

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE QUARTERLY ENVIRONMENTAL MONITORING REPORT JANUARY – MARCH 2000



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**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
QUARTERLY
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JANUARY – MARCH 2000**

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

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

MAY 2000

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HIGHLIGHTS FOR JANUARY – MARCH 2000

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 1997, 1998, and 1999. 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 February 2000 are included in this report. Data for March 2000 are not complete at this time. All data are within the normally observed ranges of concentrations for their respective locations.

The effluent filter carrier was dropped during one of the filter changes in January; some uncertainty may exist in these results that is not quantifiable. Tritium results are missing for one sampling period in February due to sampler malfunction.

Consistent with all other uses of these data, positive values only are included in the total release calculation (the negative values are treated as zeros). The uncertainty calculation does reflect all values.

Ambient Air

Complete isotopic analytical data through February 2000 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. Data for March 2000 are not complete at this time.

At the end of January 2000 sampling period, the flow rates for samplers S-137 and S-141 were lower than normal. Extrapolated corrected flow rates were used to calculate the corresponding average concentrations for the month.

Due to high wind damage experienced during the month of March 2000, some filter cartridges were exchanged during the month and S-107 filters were composited for analysis. Also, the February 2000 filter from sampler S-201 was pulled away from the cartridge edge; some uncertainty may exist in the associated results that is not quantifiable.

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 January through March 2000 are included in this report. Due to calibration requirements of the solar-radiation measurement device, no solar data are available from February 28 through April 5, 2000.

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 hours of missing wind speed/direction data for this time period.

Surface Water

Surface water analytical data collected during second quarter of FY00 (January, February, and March) for NPDES/FFCA permit compliance are presented in this report. The Site reported an exceedance of the 30-day average of 10 mg/l for total nitrate measured during the discharge from Pond A-3 (Outfall 002) in January 2000. The calculated 30-day average for the discharge was 15.6 mg/l. Increased nitrate levels were due to the installation and operation of the Solar Pond Plume remediation project upstream of Pond A-3. This project was designed to treat groundwater and protect surface water to the applicable standard of 100 mg/L (Final Solar Ponds Plume Decision Document). EPA was alerted that increased nitrate levels from the approved remediation project might impact the NPDES outfall at Pond A-3 (DOE letter, J.

Legare to M. Dodson). Rather than change the effluent limitation at this outfall, EPA chose to remove the outfall through the renewal of the permit (EPA letter, M. Dodson to J. Legare, dated February 1, 2000). Permit renewal will remove the A-3 outfall and eliminate future reportable exceedances.

Additionally, the Site reported an exceedance of the daily maximum of 12 mg/l for total phosphorus measured from the effluent of the Sewage Treatment Plant (Outfall STP) during the month of February 2000. The measured daily maximum was 17 mg/l from a composite sample collected on February 10, 2000. There has been no direct evidence as to the cause, although, coincidentally, on the afternoon of February 9th, a spill of propylene glycol into a sanitary drain was reported in Building 991. While most of the spill was contained in one of the off-line influent storage basins, some material may have entered the wastewater treatment plant. No other on-site events were reported for this time frame that could have impacted the wastewater treatment plant. All other reported data were consistent with historical measurements and within permit limitations.

Included in this report are two surface water location 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 second quarter of FY00 (January, February, and March) from samples supporting RFCA and Hydrologic Monitoring programs are included in this report.

A new Performance Monitoring Gaging Station, SW120, was installed during the quarter. It is located in the drainage ditch north of the Solar Ponds along the south side of the PA Perimeter Road. This location was installed to support of D&D activities for the B771/774 area and also serves as a Source Location monitoring point in support of Source Evaluation efforts for POE SW093. The station began providing flow monitoring data as of March 15, 2000.

Incidental Water Monitoring

A summary of Incidental Waters dispositioned during second quarter of FY00 (January, February, and March) are presented in this report.

1. AIR DATA

1.1 EFFLUENT AIR DATA

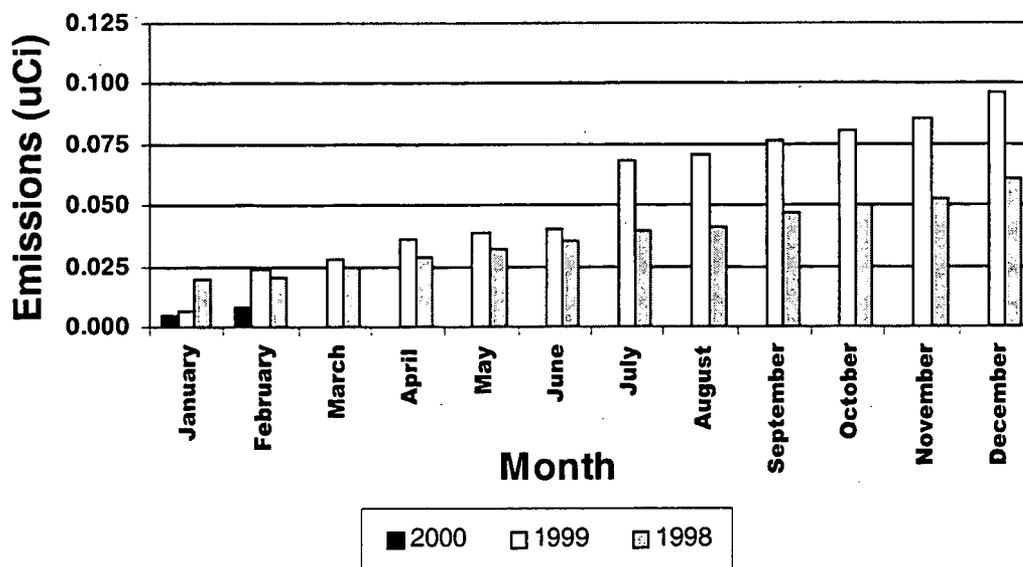


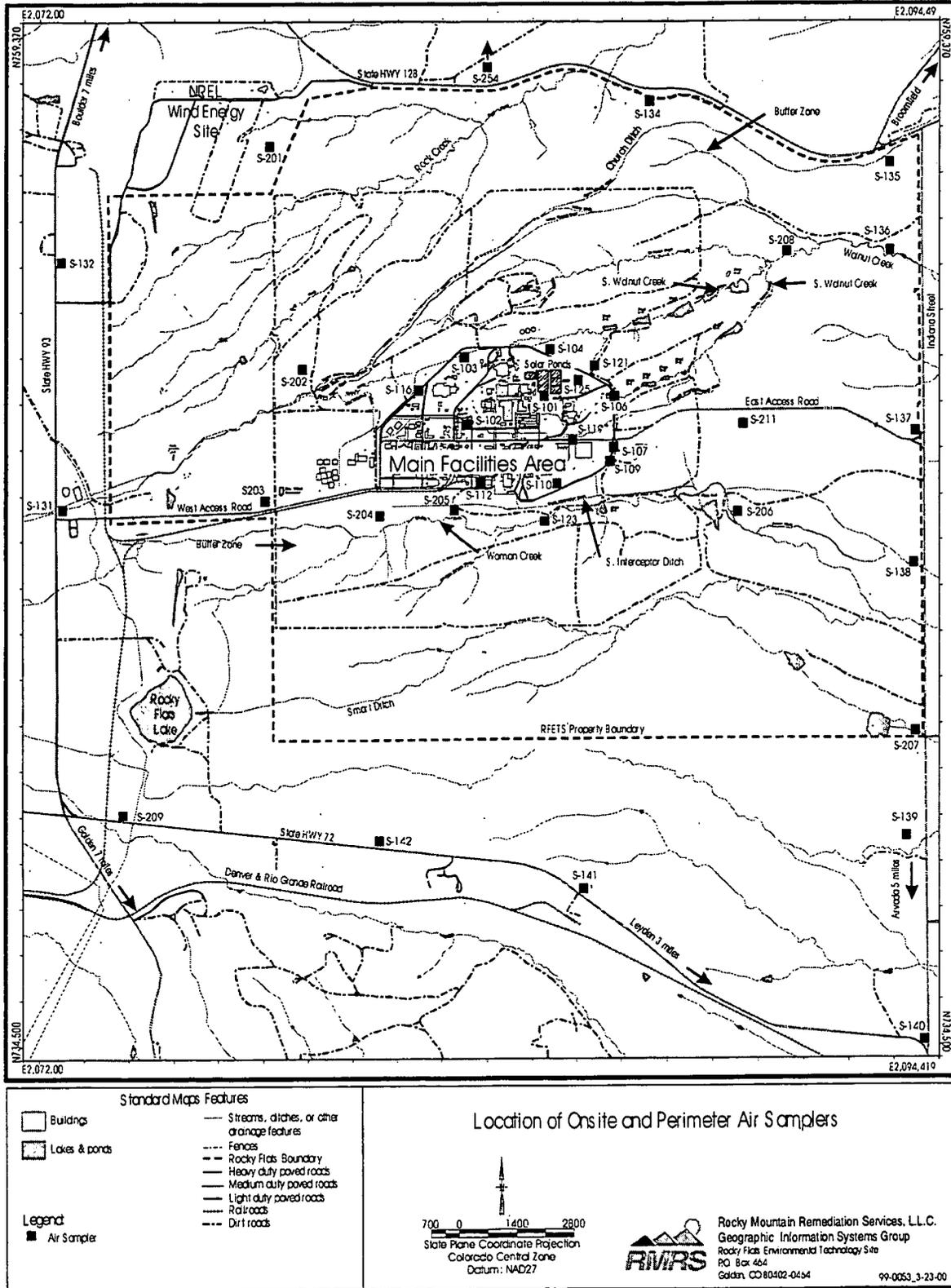
Figure 1-1. Cumulative Plutonium Airborne Effluent Emissions

The above graph shows the cumulative airborne effluent emissions of plutonium from building stacks. December 1999 and January and February 2000 emissions are consistent with previously measured plutonium concentrations, with a February 2000 cumulative, year-to-date plutonium emission of 0.009 microcuries (uCi). The total 1999 plutonium emissions were 0.096 uCi.

Americium and uranium emissions for December 1999 and January and February 2000 are also within the ranges seen in 1998 and 1999. The monthly tritium airborne effluent emissions for January and February 2000 are below the mean monthly emissions in 1999 (for August through December, the time period in which only one tritium sampling location remained). March 2000 saw higher than average tritium emissions.

