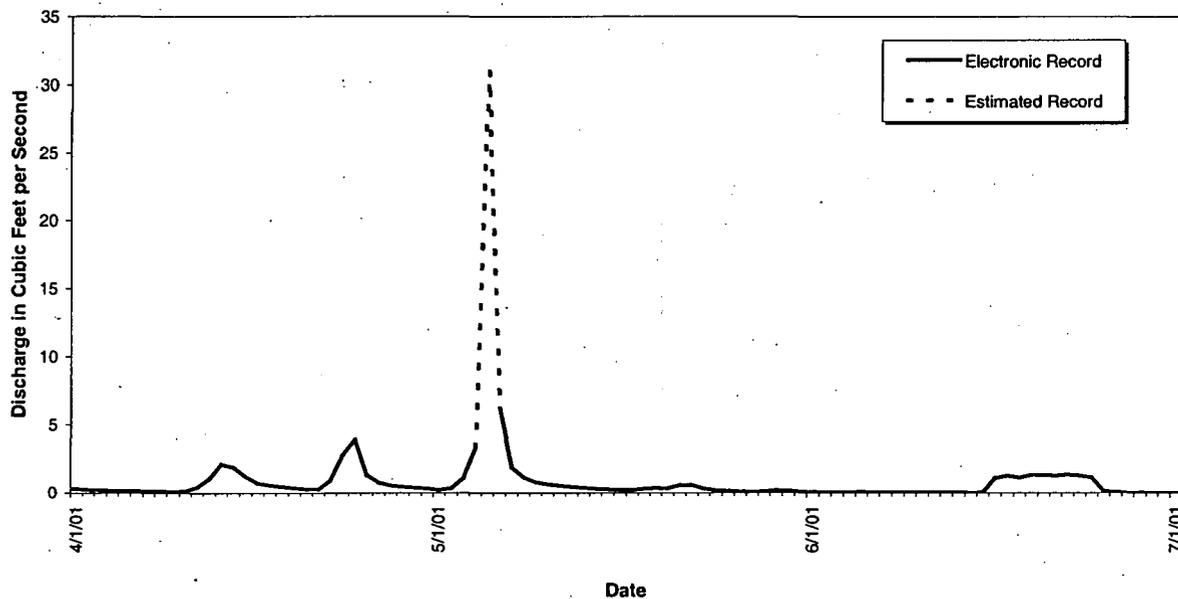


Figure 5-1. Mean Daily Discharge at GS01, Water Year 2001 (April, May, and June)

Table 5-2. Gaging Station GS03: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.005	0.004	0.034
2	0.004	0.007	0.032
3	0.004	1.619	0.038
4	0.004	4.821	0.054
5	0.004	14.264	0.046
6	0.004	10.037	0.035
7	0.003	7.155	0.017
8	0.005	5.554	0.012
9	0.005	5.257	0.010
10	0.007	4.726	0.007
11	0.013	4.065	0.007
12	0.083	3.799	0.009
13	0.588	3.417	0.015
14	1.143	3.654	0.011
15	0.886	3.553	0.006
16	0.292	3.226	0.004
17	0.066	3.133	0.007
18	0.009	2.573	0.006
19	0.001	1.999	0.003
20	0.000	1.513	0.004
21	0.000	1.127	0.004
22	0.200	0.154	0.004
23	1.919	0.090	0.004
24	2.741	0.111	0.005
25	0.784	0.056	0.007
26	0.249	0.046	0.010
27	0.069	0.048	0.015
28	0.016	0.058	0.875
29	0.007	0.036	2.049
30	0.004	0.035	1.562
31	NA	0.041	NA
Monthly Average (cfs)	0.304	2.780	0.163

Monthly Discharge

Cubic Feet	787639	7445784	422516
Gallons	5891948	55698335	3160638
Acre-Foot	18.08	170.93	9.70

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

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.

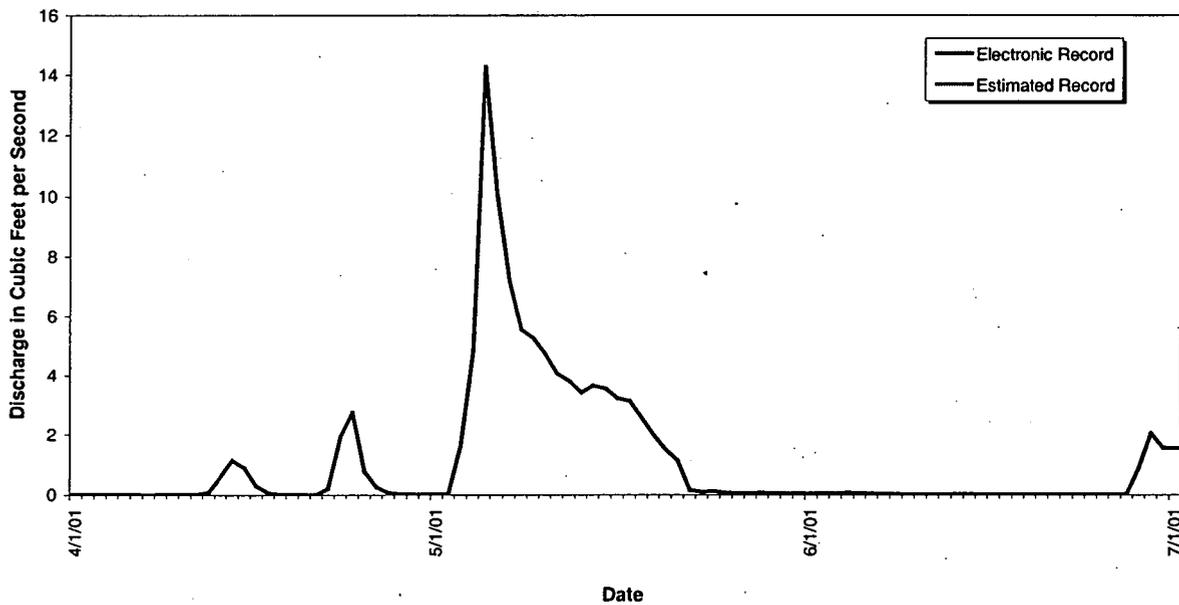


Figure 5-2. Mean Daily Discharge at GS03, Water Year 2001 (April, May, and June)

Table 5-3. Gaging Station GS08: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	1.822	0.000
4	0.000	3.004	0.000
5	0.000	6.462	0.000
6	0.000	5.539	0.000
7	0.000	2.448	0.000
8	0.000	2.161	0.000
9	0.000	2.021	0.000
10	0.000	2.070	0.000
11	0.000	1.961	0.000
12	0.000	1.912	0.000
13	0.000	1.702	0.000
14	0.000	1.847	0.000
15	0.000	1.659	0.000
16	0.000	1.557	0.000
17	0.000	1.531	0.000
18	0.000	1.464	0.000
19	0.000	1.273	0.000
20	0.000	1.186	0.000
21	0.000	0.812	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	1.816
29	0.000	0.000	2.742
30	0.000	0.000	2.220
31	NA	0.000	NA
Monthly Average (cfs)	0.000	1.369	0.226

Monthly Discharge

Cubic Feet	0	3666143	585543
Gallons	0	27424656	4380164
Acre-Feet	0.00	84.16	13.44

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.

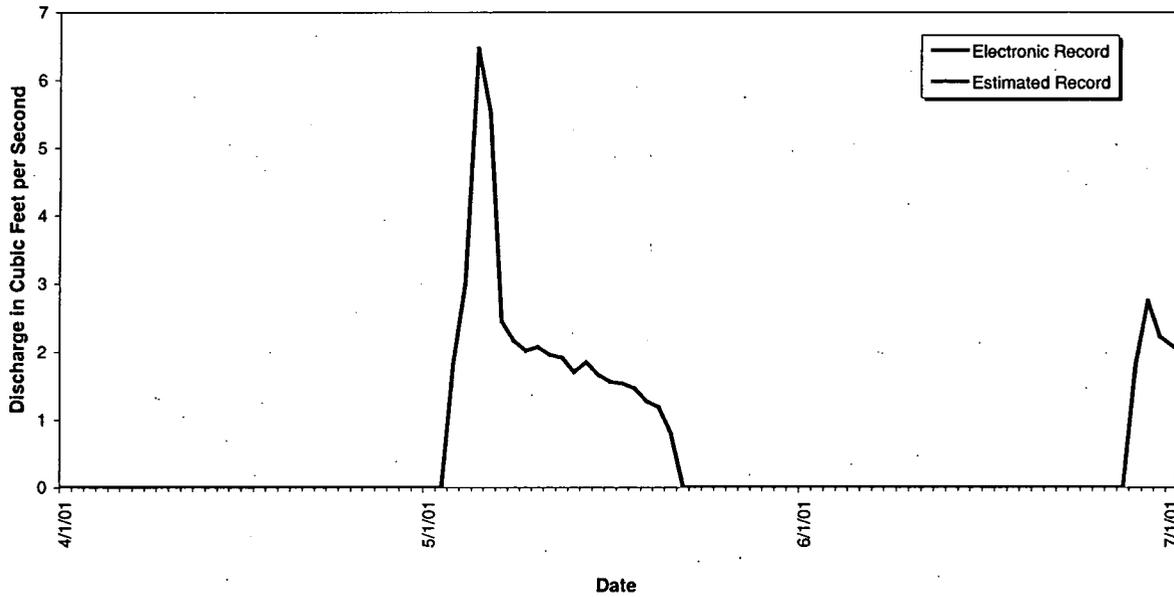


Figure 5-3. Mean Daily Discharge at GS08, Water Year 2001 (April, May, and June)

Table 5-4. Gaging Station GS10: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.055a	0.075	0.092
2	0.055a	0.568a	0.095
3	0.053a	1.268a	0.100
4	0.052a	2.100a	0.144
5	0.052a	4.373a	0.168
6	0.051a	0.305	0.102
7	0.049a	0.180	0.130a
8	0.047a	0.135	0.104
9	0.044a	0.119	0.105
10	0.087a	0.108	0.105
11	1.406a	0.098	0.105
12	1.441a	0.093	0.101
13	0.521a	0.089	0.633
14	0.227a	0.110	0.075
15	0.135a	0.087	0.066
16	0.085a	0.085	0.063
17	0.082	0.152	0.061
18	0.083a	0.092	0.058
19	0.074	0.565	0.056
20	0.069	0.585	0.053
21	0.419a	0.583	0.051
22	2.158a	0.112	0.050
23	1.143a	0.092	0.049
24	0.221a	0.086	0.046
25	0.140	0.088	0.045
26	0.108	0.088	0.054
27	0.092	0.092	0.032
28	0.091	0.359	0.032
29	0.081	0.117	0.030
30	0.073	0.094	0.028
31	NA	0.092	NA
Monthly Average (cfs)	0.306	0.419	0.094

Monthly Discharge

Cubic Feet	794415	1122333	244795
Gallons	5942640	8395637	1831192
Acre-Feet	18.24	25.77	5.62

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

<sup>a</sup> 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.

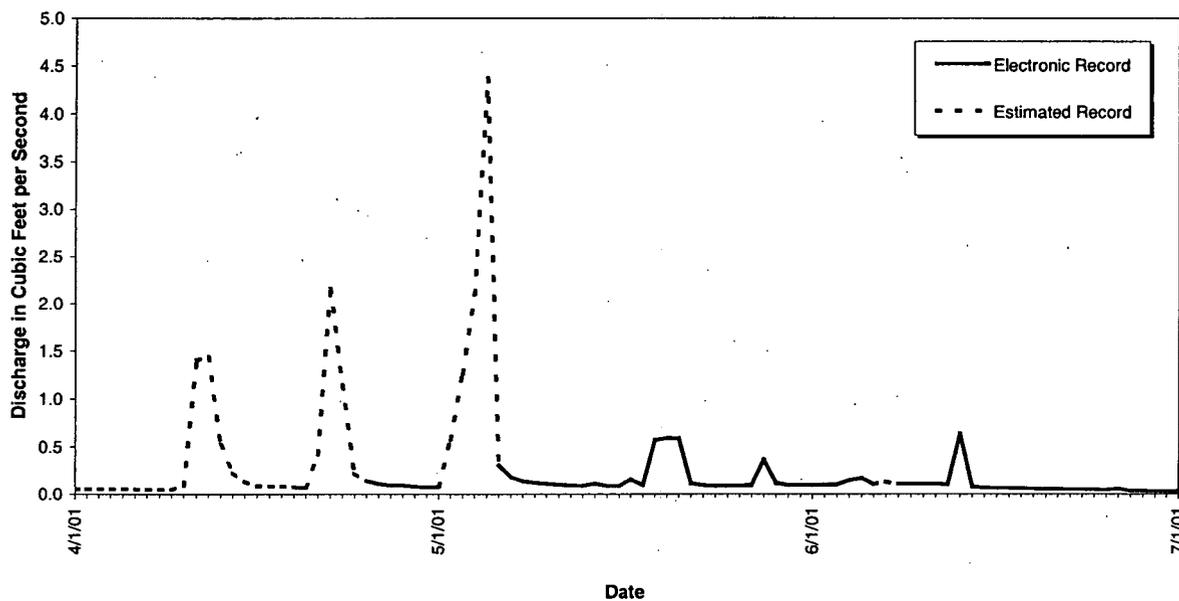


Figure 5-4. Mean Daily Discharge at GS10, Water Year 2001 (April, May, and June)

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

Day	Apr-01	May-01	Jun-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	2.537	0.000
7	0.000	4.498	0.000
8	0.000	3.585	0.000
9	0.000	3.576	0.000
10	0.000	2.943	0.000
11	0.000	2.438	0.000
12	0.000	2.272	0.000
13	0.000	2.179	0.000
14	0.000	2.244	0.000
15	0.000	2.322	0.000
16	0.000	2.010	0.000
17	0.000	1.841	0.000
18	0.000	1.333	0.000
19	0.000	0.904	0.000
20	0.000	0.562	0.000
21	0.000	0.143	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	NA	0.000	NA
Monthly Average (cfs)	0.000	1.142	0.000

Monthly Discharge

Cubic Feet	0	3057487	0
Gallons	0	22871591	0
Acre-Feet	0.00	70.19	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.

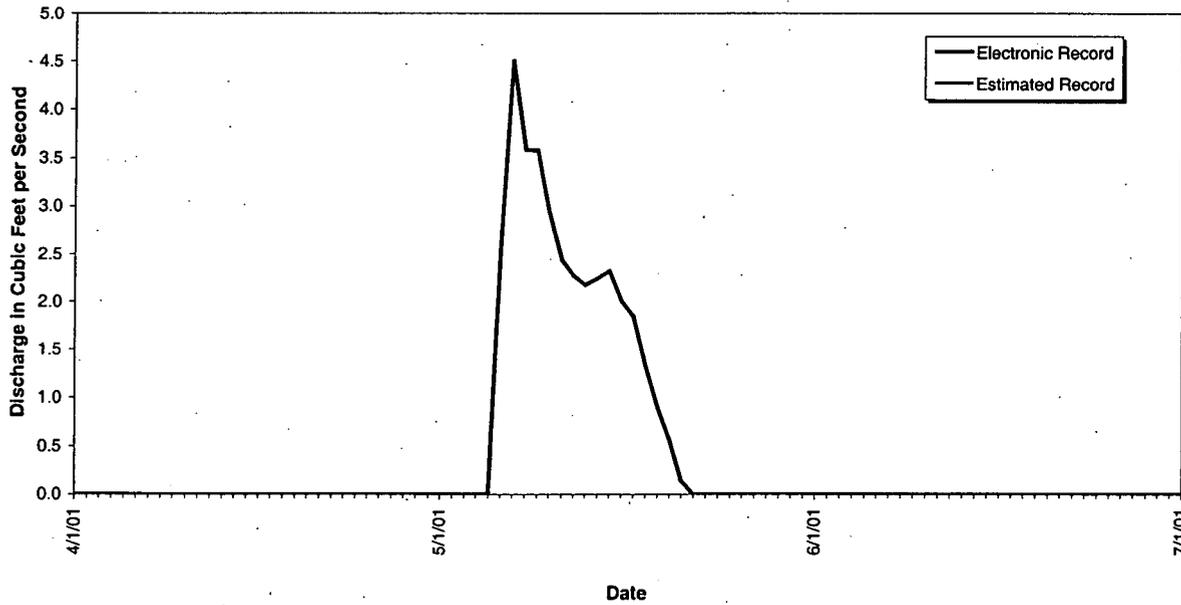


Figure 5-5. Mean Daily Discharge at GS11 Water Year 2001 (April, May, and June)

Table 5-6. Gaging Station GS27: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0009	0.0000
3	0.0000	0.0031	0.0000
4	0.0000	0.0062	0.0000
5	0.0000	0.0083	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	0.0065	0.0000	0.0000
12	0.0057	0.0000	0.0000
13	0.0004	0.0000	0.0008
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	0.0010	0.0000
20	0.0000	0.0017	0.0000
21	0.0003	0.0010	0.0000
22	0.0049	0.0000	0.0000
23	0.0038	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	0.0001	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.001	0.001	0.000

Monthly Discharge

Cubic Feet	1866	1942	67
Gallons	13960	14528	498
Acre-Feet	0.04	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.

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.

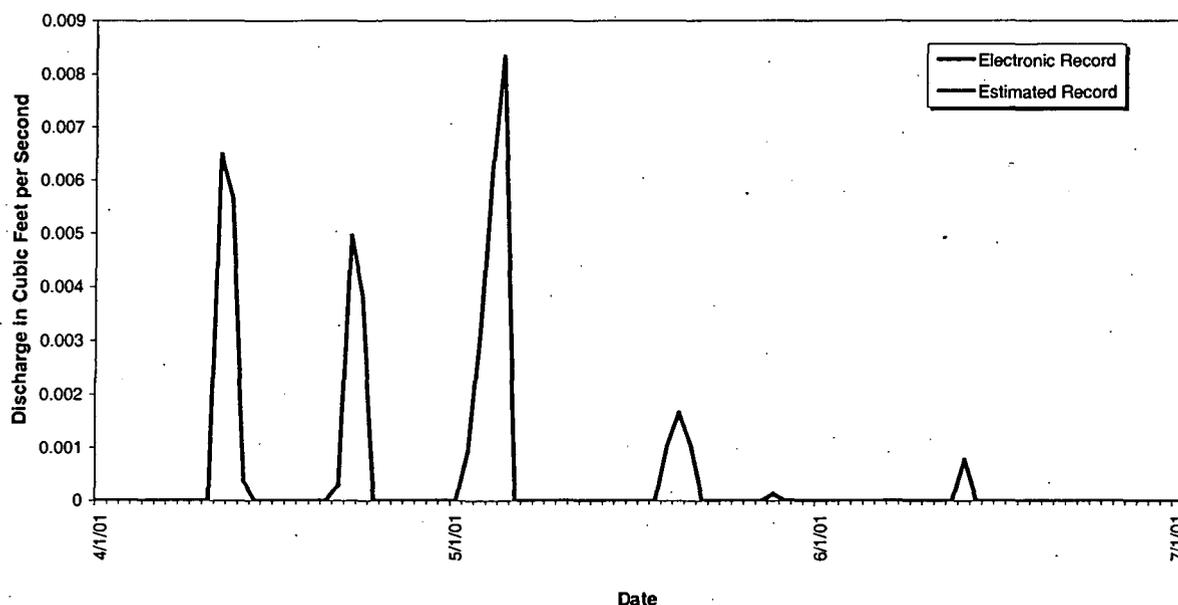


Figure 5-6. Mean Daily Discharge at GS27 Water Year 2001 (April, May, and June)

Table 5-7. Gaging Station GS31: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-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	0.853
16	0.000	0.000	1.662
17	0.000	0.000	1.653
18	0.000	0.000	1.491
19	0.000	0.000	1.598
20	0.000	0.000	1.556
21	0.000	0.000	1.571
22	0.000	0.000	1.699
23	0.000	0.000	1.614
24	0.000	0.000	1.018
25	0.000	0.000	0.150
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	NA	0.000	NA
Monthly Average (cfs)	0.000	0.000	0.495

Monthly Discharge

Cubic Feet	0	0	1284277
Gallons	0	0	9607063
Acre-Feet	0.00	0.00	29.48

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.

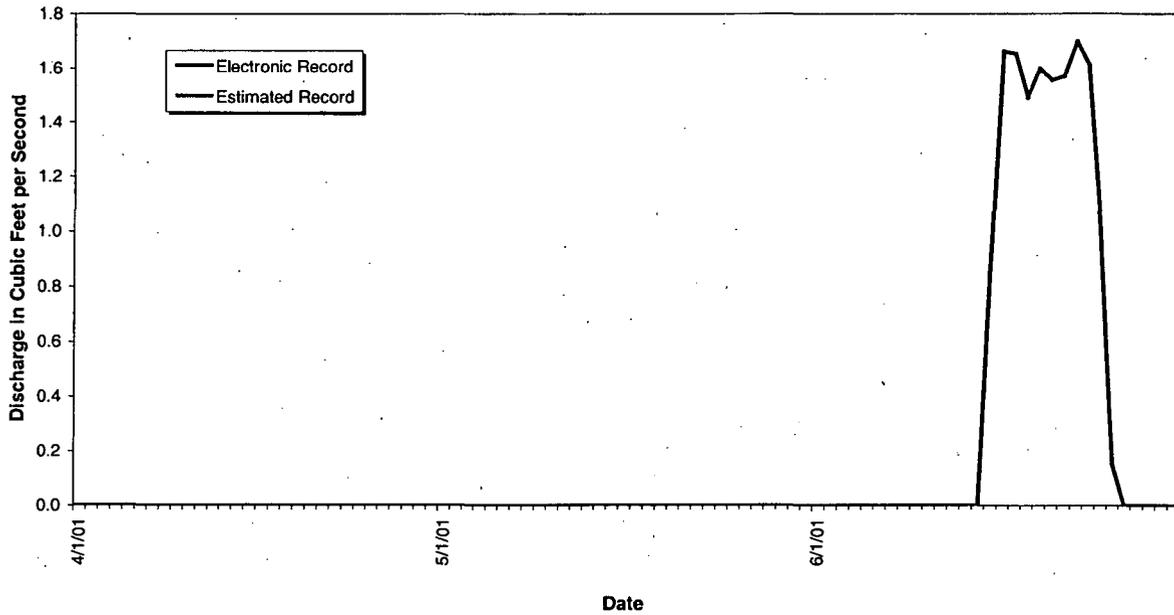


Figure 5-7. Mean Daily Discharge at GS31 Water Year 2001 (April, May, and June)

Table 5-8. Gaging Station GS39: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0004	0.0000	0.0000
2	0.0001	0.0219	0.0000
3	0.0000	0.0598	0.0000
4	0.0000	0.1033	0.0000
5	0.0000	0.1720	0.0014
6	0.0000	0.0002	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0003	0.0000	0.0000
11	0.0822	0.0000	0.0000
12	0.0503	0.0000	0.0000a
13	0.0096	0.0000	0.0186a
14	0.0057	0.0000	0.0001a
15	0.0025	0.0000	0.0000a
16	0.0001	0.0000	0.0000a
17	0.0012	0.0001	0.0000a
18	0.0004	0.0000	0.0000a
19	0.0000	0.0178	0.0000a
20	0.0000	0.0147	0.0000a
21	0.0163	0.0237	0.0000a
22	0.0802	0.0000	0.0000a
23	0.0399	0.0000	0.0000a
24	0.0022	0.0000	0.0000a
25	0.0002	0.0000	0.0000a
26	0.0000	0.0000	0.0000a
27	0.0000	0.0000	0.0000a
28	0.0000	0.0134	0.0000a
29	0.0000	0.0001	0.0000a
30	0.0000	0.0000	0.0000a
31	NA	0.0000	NA
Monthly Average (cfs)	0.010	0.014	0.001

Monthly Discharge

Cubic Feet	25211	36898	1734
Gallons	188588	276013	12975
Acre-Feet	0.58	0.85	0.04

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

<sup>a</sup> 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.

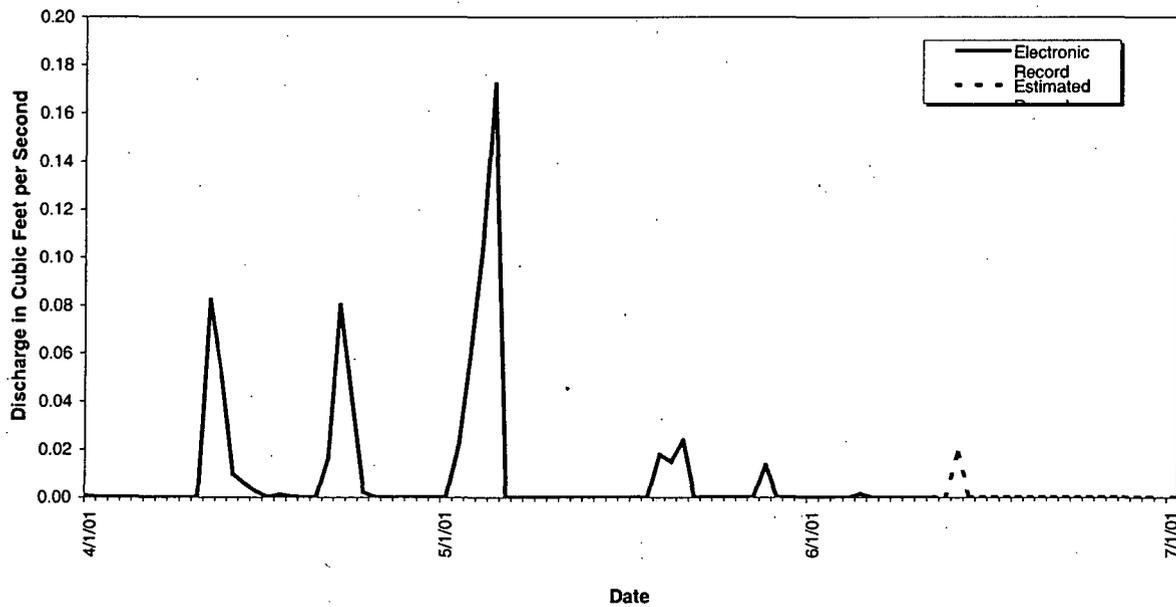


Figure 5-8. Mean Daily Discharge at GS39 Water Year 2001 (April, May, and June)

Table 5-9. Gaging Station GS40: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.041	0.051	0.014
2	0.046	0.254	0.018
3	0.044	0.376	0.018
4	0.037	0.576	0.052a
5	0.032	0.949	0.037a
6	0.031a	0.114	0.013a
7	0.022a	0.085	0.037a
8	0.011	0.074	0.017a
9	0.014	0.069	0.019a
10	0.043	0.065	0.026
11	0.318	0.062	0.031
12	0.355	0.059	0.029
13	0.162	0.055	0.220
14	0.059	0.069	0.038
15	0.034	0.050	0.036
16	0.026	0.051	0.036
17	0.025	0.101	0.036
18	0.024	0.050	0.036
19	0.026	0.193	0.039
20	0.038	0.185	0.040
21	0.175	0.204	0.040
22	0.461	0.063	0.040
23	0.352	0.053	0.040
24	0.091	0.046	0.042
25	0.068	0.041	0.043
26	0.058	0.034	0.054
27	0.053	0.029	0.033
28	0.058	0.130	0.034
29	0.055	0.029	0.035
30	0.051	0.025	0.036
31	NA	0.014	NA
Monthly Average (cfs)	0.094	0.134	0.040

Monthly Discharge

	Apr-01	May-01	Jun-01
Cubic Feet	242937	358937	102790
Gallons	1817297	2685036	768920
Acre-Feet	5.58	8.24	2.36

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

<sup>a</sup> 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 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.