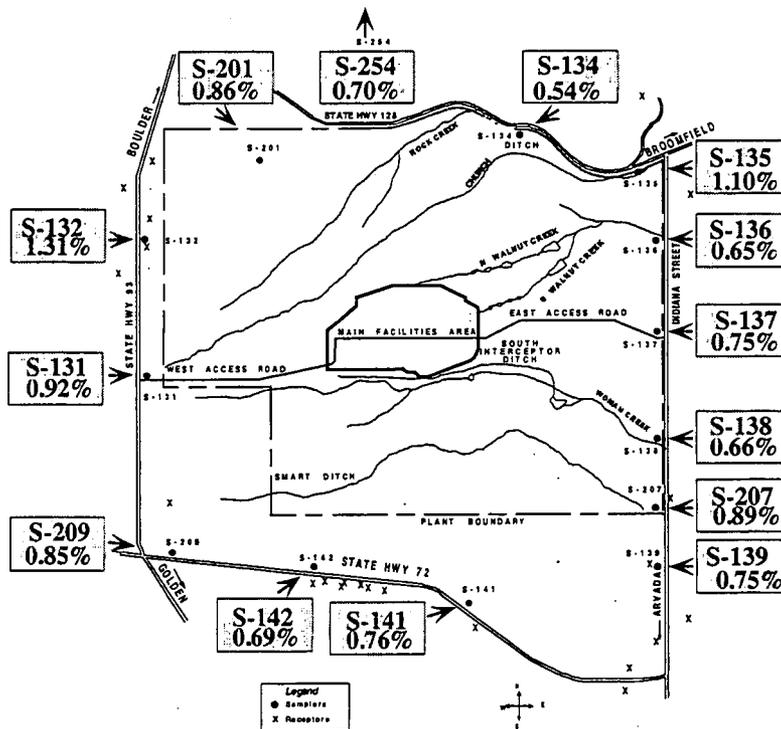
10

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



1.2 AMBIENT AIR DATA

1.2.1 Perimeter Sampler Locations



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Figure 1-2. Perimeter Samplers Dose Map

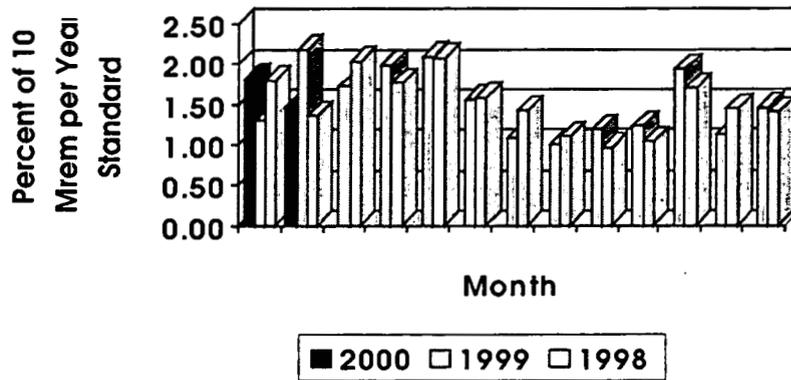
The above map illustrates the perimeter Radioactive Ambient Air Monitoring Program (RAAMP) sampler locations and the twelve-month rolling-average maximum potential dose through February 2000, expressed as a percentage of EPA's air concentration-based dose limit for members of the public.

The percentages include the naturally occurring uranium isotopes as well as the isotopes from site contributions. The average concentration observed at location S-132 is projected to equate to the highest potential dose, which is consistent with the previously reported results.

The percentage values are based on the measured air concentrations, averaged over the year, converted as a percent of the Rad NESHAP concentration limits.

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Perimeter Sampler Locations – Dose Rate Graphs



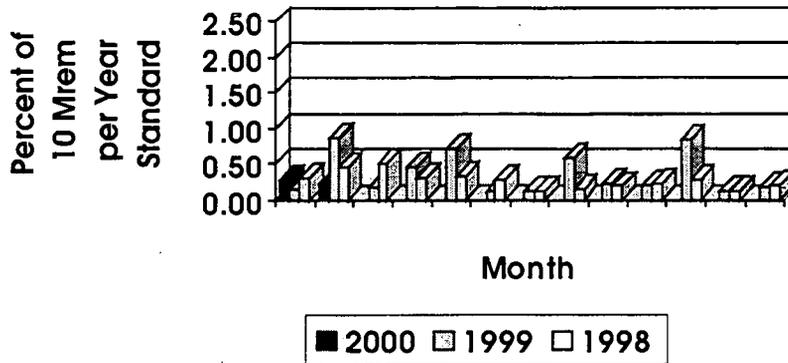
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Figure 1-3. Offsite Dose Rate Summary

The above graph illustrates the monthly estimated maximum potential dose rates at the perimeter sampler showing highest radionuclide concentrations, including contributions from naturally occurring uranium isotopes. The highest dose rates for December 1999 and January and February 2000 were seen at location S-132. The monthly dose rates were less than 2.5 percent of the 10 mrem standard.

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1.2.2 Perimeter Sampler Locations – Dose Rate Graphs, continued



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Figure 1-4. Offsite Dose Rate Summary Without U-234 and U-238

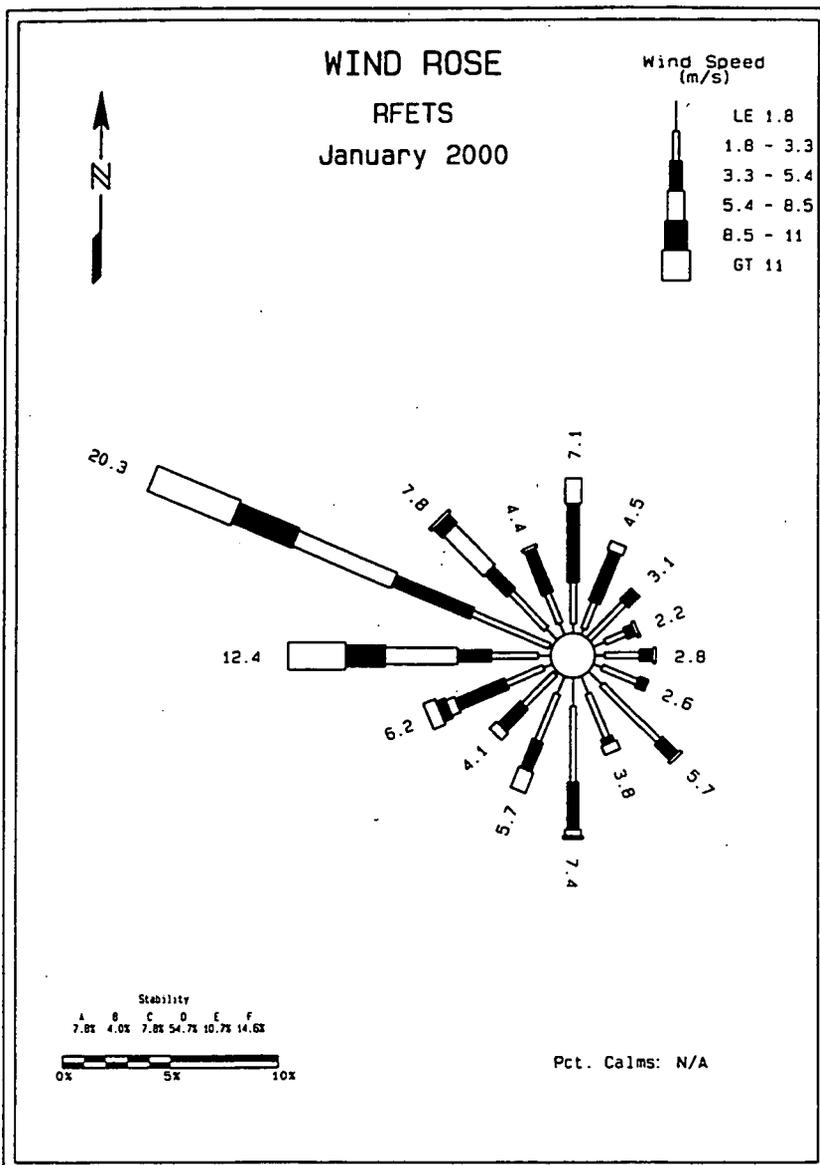
Omitting the uranium 234 and 238 contributions may better reflect the contribution from Site operations. This presentation results in an estimated maximum potential dose rate of less than 0.9% of the equivalent concentration limit.

Ambient concentrations and dose rates for 1999 and 2000 are similar to the rates observed in 1998.

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2. METEOROLOGY AND CLIMATOLOGY

2.1 WIND ROSES FOR JANUARY, FEBRUARY, AND MARCH 2000

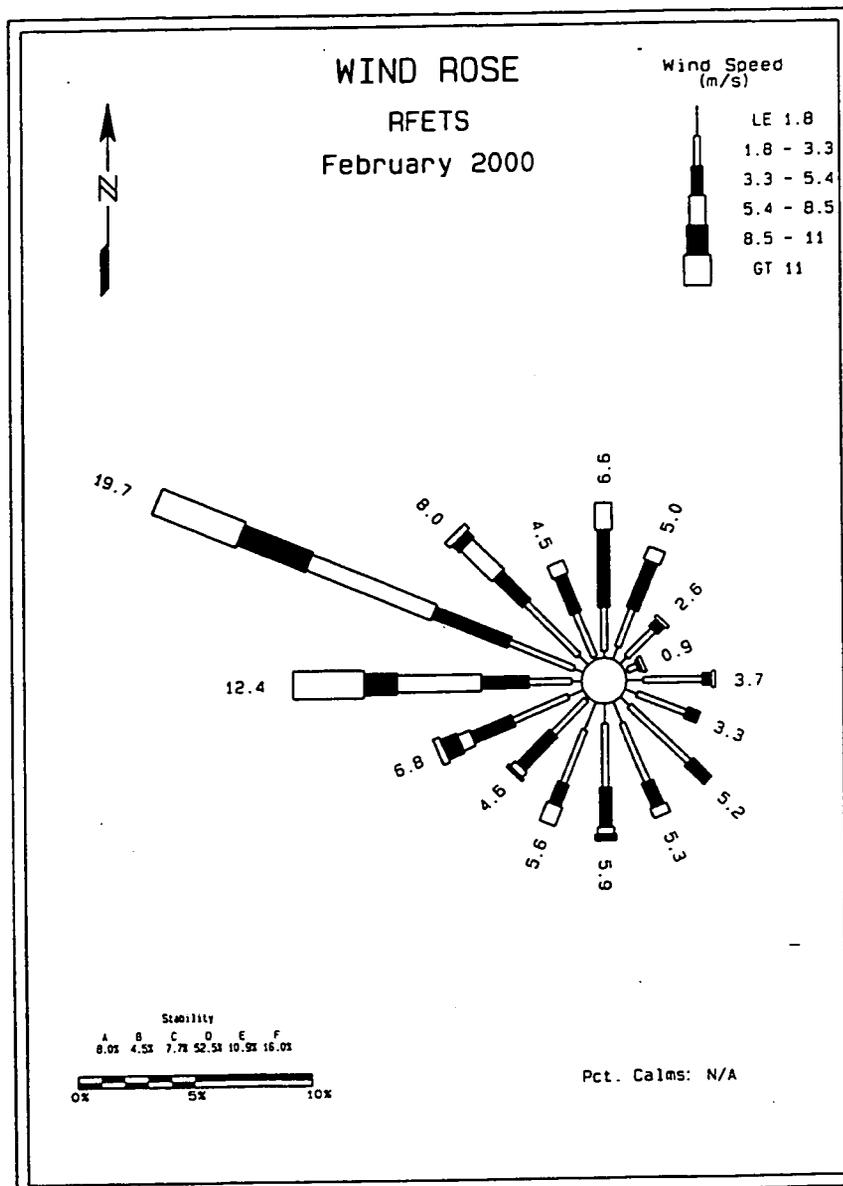


Monthly Climatic Summary

Month	Temperature (°F)			Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph)		Pressure (mb)	Solar (kW-h/m ²)	Precipitation (in)	
	Mean Daily High	Mean Daily Low	Daily Mean			Mean	Max			Total	Max
Jan-00	44.02	26.04	35.71	19.75	68.3	10.63	81.65	811.59	74.01	0.38	0.01

Figure 2-1. Wind Rose for Rocky Flats Environmental Technology Site for January 2000

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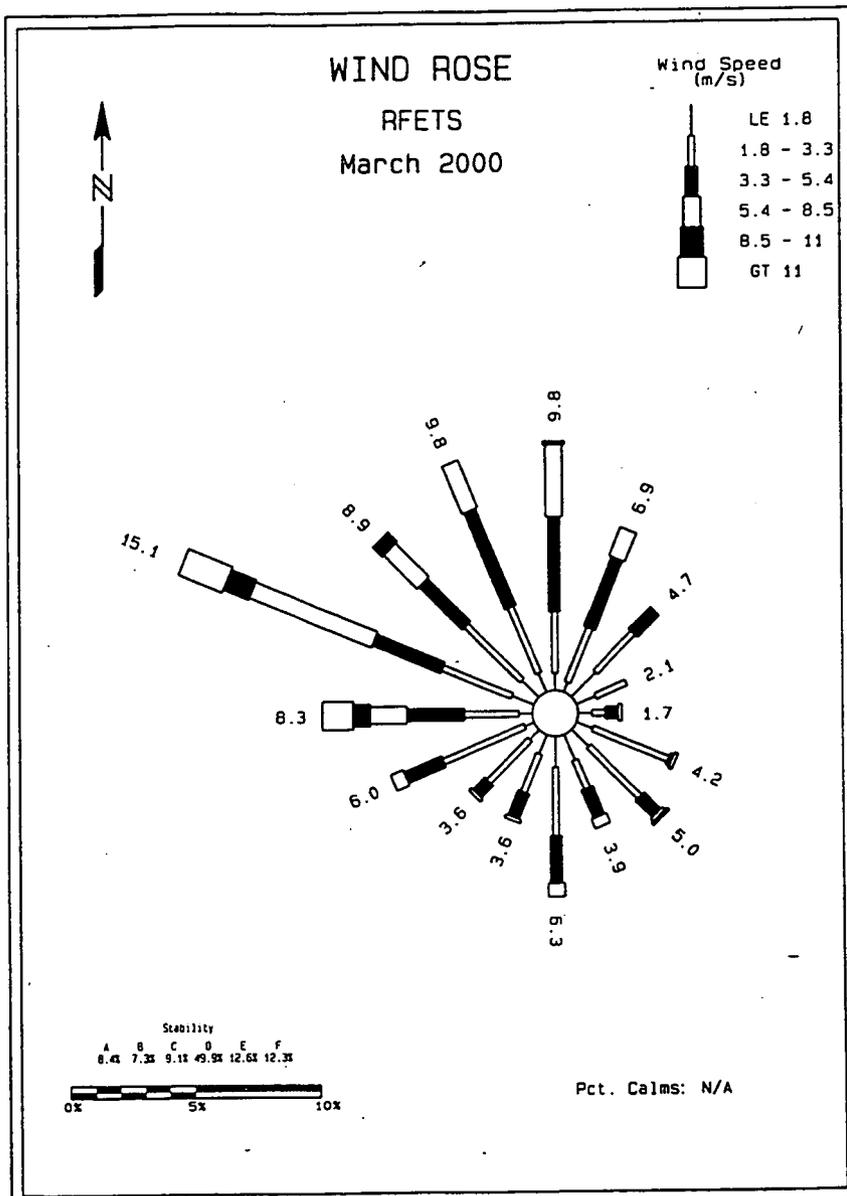


Monthly Climatic Summary

Month	Temperature (°F)			Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph)		Pressure (mb)	Solar Total (kW-h/m ²)	Precipitation (in)	
	Mean Daily High	Mean Daily Low	Mean Daily			Mean	Max			Total	Max
Feb-00	50.22	29.53	39.94	21.57	54.18	10.99	76.93	811.49	84.4	0.15	0.01

Figure 2-2. Windrose for Rocky Flats Environmental Technology Site for February 2000

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Monthly Climatic Summary

Month	Temperature (°F)			Mean Dew Point (°F)	Mean Relative Humidity (%)	Wind Speed (mph)		Pressure (mb)	Solar (kW-h/m ²)	Precipitation (in)	
	Mean Daily High	Mean Daily Low	Daily Mean			Mean	Max			Total	Max
Mar-00	49.77	29.52	39.51	26.54	66.31	9.48	87.33	810.92	-	1.29	0.07

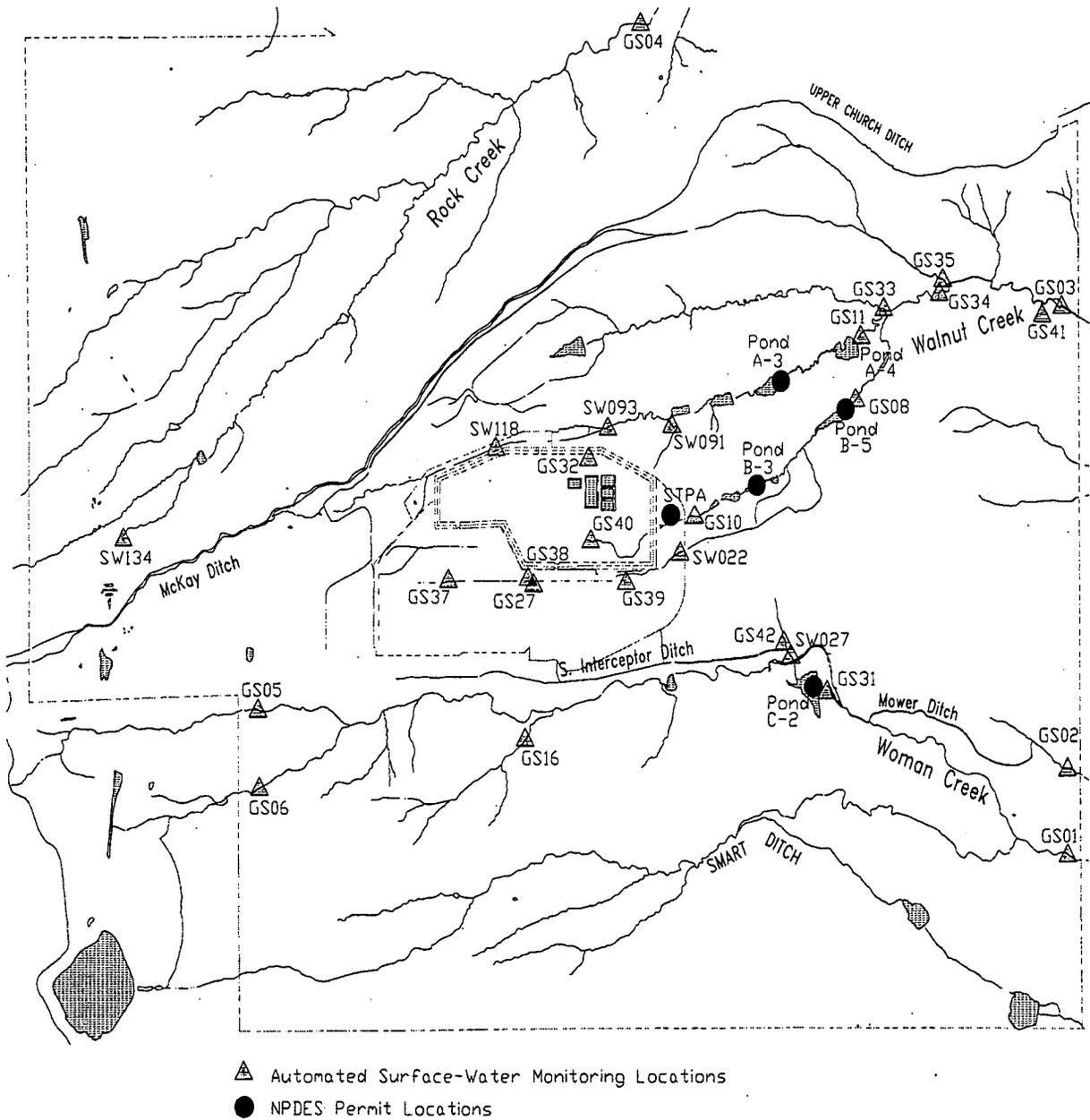
Figure 2-3. Windrose for Rocky Flats Environmental Technology Site for March 2000

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3. SURFACE WATER DATA

Map 3-1. Holding Ponds and Liquid Effluent Water Courses

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3.1 NPDES SUMMARY DATA

Table 3-1. Pond B-3 (Outfall 001A)

Dates of discharge 01/01/00 – 02/14/00 and 02/16/00 – 03/31/00

Parameter & Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Maximum	Limit Daily Maximum
NO3/NO2, mg/l	4.9 – 6.4	10	5.8 – 8.9	20	N/A	N/A
TRC, mg/l	N/A	N/A	N/A	N/A	0.06	0.5
BOD5, mg/l	<7.6	a	N/A	N/A	9.0 – 12.0	a
CBOD5, mg/l	<5	a	N/A	N/A	6.0 – 11.0	a
TSS, mg/l	<7 - 41	a	N/A	N/A	10 – 74	a