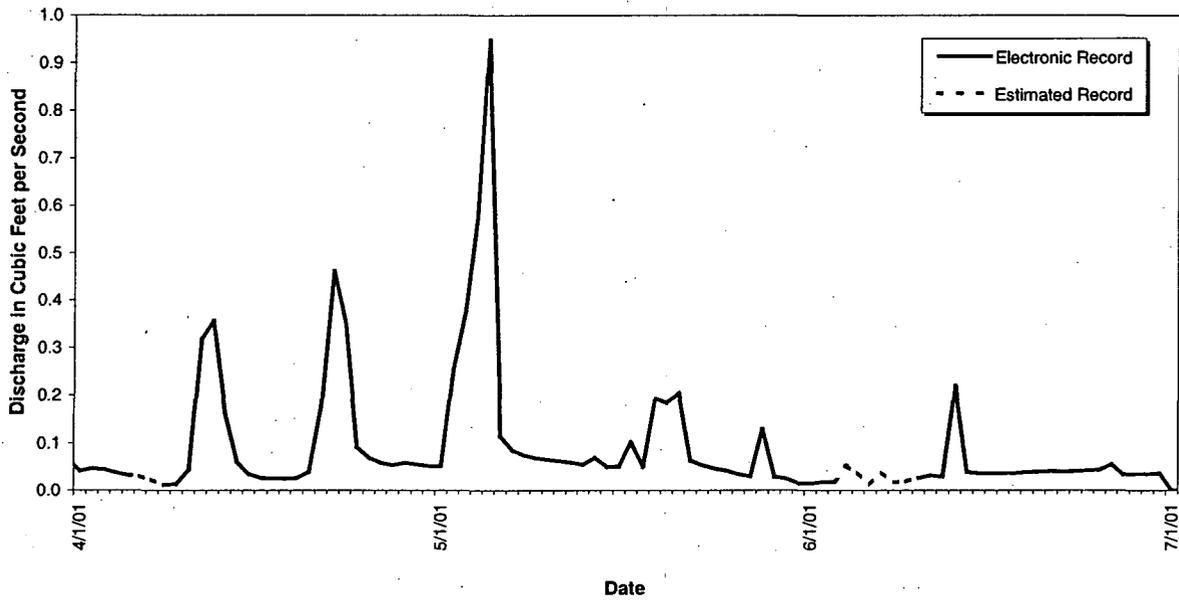


Figure 5-9. Mean Daily discharge at GS40 Water Year 2001 (April, May, and June)

Table 5-10. Gaging Station GS43: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-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	0.0106	0.0000
5	0.0000	0.0265	0.0000
6	0.0000	0.0152	0.0000
7	0.0000	0.0140	0.0000
8	0.0000	0.0025	0.0000
9	0.0000	0.0020	0.0000
10	0.0000	0.0016	0.0000
11	0.0000	0.0009	0.0000
12	0.0065	0.0004	0.0000
13	0.0047	0.0009	0.0000
14	0.0040	0.0002	0.0000
15	0.0013a	0.0005	0.0000
16	0.0013	0.0000	0.0000
17	0.0004	0.0000	0.0000
18	0.0001	0.0000	0.0000
19	0.0000	0.0006	0.0000
20	0.0000	0.0000	0.0000
21	0.0002	0.0013	0.0000
22	0.0022	0.0009	0.0000
23	0.0004a	0.0003	0.0000
24	0.0000	0.0001	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	0.0001	0.0000
30	0.0000	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.001	0.003	0.000

Monthly Discharge

Cubic Feet	1814	6791	1
Gallons	13570	50798	8
Acre-Feet	0.04	0.16	0.00

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

<sup>a</sup> 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.

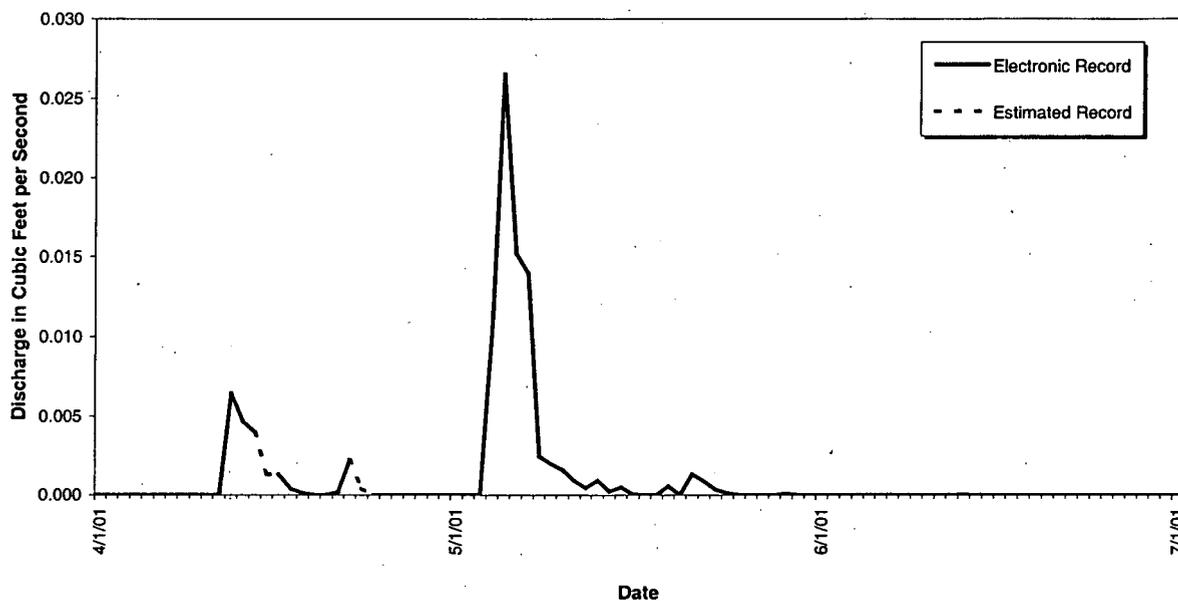


Figure 5-10. Mean Daily Discharge at GS43, Water Year 2001 (April, May, and June)

Table 5-11. Gaging Station GS44 Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0021	0.0030	0.0028
2	0.0022	0.0241	0.0028
3	0.0021	0.0444	0.0029
4	0.0021	0.0740	0.0034
5	0.0021	0.1350	0.0042
6	0.0021	0.0176	0.0026
7	0.0019	0.0104	0.0029
8	0.0019	0.0078	0.0026
9	0.0019	0.0063	0.0026
10	0.0039	0.0051	0.0026
11	0.0420	0.0051	0.0026
12	0.0522	0.0080	0.0027
13	0.0198	0.0066	0.0130
14	0.0074	0.0066	0.0033
15	0.0053	0.0037	0.0023
16	0.0047	0.0034	0.0023
17	0.0042	0.0052	0.0024
18	0.0034	0.0041	0.0023
19	0.0029	0.0155	0.0026
20	0.0028	0.0190	0.0025
21	0.0167	0.0189	0.0023
22	0.0514	0.0042	0.0024
23	0.0503	0.0036	0.0023
24	0.0105	0.0033	0.0020
25	0.0066	0.0033	0.0020
26	0.0053	0.0032	0.0022
27	0.0046	0.0030	0.0019
28	0.0041	0.0078	0.0019
29	0.0037	0.0033	0.0018
30	0.0032	0.0029	0.0018
31	NA	0.0028	NA
Monthly Average (cfs)	0.011	0.015	0.003

Monthly Discharge

Cubic Feet	27948	39847	7434
Gallons	209066	298080	55610
Acre-Feet	0.64	0.91	0.17

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

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.

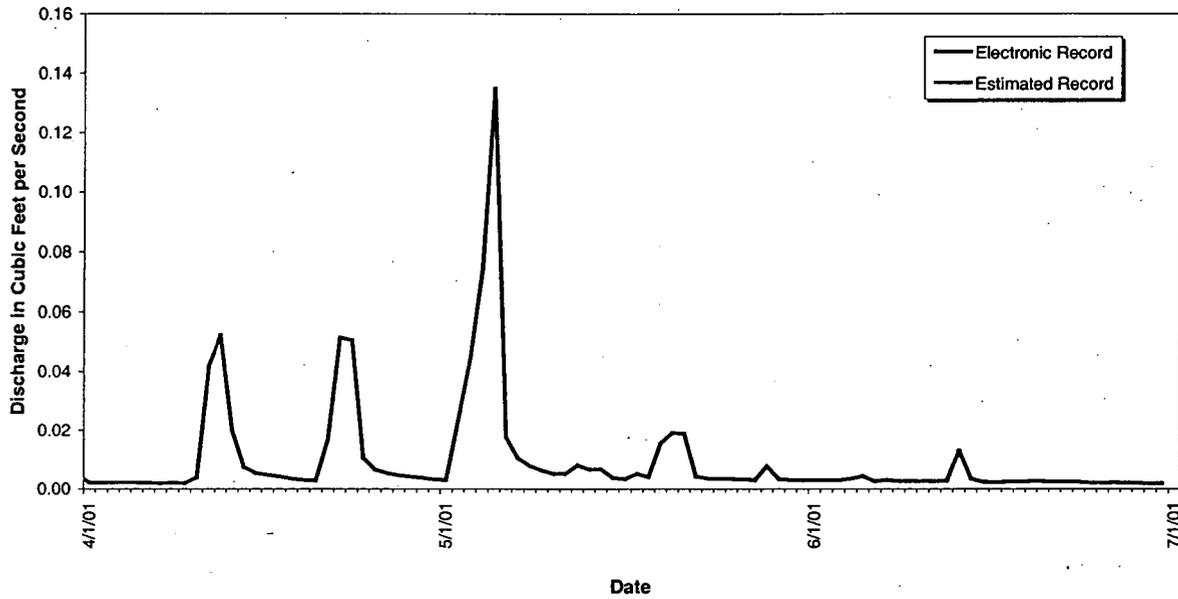


Figure 5-11. Mean Daily Discharge at GS44 Water Year 2001 (April, May, and June)

Table 5-12. Gaging Station GS49 Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0091	0.0000
3	0.0000	0.0141	0.0000
4	0.0000	0.0266	0.0040
5	0.0000	0.0548	0.0014
6	0.0000	0.0037	0.0000
7	0.0000	0.0028	0.0011
8	0.0000	0.0022	0.0000
9	0.0000	0.0011	0.0000
10	0.0029	0.0004	0.0000
11	0.0257	0.0000	0.0000
12	0.0163	0.0000	0.0000
13	0.0083	0.0000	0.0062
14	0.0029a	0.0010	0.0001
15	0.0003a	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0030	0.0000
18	0.0000	0.0005	0.0000
19	0.0000	0.0051	0.0000
20	0.0002	0.0061	0.0000
21	0.0065	0.0096a	0.0000
22	0.0287	0.0004	0.0000
23	0.0233	0.0000	0.0000
24	0.0053	0.0000	0.0000
25	0.0018	0.0000	0.0000
26	0.0004	0.0000	0.0005
27	0.0000	0.0000	0.0000
28	0.0005	0.0040	0.0000
29	0.0001	0.0005	0.0000
30	0.0000	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.004	0.005	0.000

Monthly Discharge

Cubic Feet	10659	12535	1155
Gallons	79732	93766	8641
Acre-Feet	0.24	0.29	0.03

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

<sup>a</sup> 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.