- a Report Only
- N/A Not Applicable
- TRC Total Residual Chlorine
- TSS Total Suspended Solids
- BOD5 Biochemical Oxygen Demand, 5-Day Test
- CBOD5 Carbonaceous Biochemical Oxygen Demand, 5-Day Test

Note: Results are the range of value measured during the reporting period

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Table 3-2. Sewage Treatment Plant (Outfall STP A)

Dates of Discharge 10/1/99 – 12/31/99. Metals and VOA Samples Collected 01/04/00, 02/01/00, 03/07/00

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	Observed Sheen	Measured Result
pH, SU	N/A	N/A	N/A	N/A	6.7 – 7.0	6.0	7.4 – 8.3	9.0	N/A	N/A
TSS, mg/l	<6	30	<7	45	N/A	N/A	N/A	N/A	N/A	N/A
Total Phos., mg/l	2 - 3	8	N/A	N/A	N/A	N/A	4 - 17	12	N/A	N/A
TRC, mg/l	<0.02	a	<0.03	a	N/A	N/A	N/A	N/A	N/A	N/A
Total Cr., ug/l	<1.0	50	N/A	N/A	N/A	N/A	1.1	100	N/A	N/A
F. Coliform, #/100ml	<5	200b	<2 - 42	400b	N/A	N/A	N/A	N/A	N/A	N/A
CBOD5, mg/l	<3	10	N/A	N/A	N/A	N/A	5 - 8	25	N/A	N/A
Oil & Grease	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	c	N/A
WET										
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Antimony, ug/l	<2	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic, ug/l	2.3 – 3.9	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium, ug/l	<0.50	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, ug/l	<0.50	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper, ug/l	2.1 – 3.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron, ug/l	70.9 – 160.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead, ug/l	<0.58 – 1.2	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese, ug/l	15.2 – 24.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, ug/l	<0.10	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel, ug/l	1.8 – 2.4	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver, ug/l	<0.22	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, ug/l	29.1 – 35	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VOC's, ug/l	d	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

a	Report Only	TRC	Total Residual Chlorine
b	Geometric Mean	CBOD5	Carbonaceous Biochemical Oxygen Demand, 5-Day Test
c	No Sheen Observed	PQL	Practical Quantitation Limit
d	None Detected Above PQL	WET	Whole Effluent Toxicity
N/A	Not Applicable	SU	Standard Units
TSS	Total Suspended Solids		

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Table 3-3. Ponds – Interior and Terminal

Pond A-3 discharged 01/24/00 – 01/28/00 & 03/24/00 – 03/27/00; Pond A-4 discharged 03/16/00 – 03/24/00, and Pond B-5 discharged 01/27/00 – 02/07/00 & 03/16/00 – 03/27/00. Pond C-2 did not discharge during the reporting period.

Location, Parameter and 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
Pond A-3 (Outfall 002) pH, SU	N/A	N/A	N/A	N/A	7.7 – 8.0	6.0	8.1 – 8.5	9.0	N/A
NO3/NO2, mg/l	9.8 – 15.6	10	N/A	N/A	N/A	N/A	13.0 – 20.0	20	N/A
Pond A-4 (Outfall 005A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A	<1	50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Pond B-5 (Outfall 006A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A	<1	50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
NO3/NO2, mg/l*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pond C-2 (Outfall 007A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A		50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

* Sample and analysis required only if Pond B-3 is bypassed

N/A Not applicable

SU Standard units

TRC Total residual chlorine

WET Whole Effluent Toxicity

21

3.2 MOUND PLUME SUMMARY DATA

Table 3-4. Mound Plume Locations SW061 and SW132

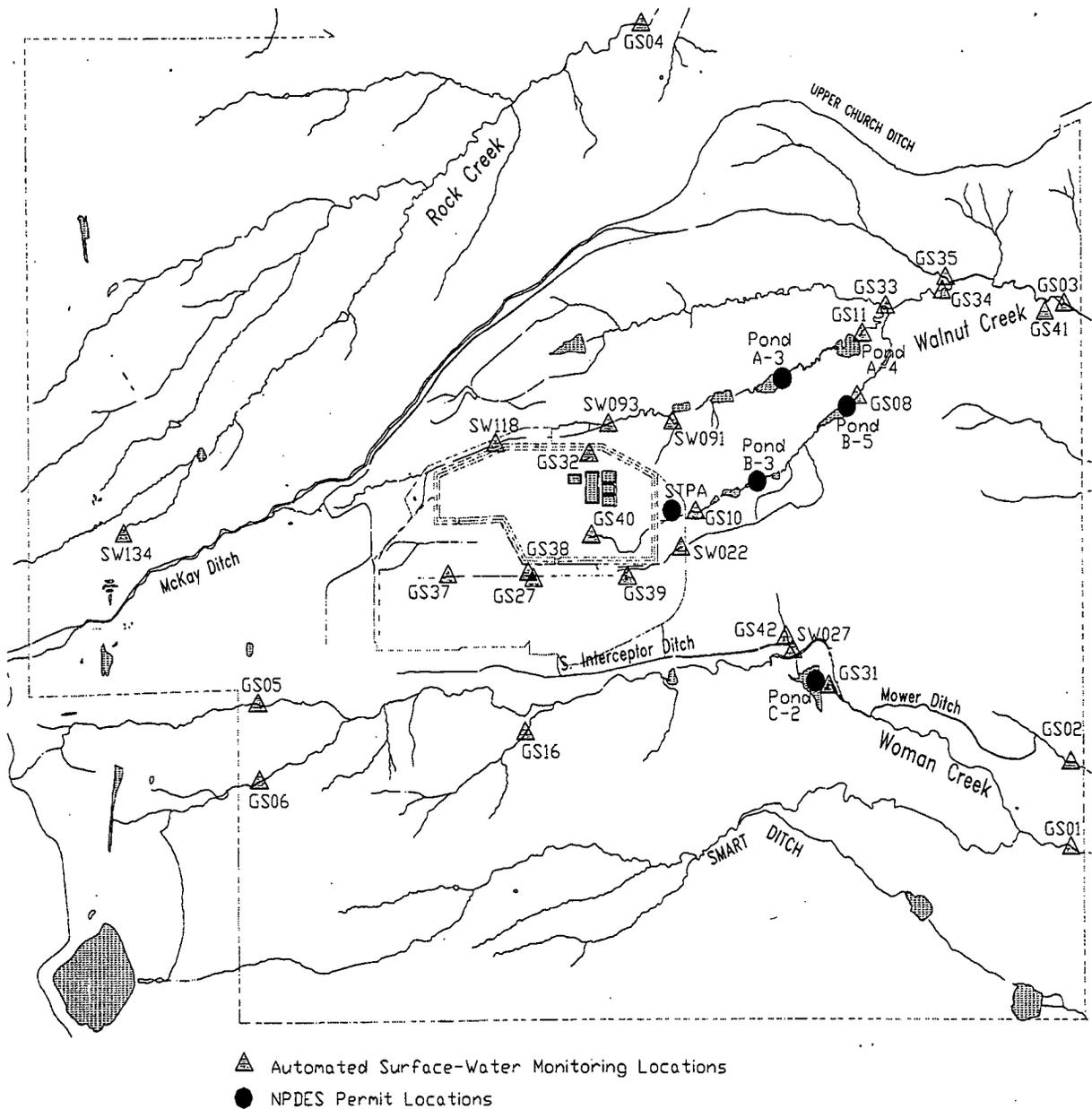
Analyte	SW061	SW132
	01/04/00	01/04/00
Pu 239/240, pCi/l	0.169 +/- 0.075	0.003 +/- 0.011
Am 241, pCi/l	0.022 +/- 0.029	-0.006 +/- 0.004
Silver, dissolved, ug/l	<0.20	<0.20
Aluminum, total, ug/l	20800	45.3
Arsenic, total, ug/l	5.2	<0.68
Barium, total, ug/l	250	127
Beryllium, total, ug/l	0.84	0.04
Cadmium, dissolved, ug/l	<0.10	0.32
Copper, dissolved, ug/l	2.8	1.5
Iron, total, ug/l	16500	40.8
Mercury, total, ug/l	<0.10	<0.10
Manganese, total, ug/l	195	65.0
Nickel, dissolved, ug/l	2.0	1.2
Lead, dissolved, ug/l	1.6	<0.52
Antimony, total, ug/l	1.4	2.3
Selenium, dissolved, ug/l	<1.0	<1.0
Zinc, dissolved, ug/l	12.9	88.9
EPA VOA Method 8260, compounds found >RFCA Seg 5 Action Level	None detected	None detected

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

Map 4-1. Gaging Station Locations



23

4.1 FLOW MONITORING

Table 4-1. Gaging Station GS01: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.211	0.237	0.210
2	0.206	0.220	0.226
3	0.227	0.382	0.262
4	0.325	0.300	0.263
5	0.203	0.258	0.241
6	0.213	0.296	0.205
7	0.247	0.286	0.193
8	0.149	0.268	0.183
9	0.161a	0.256	0.182
10	0.143	0.242	0.192
11	0.215	0.241	0.218
12	0.276	0.234	0.224
13	0.256	0.243	0.206
14	0.237	0.236	0.197
15	0.248	0.229	0.233
16	0.247	0.211	0.337
17	0.235	0.224	0.505
18	0.269	0.222	0.638
19	0.238	0.351	0.918
20	0.241	0.373	0.904
21	0.227	0.514	0.660
22	0.218	0.659	0.861
23	0.186	0.473	0.667
24	0.164	0.385	0.435
25	0.185	0.310	0.359
26	0.209	0.244	0.313
27	0.304	0.236	0.265
28	0.289	0.273	0.246
29	0.286	0.239	0.405
30	0.272	NA	0.359
31	0.232	NA	0.572
Monthly Average (cfs)	0.230	0.298	0.377

Monthly Discharge

Cubic Feet	614925	746651	1008981
Gallons	4599957	5585340	7547699
Acre-Feet	14.11	17.14	23.16

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.

24

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.

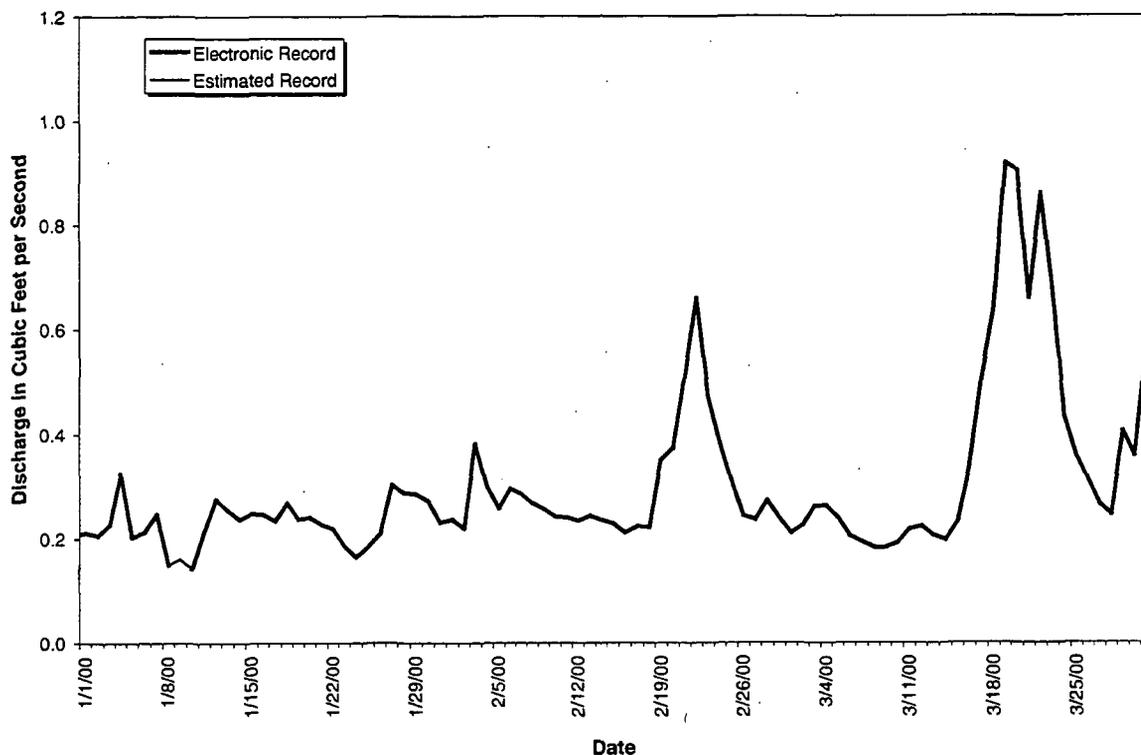


Figure 4-1. Mean Daily Discharge at GS01, Water Year 2000 (January, February, and March)

25

Table 4-2. Gaging Station GS03: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.001	0.899	0.000
2	0.001	0.836	0.000
3	0.002	0.858	0.000
4	0.001	0.832	0.000
5	0.001	0.717	0.000
6	0.001	0.574	0.000
7	0.001	0.357	0.000
8	0.001	0.037	0.000
9	0.001	0.030	0.000
10	0.001	0.026	0.001
11	0.001	0.023	0.001
12	0.000	0.021	0.001
13	0.000	0.019	0.001
14	0.001	0.017	0.001
15	0.001	0.014	0.006
16	0.001	0.014	1.027a
17	0.000	0.017	2.517a
18	0.001	0.014	2.474a
19	0.001	0.011	2.317a
20	0.001	0.010	3.209a
21	0.001	0.009	3.776a
22	0.001	0.007	3.659a
23	0.000	0.003	3.487a
24	0.000	0.000	1.697a
25	0.000	0.000	0.871
26	0.002	0.000	0.713
27	0.387	0.000	0.692
28	1.231	0.000	0.026
29	1.324	0.000	0.009
30	1.292	NA	0.008
31	0.982	NA	0.010
Monthly Average (cfs)	0.169	0.184	0.855

Monthly Discharge

Cubic Feet	452602	461664	2289990
Gallons	3385696	3453485	17130313
Acre-Feet	10.39	10.60	52.56

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.

26

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.

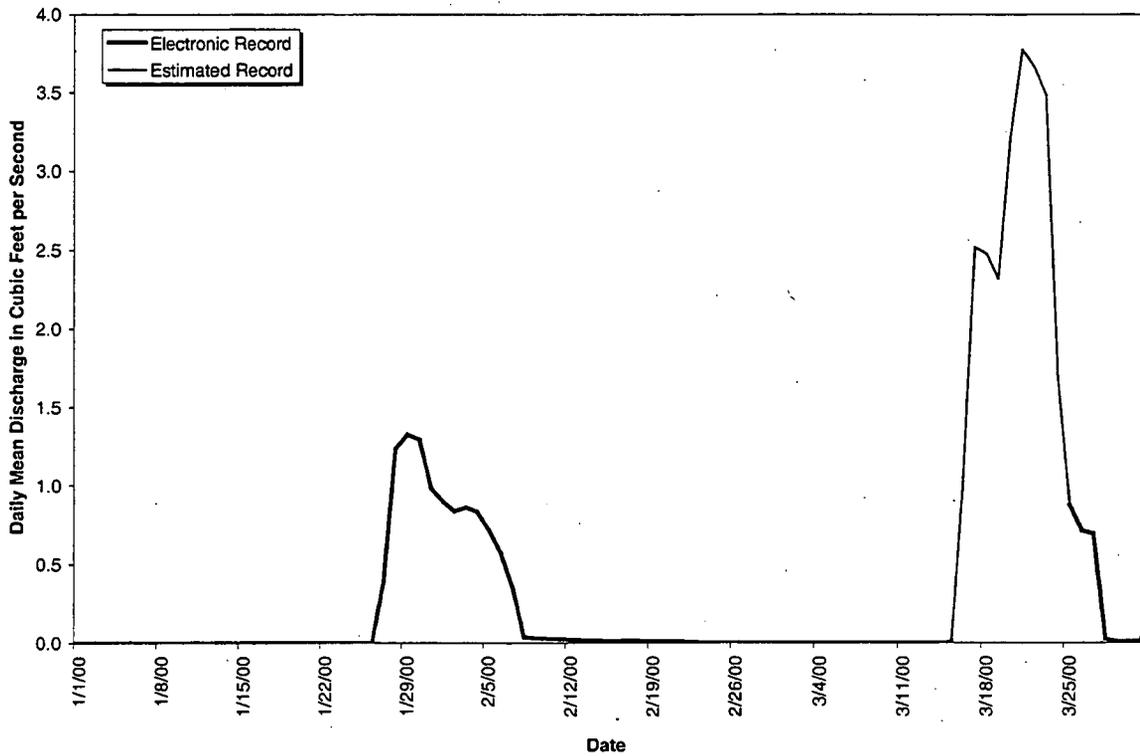


Figure 4-2. Mean Daily Discharge at GS03, Water Year 2000 (January, February, and March)

Table 4-3. Gaging Station GS08: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.000	1.307	0.000
2	0.000	1.226	0.000
3	0.000	1.214	0.000
4	0.000	1.149	0.000
5	0.000	0.967	0.000
6	0.000	0.766	0.000
7	0.000	0.324	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	1.432
17	0.000	0.000	2.542
18	0.000	0.000	2.357
19	0.000	0.000	2.306
20	0.000	0.000	2.256
21	0.000	0.000	2.275
22	0.000	0.000	2.295
23	0.000	0.000	2.277
24	0.000	0.000	2.053
25	0.000	0.000	2.108
26	0.000	0.000	1.501
27	1.229	0.000	1.199
28	1.975	0.000	0.000
29	2.024	0.000	0.000
30	1.959	NA	0.000
31	1.458	NA	0.000
Monthly Average (cfs)	0.279	0.240	0.794

Monthly Discharge

Cubic Feet	746956	600879	2125349
Gallons	5587620	4494890	15898714
Acre-Feet	17.15	13.79	48.79

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

28

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.

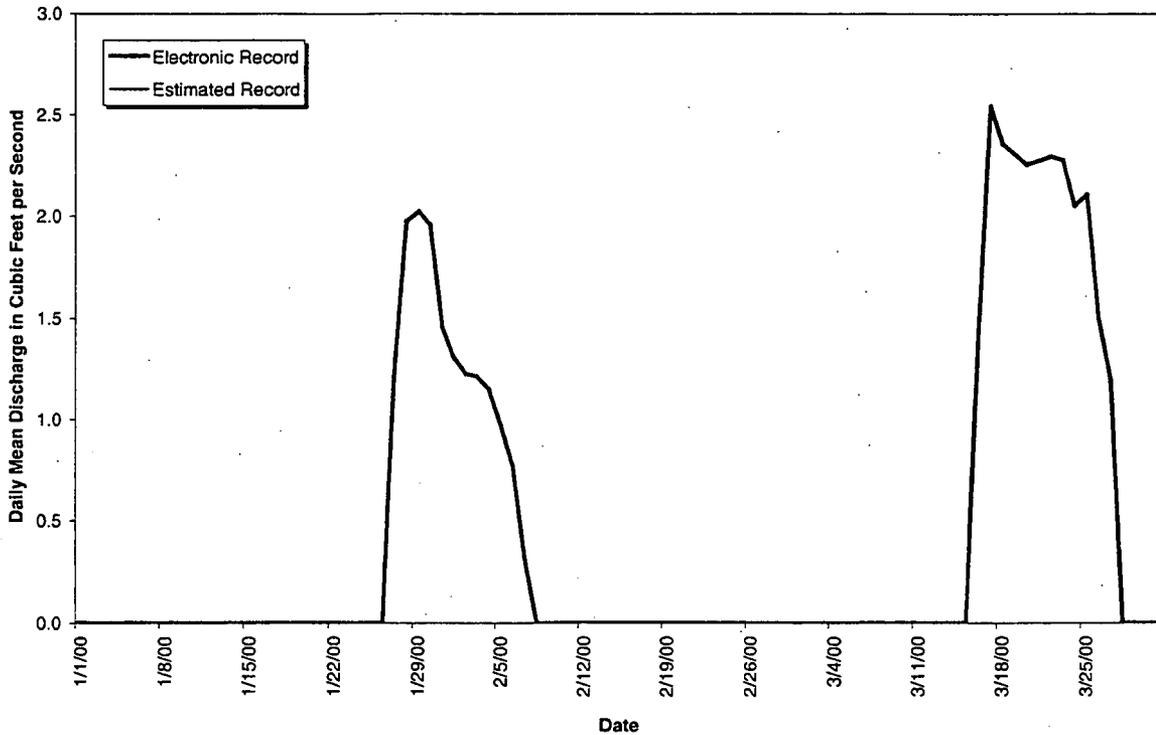


Figure 4-3. Mean Daily Discharge at GS08, Water Year 2000 (January, February, and March)

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

Day	January-00	February-00	March-00
1	0.072	0.059	0.059
2	0.071	0.064	0.064
3	0.080	0.060	0.062
4	0.171	0.059	0.061
5	0.196	0.058	0.060
6	0.075	0.056	0.057
7	0.113	0.055	0.058
8	0.106	0.057	0.058
9	0.075	0.057	0.057
10	0.074	0.057	0.056
11	0.076	0.058	0.056
12	0.075	0.056	0.056
13	0.071	0.055	0.061
14	0.074	0.055	0.058
15	0.075	0.054	0.104
16	0.073	0.053	0.609
17	0.073	0.064	0.276
18	0.070	0.126	0.171
19	0.081	0.091	0.210
20	0.071	0.097	0.118
21	0.073	0.114	0.306
22	0.061	0.080	0.111
23	0.058	0.074	0.108
24	0.058	0.066	0.086
25	0.058	0.063	0.077
26	0.093	0.060	0.074
27	0.127	0.060	0.071
28	0.064	0.060	0.081
29	0.062	0.059	0.308
30	0.062	NA	0.362
31	0.058	NA	0.915
Monthly Average (cfs)	0.082	0.066	0.155

Monthly Discharge

Cubic Feet	219806	166417	415519
Gallons	1644262	1244888	3108295
Acre-Feet	5.05	3.82	9.54

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

30

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.