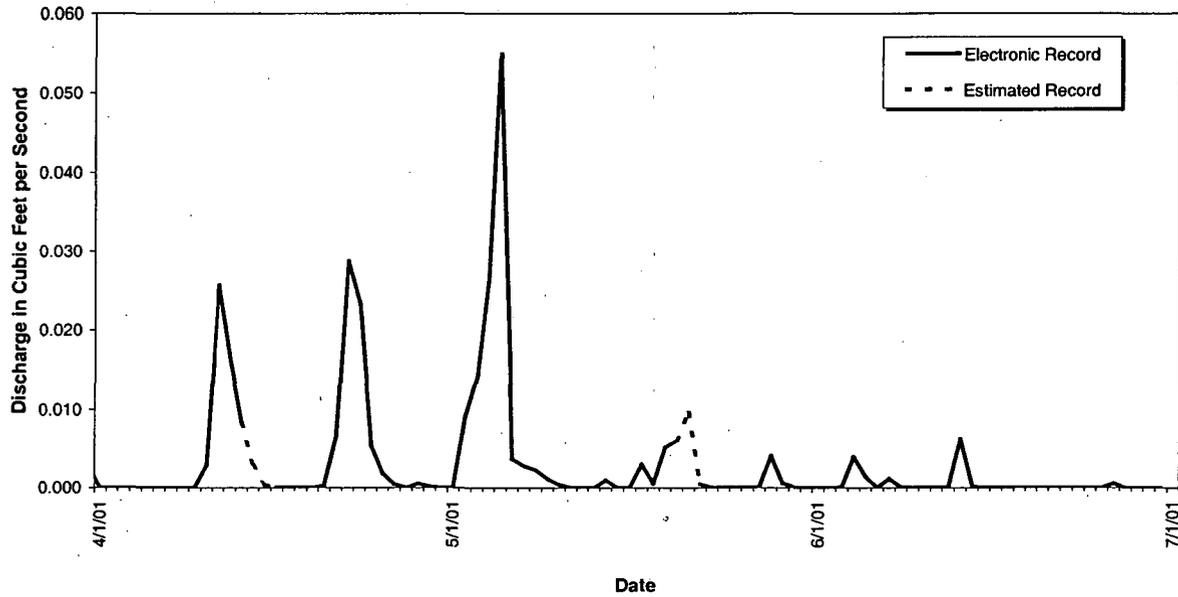


Figure 5-12. Mean Daily Discharge at GS49 Water Year 2001 (April, May, and June)

Table 5-13. Gaging Station GS50 Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0002	0.0000
4	0.0000	0.0126	0.0000
5	0.0000	0.0319	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	0.0000a	0.0000	0.0000
12	0.0191	0.0000	0.0000
13	0.0016	0.0000	0.0000
14	0.0004	0.0000	0.0000
15	0.0003	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0002	0.0000	0.0000
18	0.0003	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	0.0374	0.0000	0.0000
23	0.0079	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	NA	0.0000	NA
Monthly Average (cfs)	0.002	0.001	0.000

Monthly Discharge

Cubic Feet	5822	3864	0
Gallons	43551	28908	0
Acre-Feet	0.13	0.09	0.00

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

<sup>a</sup> Contains data estimated from field observations and electronic record at adjacent or comparable gages.

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.

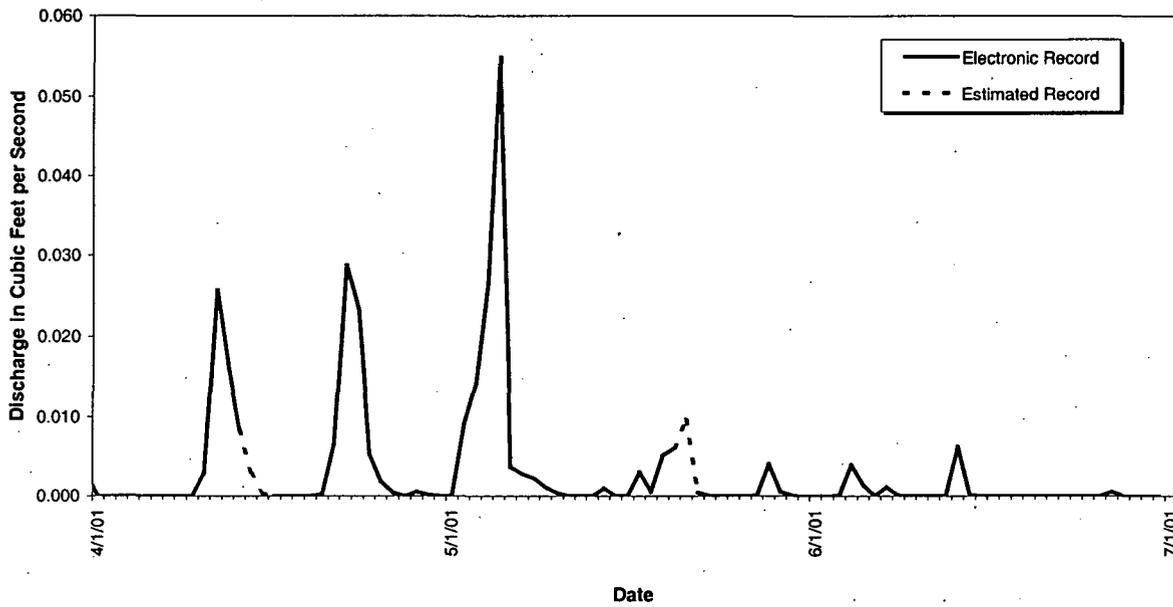


Figure 5-13. Mean Daily Discharge at GS50 Water Year 2001 (April, May, and June)

Table 5-14. Gaging Station GS995 POE Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.168	0.309	0.171
2	0.257	0.354	0.265
3	0.219	0.384	0.282
4	0.190	0.441	0.316
5	0.250	0.732	0.321
6	0.121	0.570	0.292
7	0.142	0.554	0.200
8	0.153	0.478	0.204
9	0.167	0.371	0.216
10	0.198	0.301	0.282
11	0.201	0.395	0.306
12	0.256	0.297	0.291
13	0.397	0.341	0.335
14	0.399	0.328	0.273
15	0.339	0.452	0.167
16	0.358	0.332	0.202
17	0.394	0.229	0.286
18	0.317	0.287	0.276
19	0.322	0.241	0.318
20	0.207	0.389	0.300
21	0.223	0.378	0.145
22	0.333	0.341	0.183
23	0.429	0.216	0.296
24	0.466	0.284	0.242
25	0.474	0.289	0.321
26	0.296	0.285	0.244
27	0.272	0.276	0.223
28	0.303	0.297	0.282
29	0.271	0.310	0.114
30	0.348	0.310	0.201
31	NA	0.304	NA
Monthly Average (cfs)	0.282	0.357	0.252

Monthly Discharge

Cubic Feet	731607	956778	652361
Gallons	5472800	7157200	4880000
Acre-Feet	16.80	21.96	14.98

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

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.

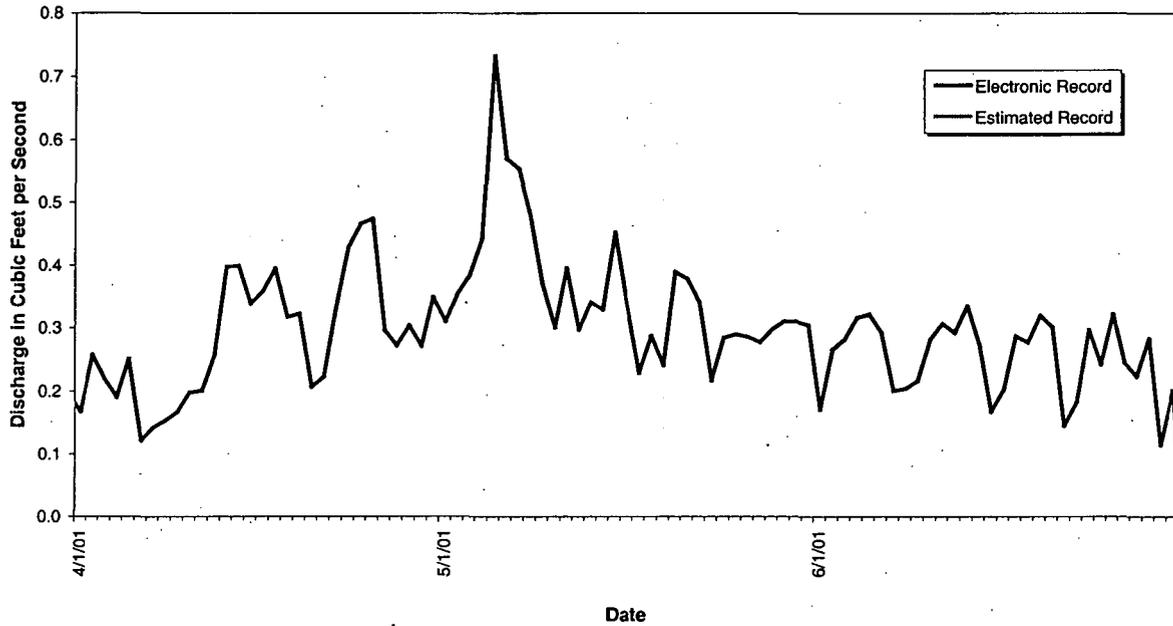


Figure 5-14. Mean Daily Discharge at GS995 POE Water Year 2001 (April, May, and June)

Table 5-15. Gaging Station SW022: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.000	0.000	0.000
2	0.000	0.225	0.000
3	0.000	0.611	0.000
4	0.000	0.909	0.011
5	0.000	1.765	0.036
6	0.000	0.043	0.000
7	0.000	0.011	0.008
8	0.000	0.001	0.001
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.609a	0.000	0.000
12	0.575	0.000	0.000
13	0.113	0.000	0.267
14	0.023	0.000	0.005
15	0.004	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.010	0.000
18	0.000	0.002	0.000
19	0.000	0.183	0.000
20	0.000	0.197	0.000
21	0.138	0.234	0.000
22	1.041	0.005	0.000
23	0.436	0.000	0.000
24	0.014	0.000	0.000
25	0.002	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.101	0.000
29	0.000	0.008	0.000
30	0.000	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.098	0.139	0.011

Monthly Discharge

Cubic Feet	255252	371986	28315
Gallons	1909421	2782650	211814
Acre-Foot	5.86	8.54	0.65

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

<sup>a</sup> 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.

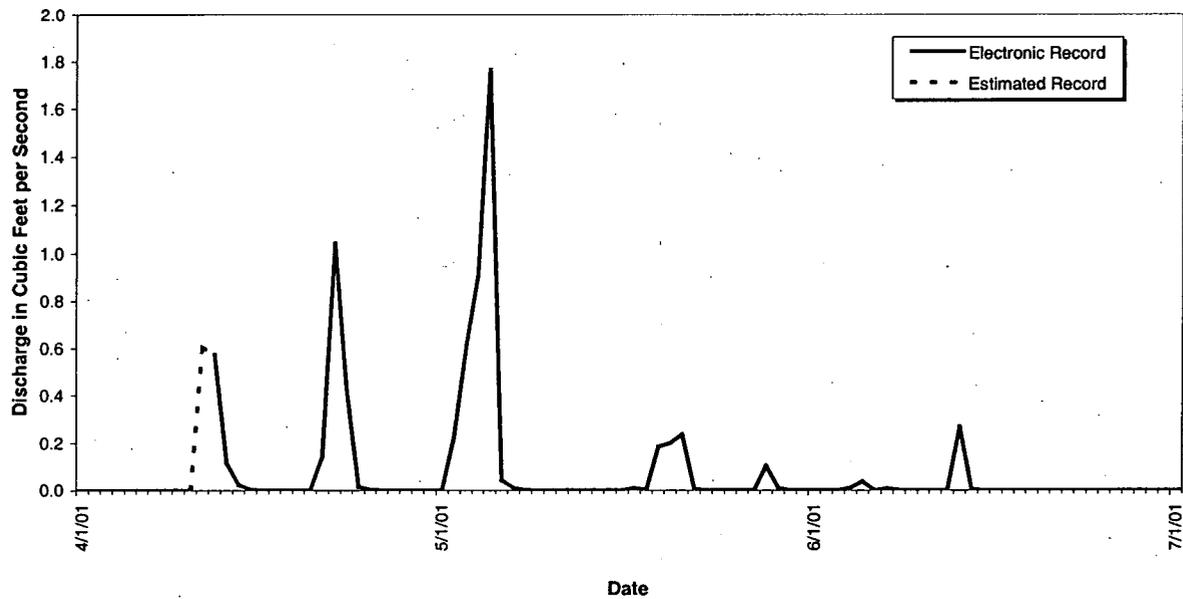


Figure 5-15. Mean Daily Discharge at SW022, Water Year 2001 (April, May, and June)

Table 5-16. Gaging Station SW027: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.012	0.005	0.000
2	0.009	0.006	0.000
3	0.007	0.544	0.000
4	0.002	0.851	0.000
5	0.000	3.087	0.000
6	0.000	0.343	0.000
7	0.000	0.070	0.000
8	0.000	0.034	0.000
9	0.000	0.019	0.000
10	0.000	0.015	0.000
11	0.000	0.013	0.000
12	0.929	0.011	0.000
13	0.555	0.009	0.000
14	0.230	0.006	0.000
15	0.078	0.002	0.000
16	0.029	0.000	0.000
17	0.015	0.000	0.000
18	0.011	0.000	0.000
19	0.009	0.051	0.000
20	0.009	0.018	0.000
21	0.009	0.359	0.000
22	0.746	0.097	0.000
23	0.978	0.018	0.000
24	0.317	0.012	0.000
25	0.059	0.008	0.000
26	0.022	0.004	0.000
27	0.014	0.001	0.000
28	0.011	0.002	0.000
29	0.011	0.001	0.000
30	0.010	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.136	0.180	0.000

Monthly Discharge

Cubic Feet	351859	482760	0
Gallons	2632089	3611293	0
Acre-Feet	8.08	11.08	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.

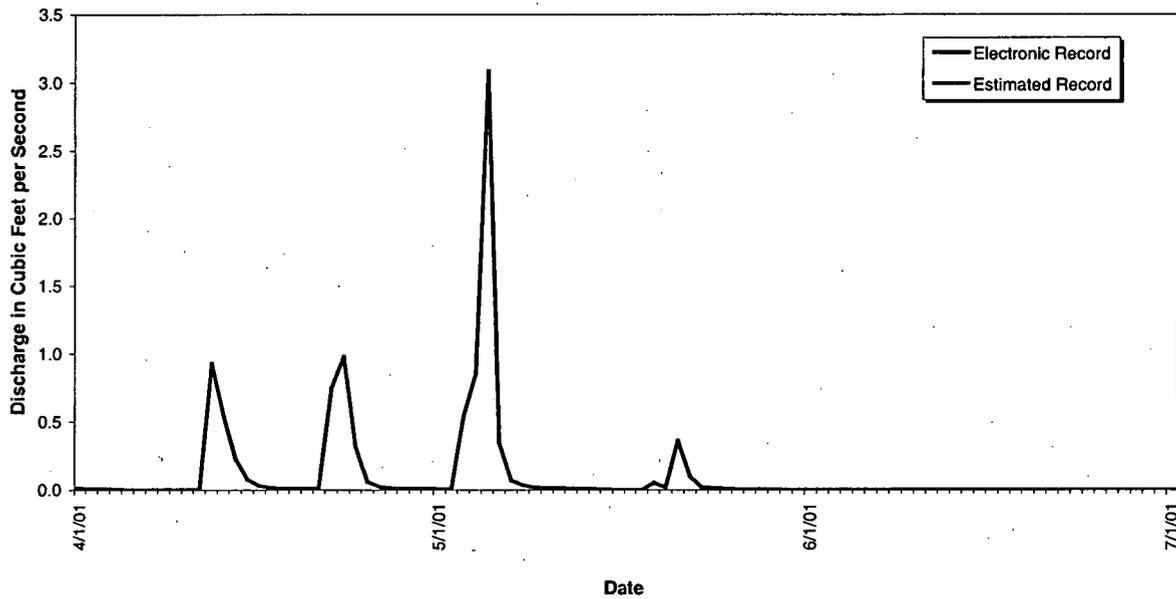


Figure 5-16. Mean Daily Discharge at SW027, Water Year 2001 (April, May, and June)

Table 5-17. Gaging Station SW055: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	No Data	No Data	0.0000
2	No Data	No Data	0.0000
3	No Data	No Data	0.0000
4	No Data	No Data	0.0010
5	No Data	No Data	0.0009
6	No Data	No Data	0.0000
7	No Data	No Data	0.0000
8	No Data	No Data	0.0000
9	No Data	No Data	0.0000
10	No Data	No Data	0.0000
11	No Data	No Data	0.0000
12	No Data	No Data	0.0000
13	No Data	No Data	0.0005
14	No Data	No Data	0.0000
15	No Data	No Data	0.0000
16	No Data	No Data	0.0000
17	No Data	No Data	0.0000
18	No Data	No Data	0.0000
19	No Data	No Data	0.0000
20	No Data	No Data	0.0000
21	No Data	No Data	0.0000
22	No Data	No Data	0.0000
23	No Data	0.0000	0.0000
24	No Data	0.0000	0.0000
25	No Data	0.0000	0.0000
26	No Data	0.0000	0.0001
27	No Data	0.0001	0.0000
28	No Data	0.0019	0.0000
29	No Data	0.0009	0.0000
30	No Data	0.0001	0.0000
31	NA	0.0002	NA
Monthly Average (cfs)	No Data	0.000	0.000

Monthly Discharge

Cubic Feet	No Data	264	229
Gallons	No Data	1976	1714
Acre-Feet	No Data	0.01	0.01

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 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.

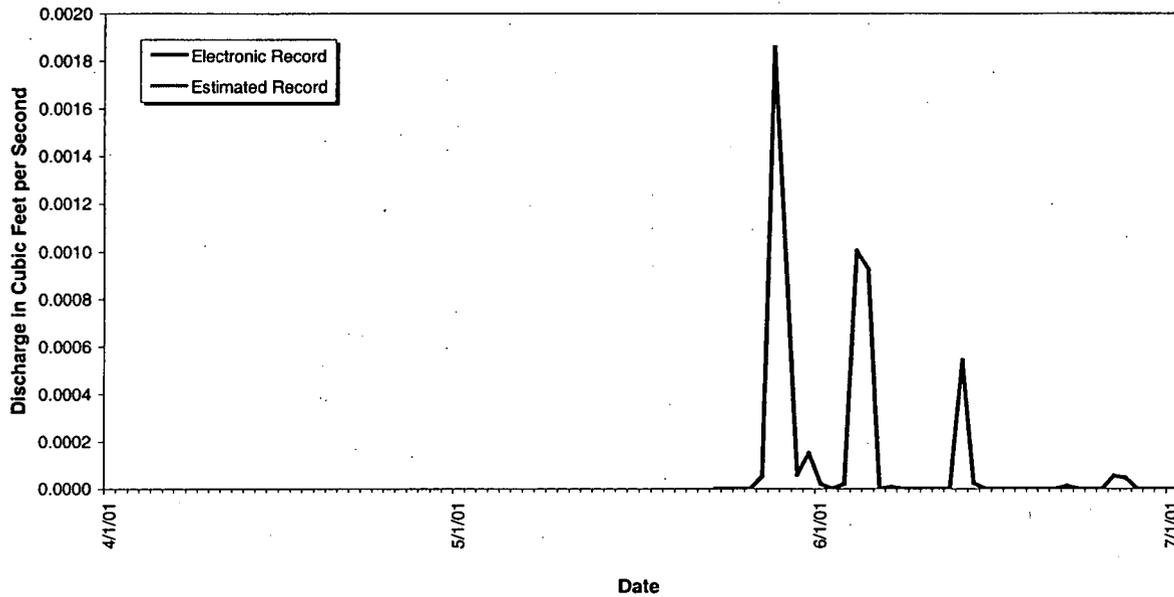


Figure 5-17. Mean Daily Discharge at SW055, Water Year 2001 (April, May, and June)

Table 5-18. Gaging Station SW091: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-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	0.0114	0.0000
5	0.0000	0.0978	0.0000
6	0.0000	0.0075	0.0000
7	0.0000	0.0045	0.0000
8	0.0000	0.0023	0.0000
9	0.0000	0.0004	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000a	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	0.0002	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	NA	0.0000	NA
Monthly Average (cfs)	0.000	0.004	0.000

Monthly Discharge

Cubic Feet	24	10705	1
Gallons	179	80081	5
Acre-Feet	0.00	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.

<sup>a</sup> Contains data estimated from field observations and electronic record at adjacent or comparable gages.

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.

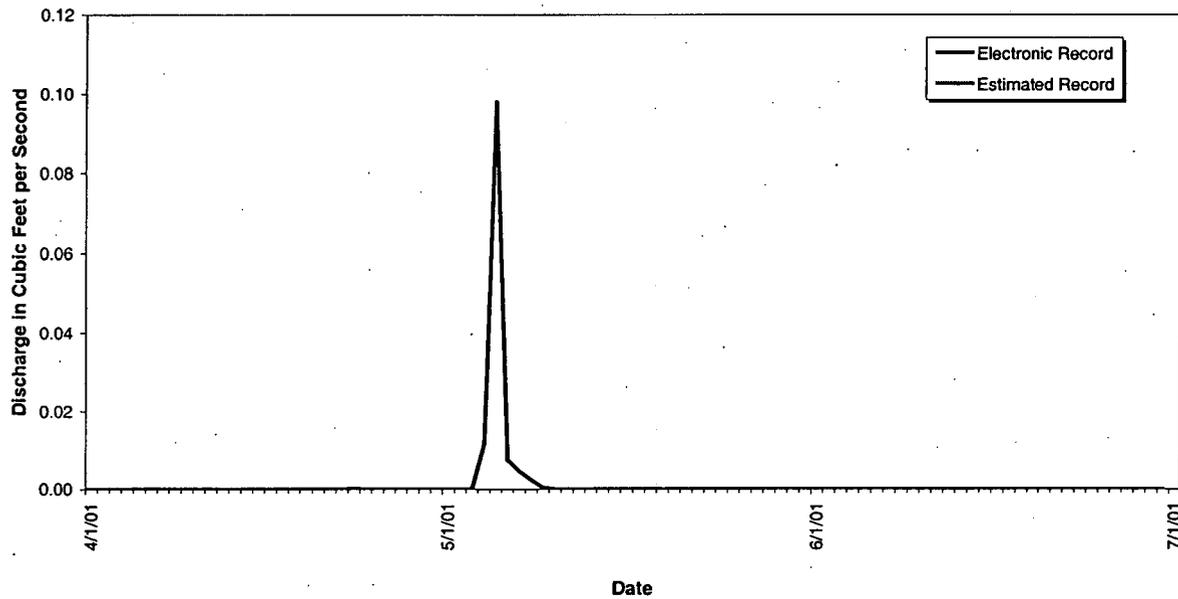


Figure 5-18. Mean Daily Discharge at SW091, Water Year 2001 (April, May, and June)

Table 5-19. Gaging Station SW093: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.128	0.110	0.255
2	0.115	0.654	0.259
3	0.109	1.614	0.288
4	0.102	2.829	0.364
5	0.100	6.322	0.388
6	0.098	0.885	0.263
7	0.093	0.525	0.234
8	0.092	0.386	0.178
9	0.087	0.317	0.175
10	0.136	0.273	0.148
11	1.362	0.238	0.146
12	1.870	0.210	0.193
13	1.084	0.190	0.454
14	0.644	0.206	0.229
15	0.473	0.173	0.206
16	0.354	0.153	0.178
17	0.308	0.236	0.156
18	0.286	0.187	0.124
19	0.241	0.568	0.150
20	0.217	0.574	0.126
21	0.502	0.758	0.127
22	2.457	0.201	0.142
23	2.382	0.147	0.124
24	0.804	0.238	0.147
25	0.501	0.254	0.149
26	0.366	0.255	0.159
27	0.305	0.282	0.186
28	0.254	0.452	0.166
29	0.196	0.295	0.173
30	0.148	0.281	0.178
31	NA	0.285	NA
Monthly Average (cfs)	0.527	0.648	0.202

Monthly Discharge

Cubic Feet	1366289	1736611	523923
Gallons	10220552	12990756	3919214
Acre-Feet	31.37	39.87	12.03

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

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.

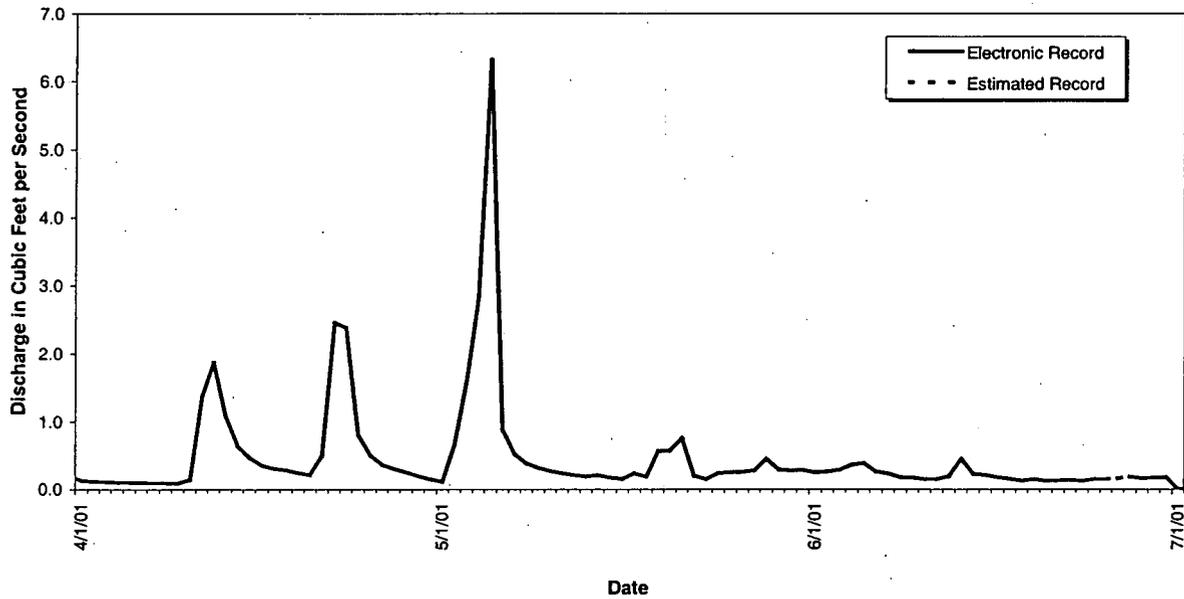


Figure 5-19. Mean Daily Discharge at SW093, Water Year 2001 (April, May, and June)

Table 5-20. Gaging Station SW119: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	No Data	0.0000a	0.0000
2	No Data	0.0068a	0.0000
3	No Data	0.0261a	0.0000
4	No Data	0.0539a	0.0000
5	0.0000a	0.1040a	0.0000
6	0.0000a	0.0057a	0.0000
7	0.0000a	0.0004a	0.0000
8	0.0000a	0.0000a	0.0000
9	0.0000a	0.0000a	0.0000
10	0.0000a	0.0000a	0.0000
11	0.0414a	0.0000a	0.0000
12	0.0316a	0.0000a	0.0000
13	0.0105a	0.0000a	0.0000
14	0.0009a	0.0000a	0.0000
15	0.0000a	0.0000a	0.0000
16	0.0000a	0.0000a	0.0000
17	0.0000a	0.0000a	0.0000
18	0.0000a	0.0000a	0.0000
19	0.0000a	0.0063a	0.0000
20	0.0000a	0.0076a	0.0000
21	0.0016a	0.0152a	0.0000
22	0.0479a	0.0011a	0.0000
23	0.0226a	0.0000a	0.0000
24	0.0035a	0.0000a	0.0000
25	0.0003a	0.0000a	0.0000
26	0.0000a	0.0000a	0.0000
27	0.0000a	0.0000a	0.0000
28	0.0000a	0.0000a	0.0000
29	0.0000a	0.0000a	0.0000
30	0.0000a	0.0000a	0.0000
31	NA	0.0000a	NA
Monthly Average (cfs)	0.006	0.007	0.000

Monthly Discharge

Cubic Feet	13851	19627	0
Gallons	103610	146822	0
Acre-Feet	0.32	0.45	0.00

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

<sup>a</sup> 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.