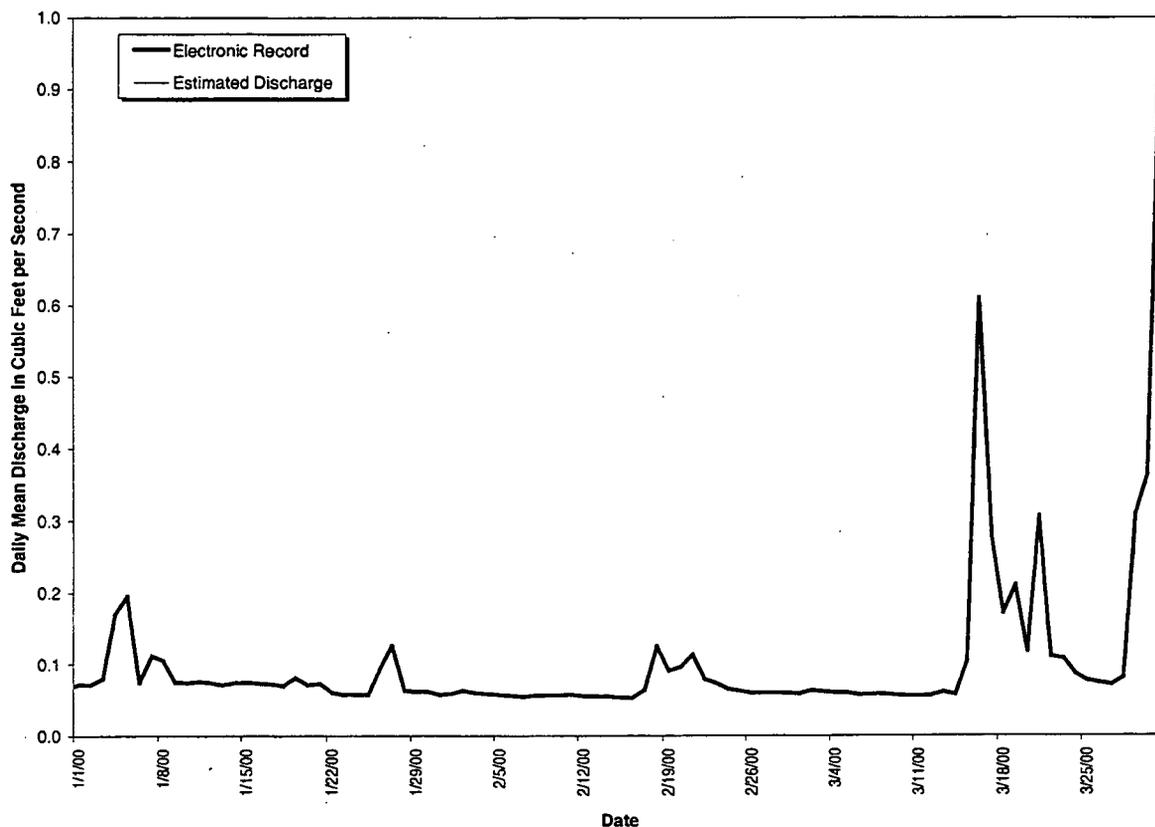


Figure 4-4. Mean Daily Discharge at GS10, Water Year 2000 (January, February, and March)

Table 4-5. Gaging Station GS11: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	0.676
17	0.000	0.000	1.120
18	0.000	0.000	1.038
19	0.000	0.000	0.928
20	0.000	0.000	1.905
21	0.000	0.000	2.335
22	0.000	0.000	2.240
23	0.000	0.000	2.069
24	0.000	0.000	0.515
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	NA	0.000
31	0.000	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.414

Monthly Discharge

Cubic Feet	0	0	1108063
Gallons	0	0	8288887
Acre-Feet	0.00	0.00	25.43

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

32

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.

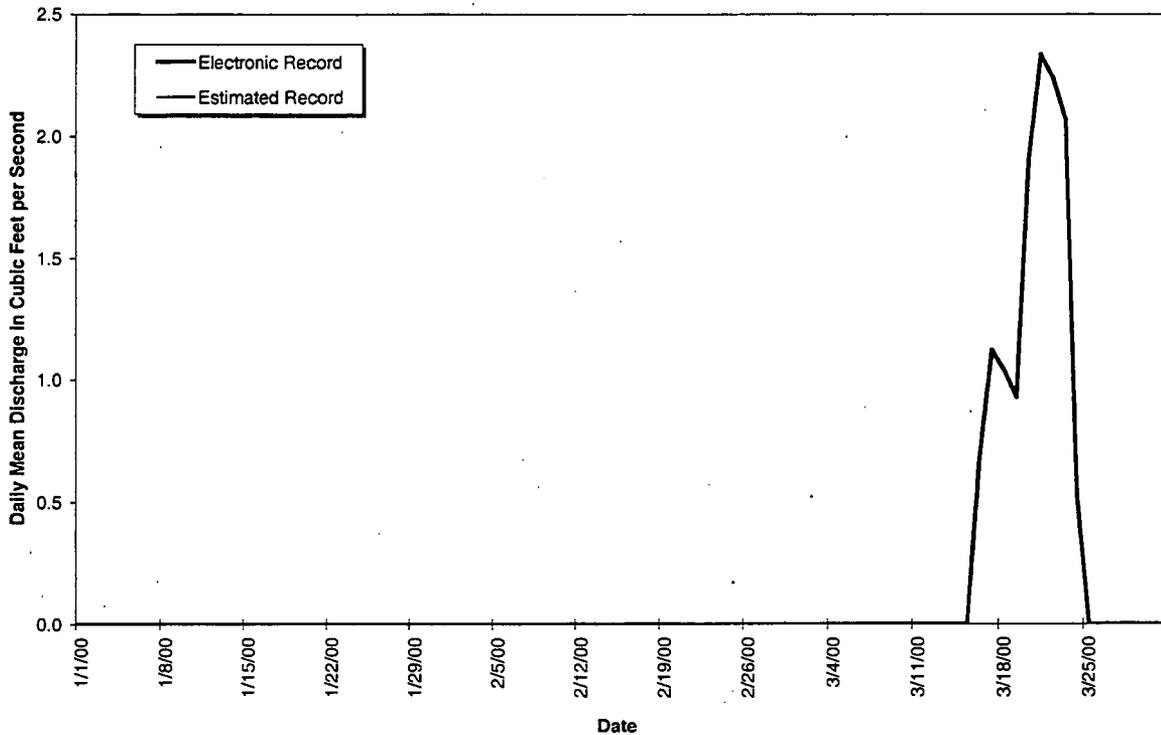


Figure 4-5. Mean Daily Discharge at GS11 Water Year 2000 (January, February, and March)

Table 4-6. Gaging Station GS27: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	0.0027
17	0.0000	0.0000	0.0021
18	0.0000	0.0000	0.0002
19	0.0000	0.0018	0.0002
20	0.0000	0.0009	0.0000
21	0.0000	0.0000	0.0012
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	0.0001	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0002
30	0.0000	NA	0.0009
31	0.0000	NA	0.0042
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	9	241	1010
Gallons	67	1806	7555
Acre-Feet	0.000	0.006	0.023

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

34

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.

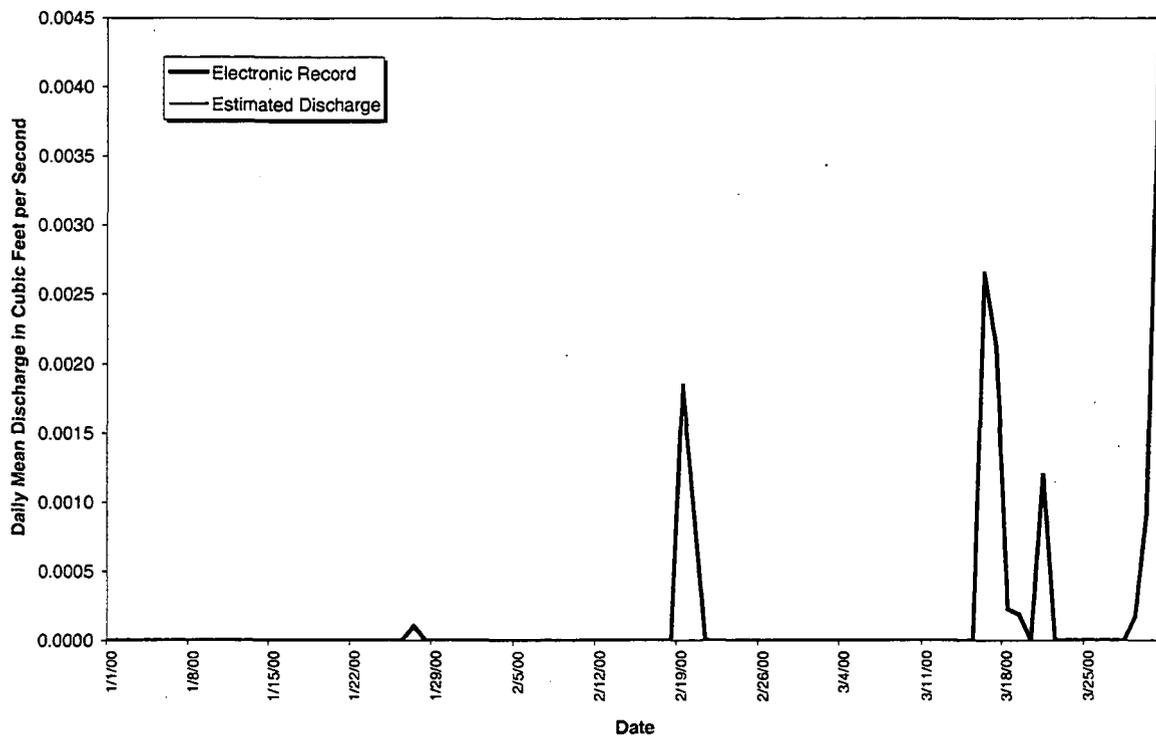


Figure 4-6. Mean Daily Discharge at GS27 Water Year 2000 (January, February, and March)

35

Table 4-7. Gaging Station GS31: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	NA	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.