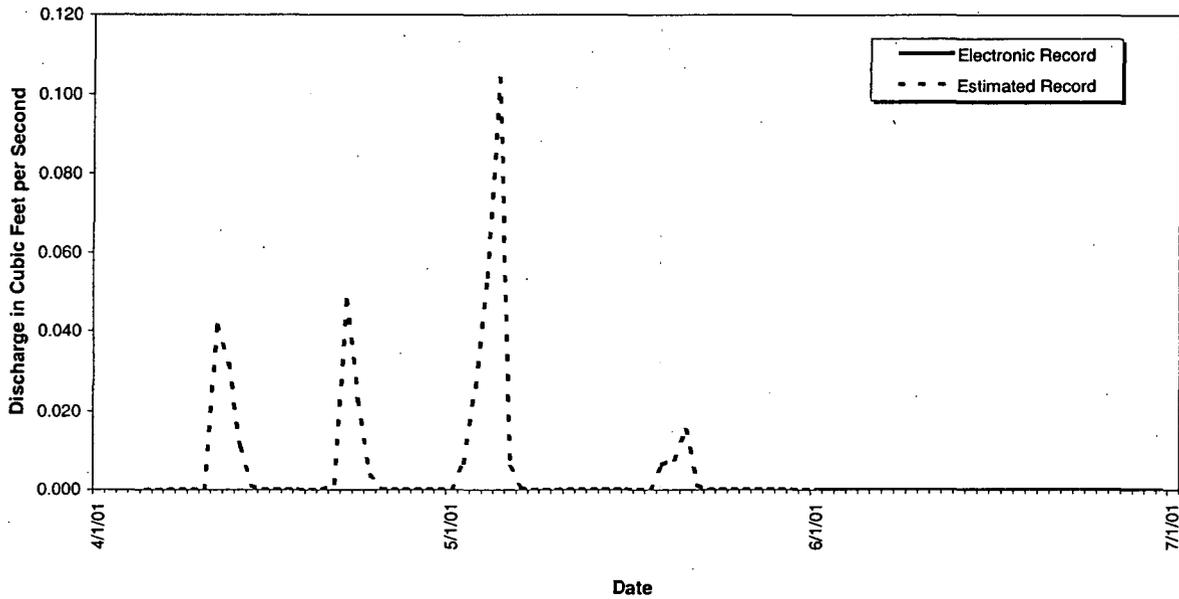


Figure 5-20. Mean Daily Discharge at SW119, Water Year 2001 (April, May, and June)

Table 5-21. Gaging Station SW120: Mean Daily Discharge (cubic feet per second)

Day	Apr-01	May-01	Jun-01
1	0.0000	0.0000	0.0000
2	0.0000	0.0124	0.0000
3	0.0000	0.0587	0.0000
4	0.0000a	0.1059	0.0000
5	0.0000	0.2314	0.0000
6	0.0000	0.0164	0.0000
7	0.0000	0.0077	0.0000
8	0.0000	0.0045	0.0000
9	0.0000	0.0028	0.0000
10	0.0000	0.0016	0.0000
11	0.0837	0.0003	0.0000
12	0.0846	0.0000	0.0000
13	0.0291	0.0000	0.0006
14	0.0098	0.0000	0.0003
15	0.0042	0.0000	0.0000
16	0.0008	0.0000	0.0000
17	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0095	0.0000
20	0.0000	0.0069	0.0000
21	0.0034	0.0270	0.0000
22	0.0867	0.0012	0.0000
23	0.0736	0.0000	0.0000
24	0.0105	0.0000	0.0000
25	0.0027	0.0000	0.0000
26	0.0005	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	NA	0.0000	NA
Monthly Average (cfs)	0.013	0.016	0.000

Monthly Discharge

Cubic Feet	33662	42021	73
Gallons	251809	314339	545
Acre-Foot	0.77	0.96	0.00

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

<sup>a</sup> 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.

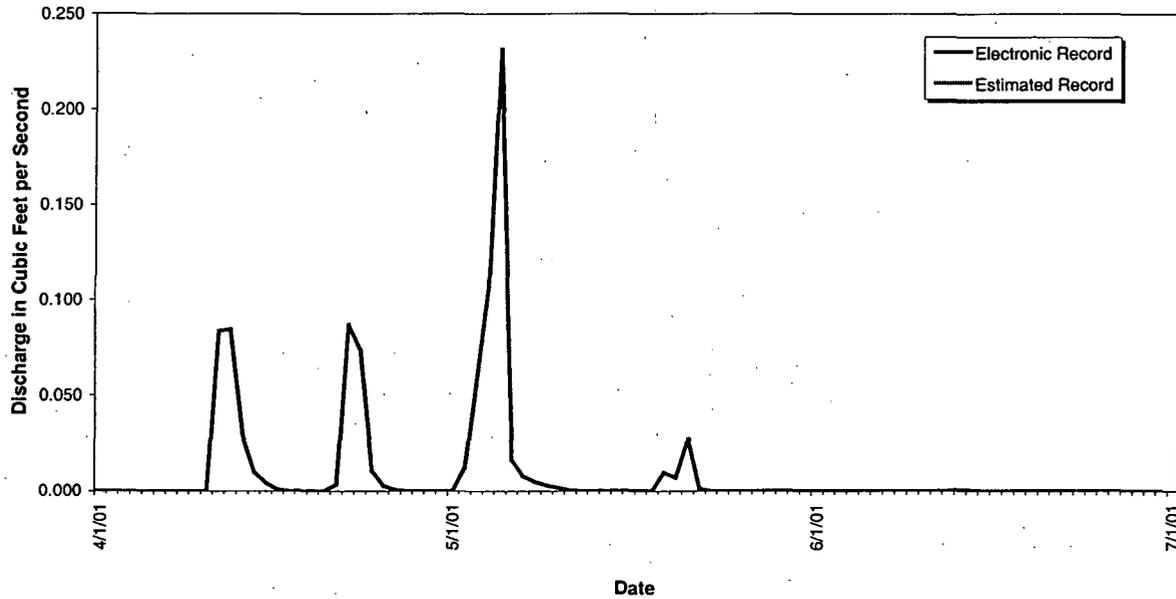


Figure 5-21. Mean Daily Discharge at SW120, Water Year 2001 (April, May, and June)

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## 5.2 WATER QUALITY DATA

Table 5-22. Radionuclides, Water Year 2001 (April, May, and June)

Location	Sample Dates	Result	Result	Result	Result
		Pu-239, -240 [pCi/l]	Am-241 [pCi/l]	Total Uranium [pCi/l]	Tritium [pCi/l]
GS01	3/15 - 3/27/01	-0.004	0.002	a	62
GS01	3/27 - 4/3/01	0.005	0.001	a	-79
GS01	4/3 - 4/16/01	-0.002	-0.003	a	-108
GS01	4/16 - 4/24/01	-0.002	0.003	a	-32
GS01	4/24 - 5/1/01	0.001	0.004	a	-214
GS01	5/1 - 5/5/01	0.015	0.002	a	-91
GS01	5/5/2001 9:49 - 14:50	0.024	0.016	a	-155
GS01	5/5 - 6/15/01	-0.001	0.005	a	-224
GS01	6/15 - 6/20/01	0.013	-0.007	a	58
GS01	6/20 - 6/26/01	0.008	-0.003	a	-136
GS01	6/26/2001 -	e	e	a	e
GS03	3/23 - 4/16/01	-0.001	0.001	a	-74
GS03	4/16 - 4/24/01	d	d	a	d
GS03	4/24 - 5/3/01	0.011	0.006	a	-31
GS03	5/3 - 5/5/01	0.014	-0.004	a	-187
GS03	5/5 - 5/8/01	0.011	0.007	a	-253
GS03	5/8 - 5/9/01	0.028	0.012	a	-190
GS03	5/9 - 5/11/01	0.026	0.012	a	-168
GS03	5/11 - 5/13/01	0.002	0.003	a	-164
GS03	5/13 - 5/15/01	-0.001	0.013	a	-225
GS03	5/15 - 5/17/01	-0.001	0.004	a	-222
GS03	5/17 - 5/21/01	-0.002	0.001	a	-151
GS03	5/21 - 6/5/01	-0.004	0.028	a	-179
GS03	6/5 - 6/28/01	d	d	a	d
GS03	6/28 - 7/2/01	0.006	0.004	a	-170
GS08	5/3 - 5/5/01	0.018	0.002	1.167	a
GS08	5/5 - 5/7/01	0.013	0.004	1.419	a
GS08	5/7 - 5/10/01	0.016	0.015	1.419	a
GS08	5/10 - 5/14/01	-0.004	0.002	2.119	a
GS08	5/14 - 5/21/01	-0.003	-0.002	2.210	a

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

Table 5-19. Radionuclides, Water Year 2001 (April, May, and June), continued

Location	Sample Dates	Result	Result	Result	Result
		Pu-239, -240 [pCi/l]	Am-241 [pCi/l]	Total Uranium [pCi/l]	Tritium [pCi/l]
GS08	6/28 - 7/2/01	0.004	0.007	1.488	a
GS10	4/9 - 4/12/01	0.199	0.374	1.393	a
GS10	4/12 - 4/20/01	0.053	0.046	3.230	a
GS10	4/20 - 4/24/01	0.078	0.057	1.904	a
GS10	4/24 - 5/3/01	0.079	0.048	4.577	a
GS10	5/3 - 5/5/01	0.059	0.071	0.919	a
GS10	5/5/2001 8:30 - 15:15	0.110	0.048	0.873	a
GS10	5/5 - 5/21/01	0.130	0.117	4.542	a
GS10	5/21 - 6/1/01	0.037	0.016	5.522	a
GS10	6/1 - 6/7/01	0.033	0.036	6.480	a
GS10	6/7 - 6/15/01	0.131	0.108	3.774	a
GS10	6/15 - 7/2/01	0.078	0.048	5.831	a
GS11	5/6 - 5/8/01	0.002	0.001	3.158	a
GS11	5/8 - 5/10/01	-0.001	0.014	3.086	a
GS11	5/10 - 5/13/01	-0.005	-0.003	3.657	a
GS11	5/13 - 5/16/01	0.006	0.003	3.952	a
GS11	5/16 - 5/21/01	0.000	0.004	3.791	a
GS27	4/21/01	0.328	0.071	0.138	a
GS27	5/18/01	1.790	0.401	0.479	a
GS27	6/13/01	0.226	0.034	0.067	a
GS31	6/15 - 6/20/01	0.005	0.013	1.248	a
GS31	6/20 - 6/25/01	0.038	0.014	1.239	a
GS31	6/25/2001 8:55 -	0.109	0.002	1.766	a
GS32	1/18/01	0.507	0.739	3.614	130
GS32	3/10/01	0.497	0.823	2.425	15
GS32	6/13/01	0.303	0.293	3.963	-351
GS39	2/15 - 4/12/01	0.205	0.047	a	a
GS39	4/12 - 4/17/01	0.194	0.038	a	a
GS39	4/17 - 4/23/01	0.044	0.029	a	a
GS39	4/23 - 5/4/01	0.136	0.012	a	a
GS39	5/4 - 5/5/01	0.056	0.022	a	a
GS39	5/5 - 5/21/01	0.044	0.046	a	a
GS39	5/21 - 7/11/01	c	c	a	a
GS40	4/6 - 4/23/01	0.035	0.067	1.722	-126
GS40	4/23 - 5/4/01	0.045	0.085	2.217	-91

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

Table 5-19. Radionuclides, Water Year 2001 (April, May, and June), continued

Location	Sample Dates	Result	Result	Result	Result
		Pu-239, -240 [pCi/l]	Am-241 [pCi/l]	Total Uranium [pCi/l]	Tritium [pCi/l]
GS40	5/4 - 5/5/01	0.007	0.016	0.535	-31
GS40	5/5 - 5/24/01	0.006	0.085	4.168	-96
GS40	5/24 - 6/28/01	0.020	0.026	3.630	-227
GS40	6/28 - 7/16/01	c	c	c	c
GS43	10/16/00 - 4/16/01	0.025	-0.003	9.887	a
GS43	4/16 - 5/5/01	0.007	-0.003	5.178	a
GS43	5/5 - 5/7/01	0.011	0.006	8.875	a
GS43	5/7 - 5/21/01	-0.006	0.004	23.088	a
GS43	5/21 - 7/15/01	c	c	c	a
GS44	4/6 - 4/18/01	0.032	0.013	1.832	-46
GS44	4/18 - 4/26/01	0.020	0.021	b	0
GS44	4/26 - 5/4/01	0.032	0.014	1.790	-91
GS44	5/4 - 5/5/01	0.010	0.018	0.607	-158
GS44	5/5 - 5/24/01	0.008	0.038	4.929	-122
GS44	5/24 - 6/28/01	-0.002	0.001	4.459	-134
GS44	6/28 - 7/16/01	c	c	c	c
GS49	4/10 - 4/20/01	0.031	0.013	0.332	15
GS49	4/20 - 5/5/01	0.031	0.036	0.303	-94
GS49	5/5 - 7/25/01	c	c	c	c
GS50	4/12 - 4/23/01	0.016	0.089	0.215	a
GS50	4/23 - 5/5/01	0.197	0.180	0.346	a
GS50	5/5 - 7/16/01	c	c	c	a
SW022	4/12 - 4/21/01	0.150	0.025	0.824	a
SW022	4/21 - 4/23/01	0.094	0.015	0.567	a
SW022	4/23 - 5/4/01	0.081	0.003	0.650	a
SW022	5/4 - 5/5/01	0.074	0.034	0.591	a
SW022	5/5 - 5/21/01	0.096	0.023	1.089	a
SW022	5/21 - 7/11/01	c	c	c	a
SW027	4/12 - 4/16/01	0.015	0.009	1.476	a
SW027	4/16 - 4/23/01	0.007	0.002	1.265	a
SW027	4/23 - 5/1/01	0.037	0.013	1.149	a
SW027	5/1 - 5/5/01	0.021	0.002	1.713	a
SW027	5/5/2001 8:47 - 14:25	0.119	0.031	1.123	a
SW027	5/5 - 7/23/01	c	c	c	a

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

Table 5-19. Radionuclides, Water Year 2001 (April, May, and June), continued

Location	Sample Dates	Result Pu-239, -240 [pCi/l]	Result Am-241 [pCi/l]	Result Total Uranium [pCi/l]	Result Tritium [pCi/l]
SW055	5/28/01 -	e	e	a	a
SW091	5/5/01	0.062	0.064	1.740	a
SW093	4/2 - 4/12/01	0.014	0.004	1.602	a
SW093	4/12 - 4/20/01	0.017	0.009	1.805	a
SW093	4/20 - 4/24/01	-0.002	0.021	1.469	a
SW093	4/24 - 5/2/01	0.002	0.004	2.004	a
SW093	5/2 - 5/5/01	0.009	0.015	1.584	a
SW093	5/5/2001 8:16 - 15:27	0.063	0.022	1.764	a
SW093	5/5 - 5/14/01	0.033	-0.003	3.473	a
SW093	5/14 - 5/21/01	0.012	0.014	2.162	a
SW093	5/21 - 6/1/01	0.002	0.003	1.981	a
SW093	6/1 - 6/7/01	-0.001	0.004	1.539	a
SW093	6/7 - 6/15/01	0.018	-0.002	1.617	a
SW093	6/15 - 6/25/01	-0.017	-0.006	1.220	a
SW093	6/25 - 7/2/01	-0.002	0.045	1.181	a
SW119	4/11 - 4/21/01	0.046	0.061	1.667	a
SW119	4/21 - 5/2/01	0.037	0.104	5.664	a
SW119	5/2 - 5/5/01	0.096	0.119	2.883	a
SW119	5/5 - 7/16/01	c	c	c	a
SW120	4/11 - 4/21/01	0.055	0.031	2.440	135
SW120	4/21 - 5/2/01	0.116	0.021	2.226	-31
SW120	5/2 - 5/5/01	0.096	0.056	1.934	0
SW120	5/5 - 7/16/01	c	c	c	c
995POE	4/9 - 5/1/01	0.016	-0.003	1.185	-153
995POE	5/1 - 5/24/01	-0.006	0.025	1.835	-96
995POE	5/24 - 6/21/01	-0.002	-0.002	1.201	-253
995POE	6/21 - 7/23/01	c	c	c	c

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

Table 5-23. POE Metals, Water Year 2001 (April, May, and June)

Location	Sample Dates	Analyte Be ug/L	Analyte Dissolved Cd ug/L	Analyte Cr ug/L	Analyte Dissolved Ag ug/L
GS10	4/9 - 4/12/01	0.61	0.15	9.50	undetect
GS10	4/12 - 4/20/01	0.43	0.11	3.20	undetect
GS10	4/20 - 4/24/01	0.67	0.18	3.50	undetect
GS10	4/24 - 5/3/01	0.11	0.14	2.40	undetect
GS10	5/3 - 5/5/01	0.16	0.12	3.60	undetect
GS10	5/5/2001 8:30 - 15:15	0.21	undetect	5.20	undetect
GS10	5/5 - 5/21/01	0.22	undetect	4.60	undetect
GS10	5/21 - 6/1/01	0.11	0.12	1.70	undetect
GS10	6/1 - 6/7/01	0.08	undetect	0.56	undetect
GS10	6/7 - 6/15/01	0.17	0.12	4.60	undetect
GS10	6/15 - 7/2/01	0.11	undetect	0.65	undetect
SW027	4/12 - 4/16/01	0.29	undetect	1.50	undetect
SW027	4/16 - 4/23/01	0.41	undetect	1.40	undetect
SW027	4/23 - 5/1/01	0.69	undetect	1.10	undetect
SW027	5/1 - 5/5/01	0.13	undetect	1.70	undetect
SW027	5/5/2001 8:47 - 14:25	0.11	undetect	2.60	undetect
SW027	5/5 - 7/23/01	c	c	c	c
SW093	4/2 - 4/12/01	0.48	0.11	5.50	undetect
SW093	4/12 - 4/20/01	0.31	undetect	2.30	undetect
SW093	4/20 - 4/24/01	0.82	0.17	4.70	undetect
SW093	4/24 - 5/2/01	0.08	undetect	1.20	undetect
SW093	5/2 - 5/5/01	0.37	undetect	6.50	undetect
SW093	5/5/2001 8:16 - 15:27	0.18	undetect	6.30	undetect
SW093	5/5 - 5/14/01	0.12	undetect	1.60	undetect
SW093	5/14 - 5/21/01	0.25	undetect	5.70	undetect
SW093	5/21 - 6/1/01	0.11	undetect	1.60	undetect
SW093	6/1 - 6/7/01	0.12	undetect	1.80	undetect
SW093	6/7 - 6/15/01	0.06	0.10	2.70	0.30
SW093	6/15 - 6/25/01	0.14	undetect	2.70	undetect
SW093	6/25 - 7/2/01	0.16	undetect	1.60	undetect

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

Table 5-24. Other Metals, Water Year 2001 (April, May, and June)

Analyte ug/l	Result GS32: 06/13/01	Result GS40: 04/06/01 – 04/23/01	Result GS40: 04/23/01 – 05/04/01	Result GS40: 05/04/01 – 05/05/01	Result GS40: 05/05/01 – 05/24/01
Aluminum	4090	4580	3580	1820	3150
Antimony	5.7	14.5	28.1	14.0	12.1
Arsenic	3.1	3.8	2.8	1.3	2.0
Barium	85.1	164	216	36.5	250.0
Beryllium	0.24	0.26	0.17	0.08	0.13
Cadmium	0.62	0.81	1.2	0.23	0.79
Calcium	37500	43500	59600	9940	81200
Chromium	6.0	6.2	5.5	2.9	4.4
Cobalt	1.8	1.5	1.7	0.34	1.4
Copper	18.4	11.5	12.7	5.4	11.9
Iron	4340	580	4880	1490	443
Lead	10.6	8.3	6.3	1.9	5.5
Lithium	14.4	12.7	14.0	2.2	10.7
Magnesium	4890	9150	12400	1890	20400
Manganese	225	461	1010	47.9	406
Mercury	0.10	undetected	undetected	undetected	undetected
Molybdenum	3.5	1.0	1.7	0.41	1.5
Nickel	5.5	4.6	4.4	1.9	3.5
Potassium	16600	9550	11100	2050	9780
Selenium	undetected	1.7	undetected	undetected	1.2
Silver	undetected	undetected	undetected	undetected	undetected
Sodium	90900	194000	216000	17700	148000
Strontium	202	308	436	61.5	671
Thallium	undetected	undetected	undetected	undetected	undetected
Tin	undetected	undetected	undetected	undetected	undetected
Vanadium	12.2	10.6	8.7	4.2	8.0
Zinc	1050.	374	361	130	330

Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result GS40, 05/24/01 – 06/28/01	Result GS40, 06/28/01 – 07/16/01	Result GS43, 04/16/01 – 05/05/01	Result GS43, 05/05/01 – 05/07/01	Result GS43, 05/07/01 – 05/21/01
Aluminum	2780	9170	497	395	168
Antimony	24	19.0	undetect	undetect	0.51
Arsenic	5.1	5.6	0.9	0.7	undetect
Barium	397	266	83.8	81.1	137
Beryllium	0.2	0.42	undetect	undetect	undetect
Cadmium	1.4	1.8	undetect	undetect	0.09
Calcium	147000	60300	40900	39600	60000
Chromium	5.3	11.1	1.2	1.1	0.48
Cobalt	1.9	3.7	undetect	undetect	0.24
Copper	12.3	26.3	3.2	3.5	2.6
Iron	9380	11500	338	268	55.2
Lead	6.0	17.5	undetect	undetect	undetect
Lithium	16.2	13.2	7.1	6.7	13.4
Magnesium	36100	16000	13400	12800	25100
Manganese	1020	702	4.3	3.5	3.2
Mercury	undetect	undetect	undetect	undetect	undetect
Molybdenum	1.9	1.1	2.0	2.4	4.4
Nickel	4.7	8.8	1.3	1.3	0.83
Potassium	12500	7750	3960	3850	5890
Selenium	0.74	0.71	1.6	1.2	4.
Silver	0.27	0.87	undetect	undetect	undetect
Sodium	205000	86200	39700	31800	59100
Strontium	1060	450	384	375	718
Thallium	1.5	undetect	undetect	undetect	undetect
Tin	undetect	1.5	undetect	undetect	undetect
Vanadium	9.10	22.2	2.4	2.2	2.2
Zinc	524	768	151	116	150

Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result GS43, 05/21/01 – 07/15/01	Result GS44, 04/06/01 – 04/18/01	Result GS44, 04/18/01 – 04/26/01	Result GS44, 04/26/01 – 05/04/01	Result GS44, 05/04/01 – 05/05/01
Aluminum	2060	6540	6180	5980	5800
Antimony	0.61	0.76	0.8	0.72	0.53
Arsenic	1.1	2.6	2.2	2.2	2.8
Barium	61.5	95.9	122	92.4	44.6
Beryllium	0.14	0.37	0.33	0.22	0.26
Cadmium	0.19	undetect	0.09	0.14	undetect
Calcium	26000	40900	44500	40200	12700
Chromium	4.7	6.2	6.5	5.7	6.1
Cobalt	0.61	0.78	1.2	1.0	0.72
Copper	4.9	9.4	9.4	8.9	7.5
Iron	1660	4230	4480	4000	3920
Lead	3.5	3.6	4.2	3.4	3.9
Lithium	6.5	28.5	26.5	22.7	6.4
Magnesium	7710	7520	7730	7700	2720
Manganese	30.5	44.2	62.8	39.7	33.8
Mercury	undetect	1.2	undetect	undetect	0.13
Molybdenum	1.5	1.4	1.4	1.4	0.85
Nickel	2.6	4.6	4.6	4.7	4.7
Potassium	4890	10000	15300	7810	3900
Selenium	0.88	1.6	1.8	1.6	1.2
Silver	undetect	undetect	undetect	undetect	undetect
Sodium	16000	79500	267000	77500	18800
Strontium	214	225	238	228	66.3
Thallium	undetect	undetect	undetect	undetect	undetect
Tin	0.92	1.1	undetect	undetect	undetect
Vanadium	5.9	12.1	12.5	11.5	11.2
Zinc	74.4	115	132	96.7	68

Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result GS44, 05/05/01 – 05/24/01	Result GS44, 05/24/01 – 06/28/01	Result GS44, 06/28/01 – 07/16/01	Result GS49, 04/10/01 – 04/20/01	Result GS49, 04/20/01 – 05/05/01
Aluminum	4220	1960	12600	7070	6810
Antimony	0.82	1.1	1.2	2.4	2.20
Arsenic	1.9	1.2	5.6	3.7	2.9
Barium	136	155	122	44	45
Beryllium	0.15	0.14	0.47	0.36	0.34
Cadmium	0.08	0.47	0.18	0.18	undetect
Calcium	68400	88700	31900	6660	9980
Chromium	4.8	3.1	14.1	7.7	7.3
Cobalt	1.0	0.55	3.4	0.94	1.0
Copper	9.1	3.7	21.1	29.1	14.3
Iron	3270	1900	10900	5050	4910
Lead	3.4	6.8	12.5	5.4	4.1
Lithium	31.6	68.3	32.8	5.9	5.8
Magnesium	13000	16300	7180	1690	2060
Manganese	40.8	31.7	165	49.2	46.7
Mercury	undetect	undetect	0.16	undetect	undetect
Molybdenum	2.0	1.6	1.2	0.65	0.47
Nickel	4.0	2.9	11.10	5.8	6.0
Potassium	10500	10900	8890	2930	3120
Selenium	4.0	3.9	2.8	0.82	undetect
Silver	undetect	undetect	undetect	undetect	undetect
Sodium	43400	48200	21200	40700	65400
Strontium	403	489	174	32.3	44.8
Thallium	undetect	undetect	undetect	undetect	undetect
Tin	undetect	undetect	undetect	0.93	undetect
Vanadium	9.7	5.8	28.8	13	12.7
Zinc	93.7	102	217	165	108

Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result GS49, 05/05/01 – 07/25/01	Result GS50, 04/12/01 – 04/23/01	Result GS50, 04/23/01 – 05/05/01	Result GS50, 05/05/01 – 07/16/01	Result SW119, 04/11/01 – 04/21/01
Aluminum	22300	1070	3140	8025	2950
Antimony	2.9	1.2	1.4	1.65	1.2
Arsenic	10.0	1.2	2.0	4.8	1.2
Barium	137	67.8	35.5	77.1	126
Beryllium	1.1	0.1	0.16	0.31	0.35
Cadmium	0.14	0.17	0.18	0.72	0.32
Calcium	13200	38100	13500	16750	45500
Chromium	24.00	1.5	3.2	8.35	3.1
Cobalt	6.7	undetect	0.56	2.25	0.81
Copper	45.1	4.4	6.8	17.5	7.8
Iron	19700	702	2320	6565	1660
Lead	19.4	16.9	4.6	17.0	1.4
Lithium	16.7	6.0	3.2	7.0	37.7
Magnesium	4700	3660	1660	2475	9930
Manganese	295	10.4	26.3	106	38.7
Mercury	undetect	undetect	undetect	undetect	0.75
Molybdenum	0.77	0.59	0.89	0.86	1.2
Nickel	19.2	1.3	2.7	6.65	2.8
Potassium	5590	4950	3950	7305	16900
Selenium	2.3	undetect	undetect	1.13	undetect
Silver	undetect	undetect	undetect	0.24	undetect
Sodium	8560	192000	16200	5895	343000
Strontium	61	134	47.5	61.0	344
Thallium	undetect	1.5	undetect	undetect	undetect
Tin	2.1	undetect	undetect	0.92	undetect
Vanadium	47.1	2.5	7.1	19.45	5.5
Zinc	251	22.7	27.7	89.6	38.1

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Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result SW119, 04/21/01 – 05/02/01	Result SW119, 05/02/01 – 05/05/01	Result SW119, 05/05/01 – 07/16/01	Result SW120, 03/13/01 – 04/11/01	Result SW120, 04/11/01 – 04/21/01
Aluminum	2700	5250	7110	129	1510
Antimony	1.3	1.4	1.40	1.40	1.7
Arsenic	1.3	2.7	3.1	0.4	1.8
Barium	115	141	89.5	249	98.5
Beryllium	0.21	0.27	0.33	0.19	0.23
Cadmium	0.18	0.37	1.2	undetect	0.12
Calcium	44900	27000	23050	159000	46400
Chromium	3.2	5.70	8.10	0.47	1.9
Cobalt	0.71	1.1	2.05	0.36	0.41
Copper	7.0	8.0	11.2	2.9	6.3
Iron	1770	3630	5420	102	935
Lead	1.6	8.8	6.0	undetect	1.0
Lithium	33.6	20.1	21.5	63.0	21.8
Magnesium	10700	7120	6175	32100	9400
Manganese	23.3	31.6	76.4	17.1	38.3
Mercury	undetect	undetect	undetect	undetect	undetect
Molybdenum	1.7	1.2	0.84	0.88	1.2
Nickel	3.3	4.4	6.4	2.6	2.0
Potassium	10500	6260	8650	18800	12600
Selenium	1.2	undetect	1.61	0.89	undetect
Silver	undetect	undetect	undetect	undetect	undetect
Sodium	235000	73300	64750	361000	138000
Strontium	342	206	170.5	922	280
Thallium	undetect	undetect	undetect	undetect	undetect
Tin	undetect	undetect	undetect	undetect	undetect
Vanadium	6.0	12.0	16.8	0.54	2.8
Zinc	69.3	34.3	80.0	20.4	32.3

Table 5-24. Other Metals, Water Year 2001 (April, May, and June) continued

Analyte ug/l	Result SW120, 04/21/01 – 05/02/01	Result SW1120, 05/02/01 – 05/05/01	Result SW120, 05/05/01 – 07/16/01
Aluminum	2380	2300	9750
Antimony	1.4	1.4	2.5
Arsenic	1.5	2.6	5.8
Barium	104	71	106
Beryllium	0.17	0.13	0.4
Cadmium	undetect	undetect	0.34
Calcium	46800	33900	32100
Chromium	3.0	3.6	10.6
Cobalt	0.4	0.55	2.7
Copper	8.4	6.7	17.8
Iron	1620	1700	8530
Lead	1.5	1.8	8.7
Lithium	18.7	12.3	18.4
Magnesium	9230	6710	7540
Manganese	29.4	23.4	151
Mercury	undetect	undetect	5.50
Molybdenum	0.97	1.0	1.1
Nickel	2.6	3.7	8.9
Potassium	12100	8010	9100
Selenium	0.83	undetect	1.6
Silver	undetect	undetect	undetect
Sodium	187000	97400	51100
Strontium	279	195	190
Thallium	undetect	undetect	undetect
Tin	undetect	undetect	undetect
Vanadium	4.9	5.0	23.4
Zinc	53	53.3	112

Table 5-25. Water Quality Parameters, Water Year 2001 (April, May, and June)

Location	Sample Dates	Analyte Hardness mg/L
GS10	3/27 - 4/9/01	380
GS10	4/9 - 4/12/01	140
GS10	4/12 - 4/20/01	240
GS10	4/20 - 4/24/01	160
GS10	4/24 - 5/3/01	300
GS10	5/3 - 5/5/01	63
GS10	5/5/2001 8:30 -	61
GS10	5/5 - 5/21/01	260
GS10	5/21 - 6/1/01	320
GS10	6/1 - 6/7/01	380
GS10	6/7 - 6/15/01	280
GS10	6/15 - 7/2/01	430
SW027	3/14 - 4/12/01	340
SW027	4/12 - 4/16/01	160
SW027	4/16 - 4/23/01	140
SW027	4/23 - 5/1/01	190
SW027	5/1 - 5/5/01	140
SW027	5/5/2001 8:47 -	80
SW027	5/5 - 7/23/01	a
SW093	3/27 - 4/2/01	380
SW093	4/2 - 4/12/01	280
SW093	4/12 - 4/20/01	290
SW093	4/20 - 4/24/01	200
SW093	4/24 - 5/2/01	300
SW093	5/2 - 5/5/01	140
SW093	5/5/2001 8:16 -	84
SW093	5/5 - 5/14/01	260
SW093	5/14 - 5/21/01	250
SW093	5/21 - 6/1/01	210
SW093	6/1 - 6/7/01	170
SW093	6/7 - 6/15/01	220
SW093	6/15 - 6/25/01	160
SW093	6/25 - 7/2/01	140

a Incomplete analysis

## 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	<ul style="list-style-type: none"> <li>Water meets discharge limits per Incidental Waters procedure</li> </ul>	N/A
Building 995 Waste Water Treatment Plant (WWTP)	<ul style="list-style-type: none"> <li>Water above discharge to ground limits</li> <li>Water meets Internal Waste Streams Program review criteria</li> </ul>	Activated Sludge w/ tertiary clarifiers  Dual media filtration  UV disinfection
Building 891 Consolidated Water Treatment Facility (CWTF)	<ul style="list-style-type: none"> <li>Water above discharge to ground limits</li> <li>Water not accepted by WWTP</li> <li>Water meets CWTF acceptance criteria and has both radionuclide and organic constituents</li> </ul>	Chemical precipitation  Microfiltration  UV/ peroxide oxidation  Granular activated carbon  Ion exchange
Building 374	<ul style="list-style-type: none"> <li>Water above discharge to ground limits</li> <li>Water not accepted by WWTP</li> <li>Water has radionuclides, but no organic constituents</li> </ul>	Flash evaporation (Steam-heated reactor with spray evaporation)

## 6.2 QUARTERLY INCIDENTAL WATER DISPOSITIONS

Eighty one (81) incidental waters were sampled/dispositioned during the third quarter of FY01. The following table summarizes the location and route of disposal.

Table 6-2. Quarterly Incidental Water Dispositions FY2001 (April, May, and June)

Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
112	Transformer Berm	PMO 370-107, East of B112	1	No water to sample (Dry berm)
115	Transformer Berm	PMO 370-167, South of B443, and 370-121. Northeast of B15	2	To Ground or Storm Drain
119	Transformer Berm	PMO 370-132, East of 119	1	To Ground or Storm Drain
119	Excavation	Broken potable water line north of B119	1	To Ground or Storm Drain
14	Manhole	Manhole	1	To Ground or Storm Drain
223	Transformer Berm	PMO 360-A001, West of B223; PMO 360- B002, West of B223; PMO 370-143, South of B223-Nitrogen; PMO 370-144, South of B223-Nitrogen	4	To Ground or Storm Drain
284	Secondary Containment	Rainwater in secondary containment	1	To Ground or Storm Drain
334	Transformer Berm	PMO 370-010, Northwest of B334	1	To Ground or Storm Drain
371	Transformer Berm	PMO 376-035, North of T-371C	1	To Ground or Storm Drain
373	Cooling Tower Sump	This tower is being dismantled.	1	To Ground or Storm Drain
440	Potable Water Line	Draining of potable water line inside of 440	1	To Ground or Storm Drain

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
440	Transformer Berm	PMO 370-110, North of B440	1	To Ground or Storm Drain
443	Transformer Berm	PMO 370-011, Northwest of B443	1	To Ground or Storm Drain
444	Secondary Containment	Secondary containment for outside diesel tank	1	To Ground or Storm Drain
460	Cooling Tower	Periodic draining of cooling tower at 460	1	To Ground or Storm Drain
462	Cooling Tower	Periodic draining of cooling tower.	1	To Ground or Storm Drain
549	Transformer Berm	PMO 360-002, North of B549	1	To Ground or Storm Drain
551	Transformer Berm	PMO 370-094, East of B551	1	To Ground or Storm Drain
551	Transformer Berm	PMO 370-124, East of B551	1	To Ground or Storm Drain
559	Transformer Berm	PMO 370-046, East of B559	1	To Ground or Storm Drain
569	Steam Pit	Steam Pit E SE of bldg.	1	To Ground or Storm Drain
664	Excavation	Excavation SSE of 664, not in an IHSS, or rad soil area, but in 1 MCL groundwater plume. 10 gallons.	1	To Ground or Storm Drain
664	Steam Line	Restoration to service of steam line	1	To Ground or Storm Drain
679/680	Transformer Berm	PMO 350-009 & 010, 679/680 Substation	2	To B891

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
7	Manhole	Telecommunications manhole	1	To Ground or Storm Drain
708	Transformer Berm	PMO 360-007/021/119/120, West of B708	4	To Ground or Storm Drain
709	Manhole	Manhole just west of 709	1	To B891
709	Manhole	Just west of 709	1	To B374
709	Manhole	Utility manhole	1	To Ground or Storm Drain
709	Utility Pit	Utility pit at 709 cooling tower	1	To B374
711	Cooling Tower	Water in cooling tower	1	To B995
712	Cooling Tower	Cooling tower that is being dismantled	1	To B374
713	Cooling Tower	Cooling tower that is being dismantled	1	To Ground or Storm Drain
713A	Utility Pit	Valve pit for nearby cooling towers.	1	To Ground or Storm Drain
750	Steam Pit	Pit about 80 yds west of portal 1. P Dieter says to identify it with B750	1	To B995
750	Transformer Berm	PMO 370-056, Northwest of B750	1	To Ground or Storm Drain
750	Transformer Berm	PMO 370-145, West of B750 on Pad	1	To B891
771	Fire Suppression System	FU-6 Plenum FS	1	To Ground or Storm Drain

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
771	Transformer Berm	PMO 376-034, East of T771	1	To Ground or Storm Drain
771	Transformer Berm	PMO 370-138, Southwest of B771	1	To B891
772	Transformer Berm	PMO 370-150, North of B772	1	To B891
774	Garbage Can	35-gallon garbage can collecting runoff from 774 roof	1	To Ground or Storm Drain
776	Building Pit	Utility pits.	2	To B995
776	Chiller condensate	Temporary discharge to ground of condensate water normally routed to sanitary for convenience.	1	To Ground or Storm Drain
776	Drum	Drummed water from oil/water separator	2	To B995
776	New Chiller	Need to flush a new chiller with potable water.	1	To Ground or Storm Drain
776	Transformer Berm	PMO 360-008, Northwest of B776	1	To Ground or Storm Drain
776	Trench	Oil/water separator trench. Sample 2 points in trench	1	To B995
777	Breathing Air Compressor	Breathing air compressor that will be flushed prior to use with FSS water	1	To Ground or Storm Drain

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
778	Steam Condensate Line	Condensate line at 778	1	To Ground or Storm Drain
8	Manhole	Manhole 8 near 4th & Sage	1	To B891
865	Transformer Berm	PMO 370-043/044, West of B865	2	To Ground or Storm Drain
881	Drum	Drum in Room 292	1	To B995
881	Drum	Sample 2 of 4 55-gal drums	1	To Ground or Storm Drain
881	Drum	5 drums in R248, B881. Composite sample 2 drums	1	To B891
881	Drum	Drum of rainwater in R296A	1	To B891
881	Drum	Water from cooling system, R161. Total volume=200 gal	1	To B891
881	Transformer Berm	North of B881	2	To B891
776	Trench	Oil/water separator trench. Sample 2 points in trench	1	To B995
777	Breathing Air Compressor	Breathing air compressor that will be flushed prior to use with FSS water	1	To Ground or Storm Drain

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
883	Excavation	Excavation about 70 feet SE of 883 for potable water main.	1	To Ground or Storm Drain
883	Transformer Berm	PMO 370-042, Southeast of B883	1	To Ground or Storm Drain
886	Building Pit	Room 828	1	To B891
886	Drum	Room 103. Water collected in drums	1	To B891
886	Vacuum Cleaner	Vacuum Cleaner containing Water	1	To B891
904	Tank	High-density polyethylene tank.	1	To Ground or Storm Drain
904	Transformer Berm	PMO 370-142, North of 904	1	To B891
910	Building Pit	New bldg. that has never had rad material.	1	To Ground or Storm Drain
966	Secondary Containment	Tank, secondary containment, 966 Decon Pad	1	To B995
980	Bermed Area	SE corner of pad	1	To B374
980 Pad	Berm	Berm at corner of pad	1	To B891

The 30 incidental waters requiring treatment were routed to the following Site treatment facilities:

- Building 995 – WWTP            9
- Building 891 – CWTF           17
- Building 374                      4