36

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.

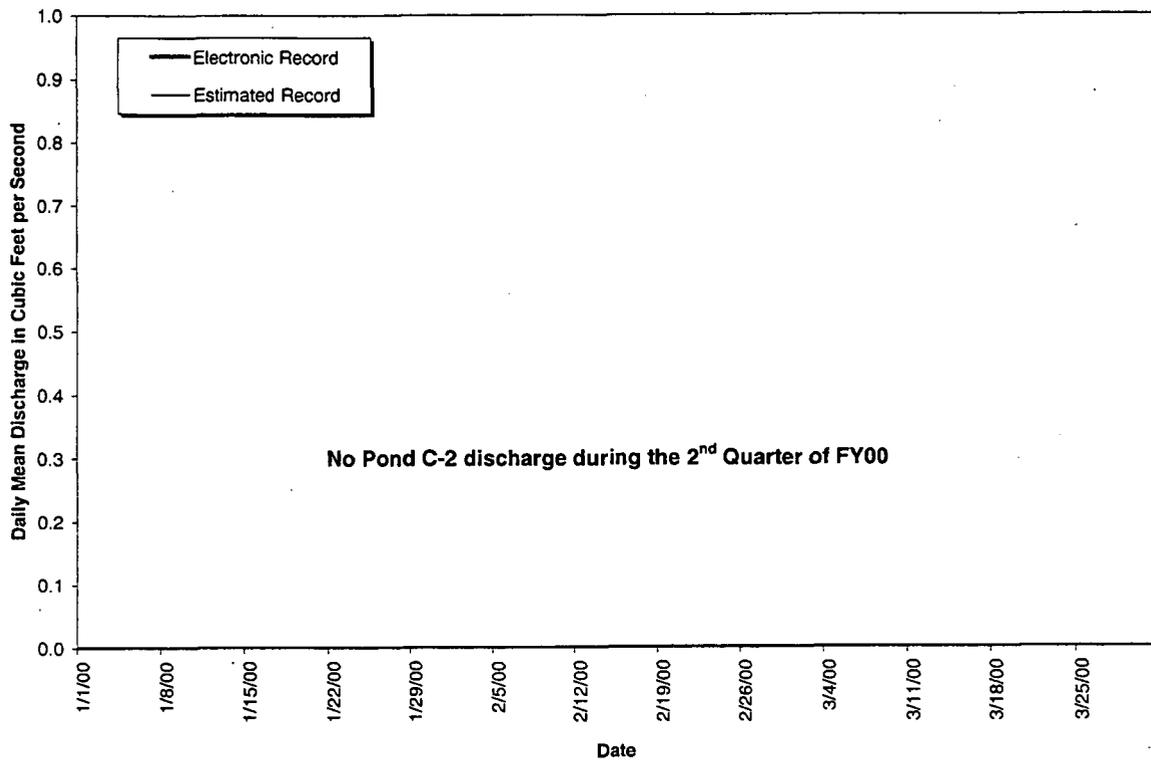


Figure 4-7. Mean Daily Discharge at GS31 Water Year 2000 (January, February, and March)

37

Table 4-8. Gaging Station GS39: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.0000	0.0001a	0.0000
2	0.0000	0.0000a	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	0.0000a
11	0.0000	0.0000	0.0000a
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	0.0430
17	0.0000	0.0000	0.0056
18	0.0000	0.0000	0.0014
19	0.0003	0.0039	0.0066
20	0.0000a	0.0021a	0.0002
21	0.0000	0.0027	0.0098
22	0.0000	0.0012a	0.0002
23	0.0000	0.0009a	0.0022
24	0.0000	0.0000	0.0003
25	0.0000	0.0000	0.0000
26	0.0002	0.0000	0.0001
27	0.0035	0.0000	0.0000
28	0.0035a	0.0000	0.0004
29	0.0006	0.0000	0.0145
30	0.0004	NA	0.0105
31	0.0000a	NA	0.0449
Monthly Average (cfs)	0.000	0.000	0.005

Monthly Discharge

Cubic Feet	733	935	12059
Gallons	5487	6995	90210
Acre-Feet	0.02	0.02	0.28

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.

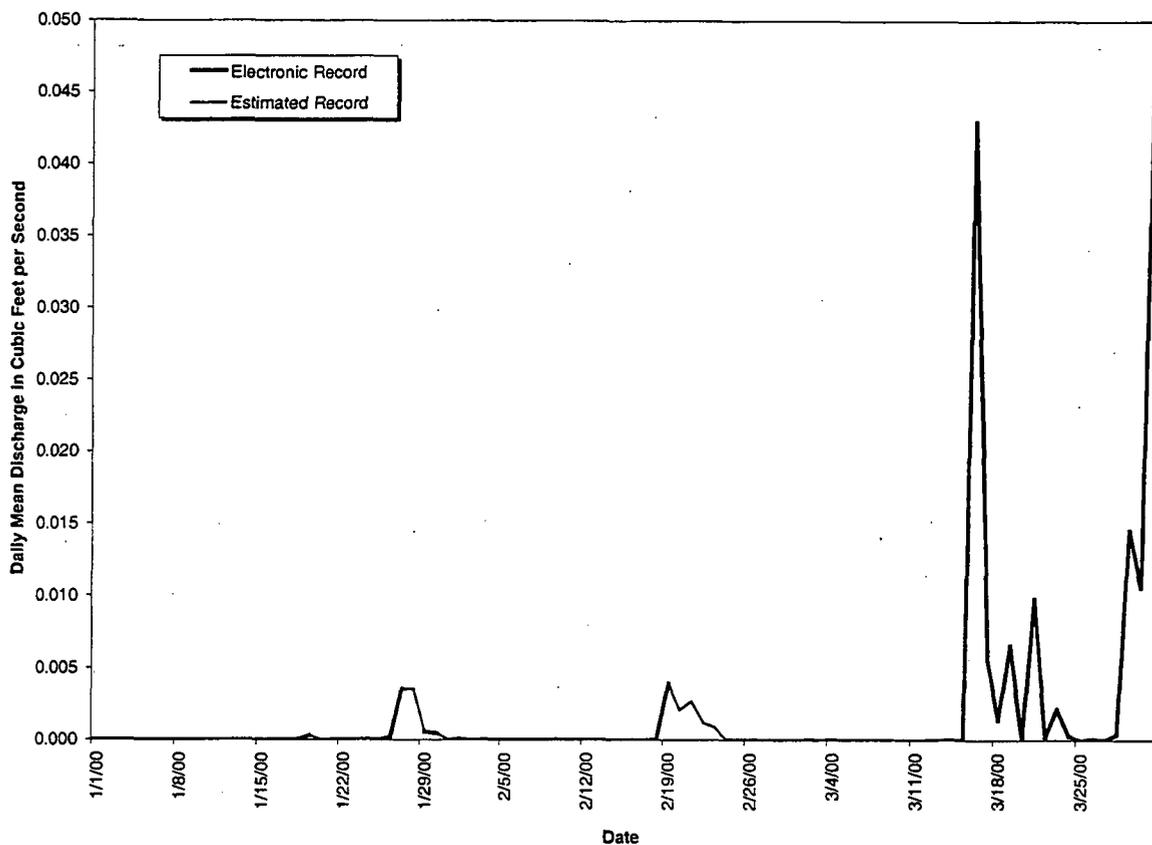


Figure 4-8. Mean Daily Discharge at GS39 Water Year 2000 (January, February, and March)

39

Table 4-9. Gaging Station GS40: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.023	0.022	0.026a
2	0.023	0.024	0.030a
3	0.033	0.024	0.028a
4	0.025	0.025	0.027a
5	0.020	0.025	0.027a
6	0.022	0.025	0.025a
7	0.066	0.025	0.025a
8	0.050	0.025	0.025a
9	0.020	0.025	0.025a
10	0.021	0.024	0.024a
11	0.020	0.027	0.024a
12	0.020	0.026	0.024a
13	0.021	0.026	0.028a
14	0.021	0.026	0.025a
15	0.021	0.025	0.065a
16	0.021	0.026	0.232a
17	0.021	0.035	0.113a
18	0.021	0.091	0.082a
19	0.025	0.053a	0.097a
20	0.019	0.058a	0.053a
21	0.020	0.073a	0.132
22	0.019	0.043a	0.048
23	0.019	0.038a	0.047
24	0.021	0.032a	0.038
25	0.020	0.029a	0.036
26	0.052	0.027a	0.032
27	0.083	0.027a	0.031
28	0.027	0.027a	0.065
29	0.027	0.026a	0.107
30	0.029	NA	0.145
31	0.024	NA	0.246
Monthly Average (cfs)	0.027	0.033	0.062

Monthly Discharge

Cubic Feet	73588	83087	166981
Gallons	550475	621533	1249106
Acre-Feet	1.69	1.91	3.83

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.

40

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.

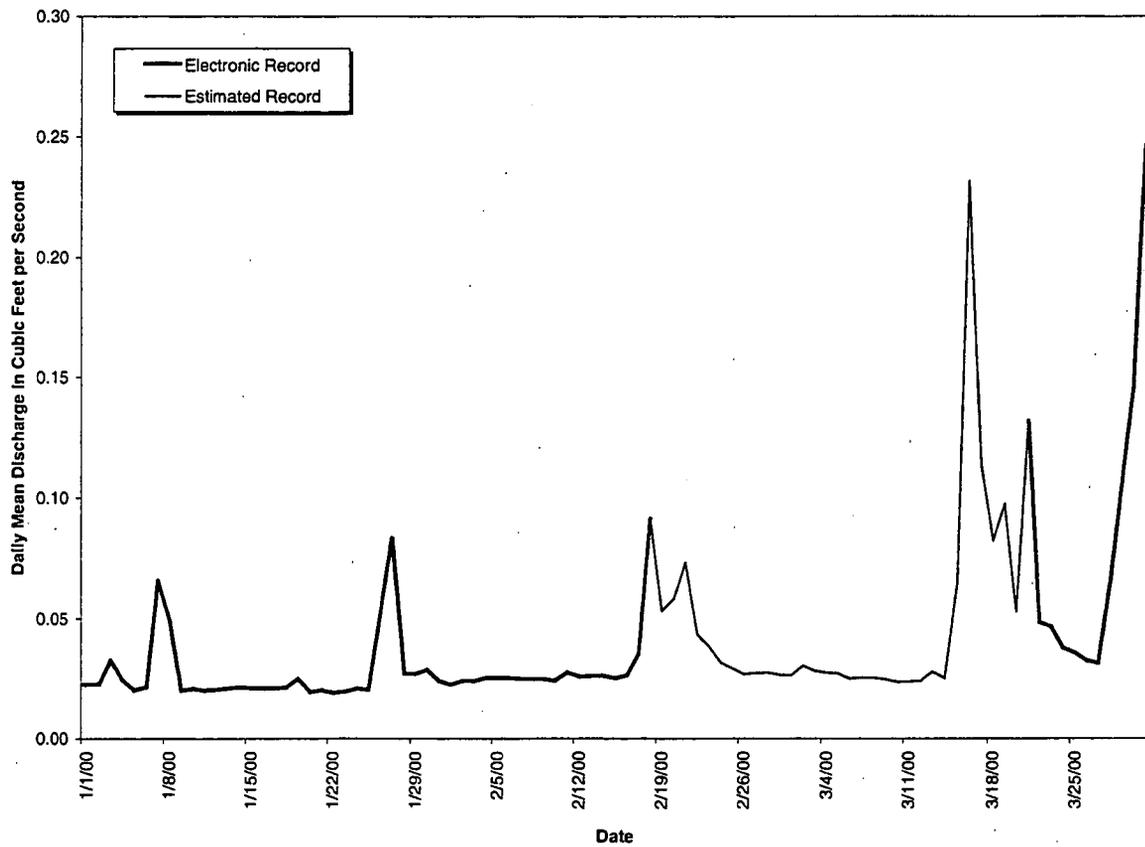


Figure 4-9. Mean Daily discharge at GS40 Water Year 2000 (January, February, and March)

Table 4-10. Gaging Station GS43: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.0000	0.000	0.000
2	0.0000	0.000	0.000
3	0.0000	0.000	0.000
4	0.0000	0.000	0.000
5	WR	0.000	0.000
6	WR	0.000	0.000
7	0.0000	0.000	0.000
8	0.0000	0.000	0.000
9	0.0000	0.000	0.000
10	0.0000	0.000	0.000a
11	0.0000	0.000a	0.001a
12	0.0000	0.000a	0.000
13	0.0000	0.000a	0.000
14	0.0000	0.000	0.000
15	0.0000	0.000	0.000
16	0.0000	0.000	0.000a
17	0.0000	0.000	0.000a
18	0.0000	0.000	0.000
19	0.0000	0.000	0.000
20	WR	0.000	0.000
21	0.0000	0.000	0.000a
22	0.0000	0.000	0.000a
23	0.0000	0.000	0.000
24	0.0000	0.000	0.000
25	0.0000	0.000	0.000
26	0.0000	0.000	0.000
27	0.0000	0.000	0.000
28	0.0000	0.000	0.000
29	WR	0.002	0.000
30	WR	NA	0.000
31	WR	NA	0.000
Monthly Average (cfs)	0.000	0.000	0.000

Partial Data

Monthly Discharge

Cubic Feet	4	161	137
Gallons	26	1207	1025
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.

WR – No data or poor data due to winter icing conditions.

42

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.

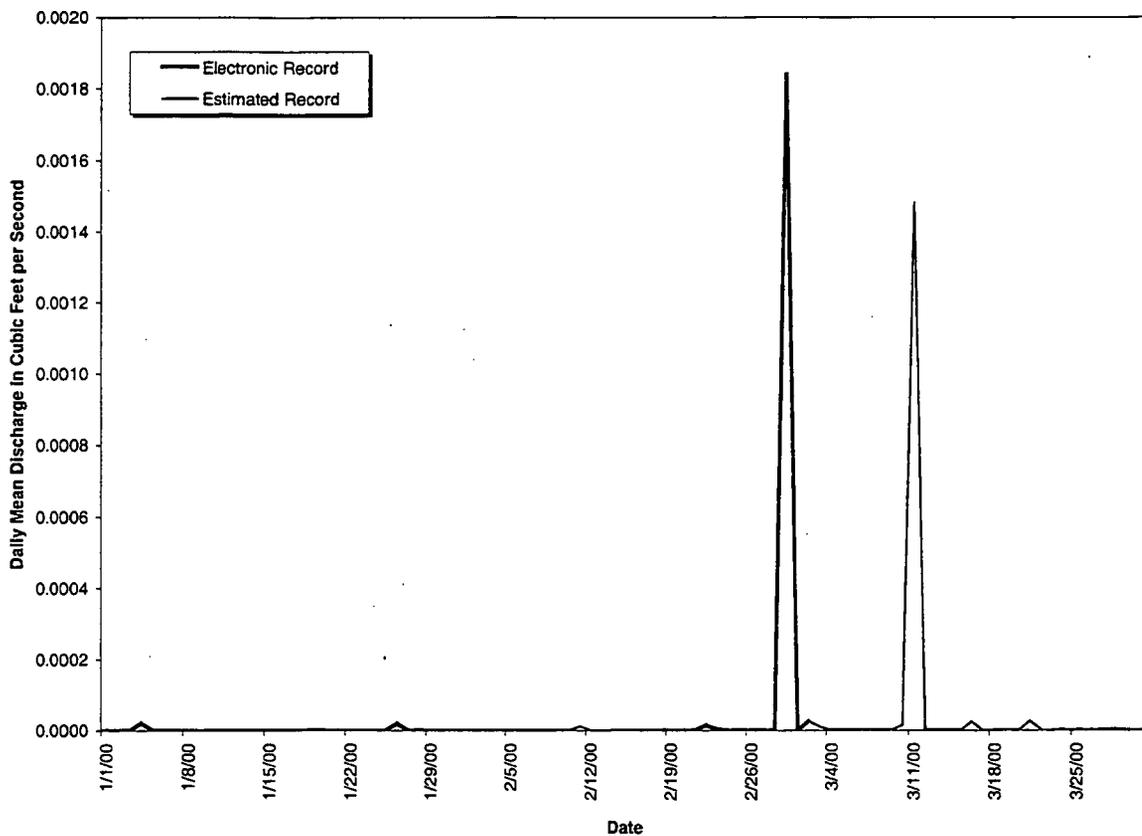


Figure 4-10. Mean Daily Discharge at GS43, Water Year 2000 (January, February, and March)

43

Table 4-11. Gaging Station SW022: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	0.169
17	0.000	0.000	0.049a
18	0.000	0.000	0.001a
19	0.000	0.000	0.012
20	0.000	0.000	0.000
21	0.000	0.000	0.067
22	0.000	0.000	0.000a
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	0.078
30	0.000	NA	0.106
31	0.000	NA	0.382
Monthly Average (cfs)	0.000	0.000	0.028

Monthly Discharge

Cubic Feet	0	0	74724
Gallons	0	0	558972
Acre-Feet	0.00	0.00	1.72

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.

44

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.

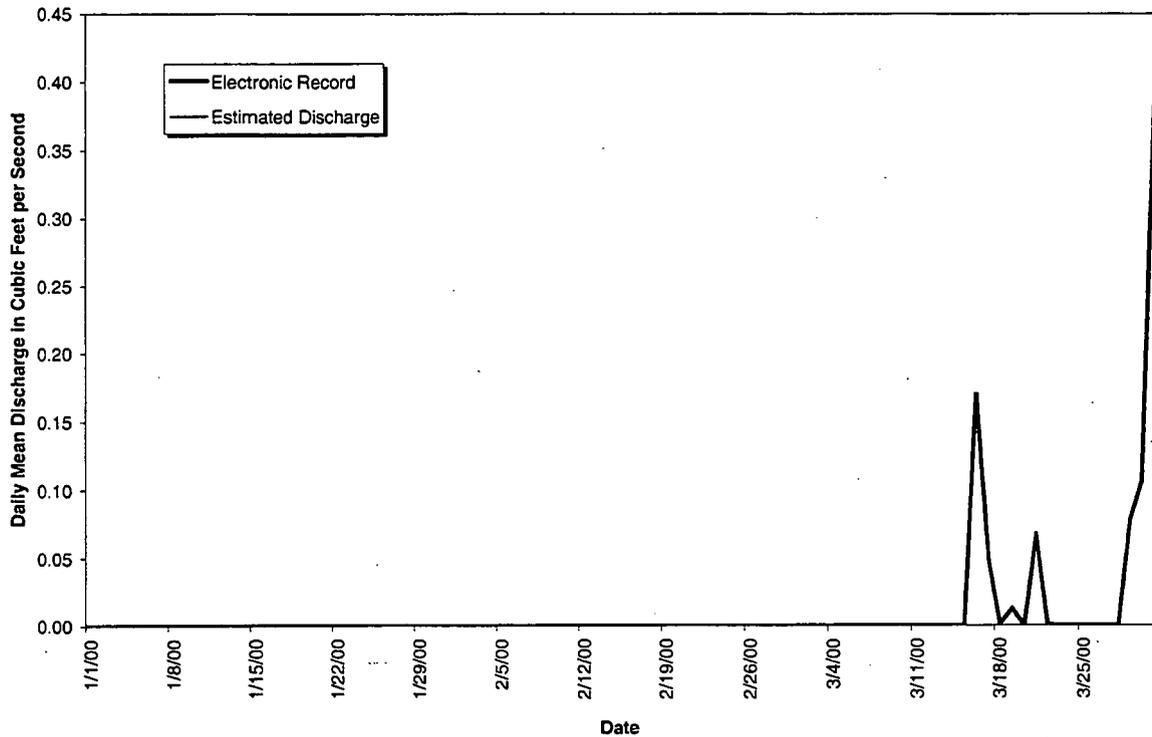


Figure 4-11. Mean Daily Discharge at SW022, Water Year 2000 (January, February, and March)

45

Table 4-12. Gaging Station SW027: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	0.006
17	0.000	0.000	0.085
18	0.000	0.000	0.082
19	0.000	0.000	0.127
20	0.000	0.000	0.048
21	0.000	0.000	0.049
22	0.000	0.000	0.060
23	0.000	0.000	0.007
24	0.000	0.000	0.003
25	0.000	0.000	0.002
26	0.000	0.000	0.001
27	0.000	0.000	0.001
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	NA	0.002
31	0.000	NA	0.208
Monthly Average (cfs)	0.000	0.000	0.022

Monthly Discharge

Cubic Feet	0	0	58926
Gallons	0	0	440799
Acre-Feet	0.00	0.00	1.35

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

4/6

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.

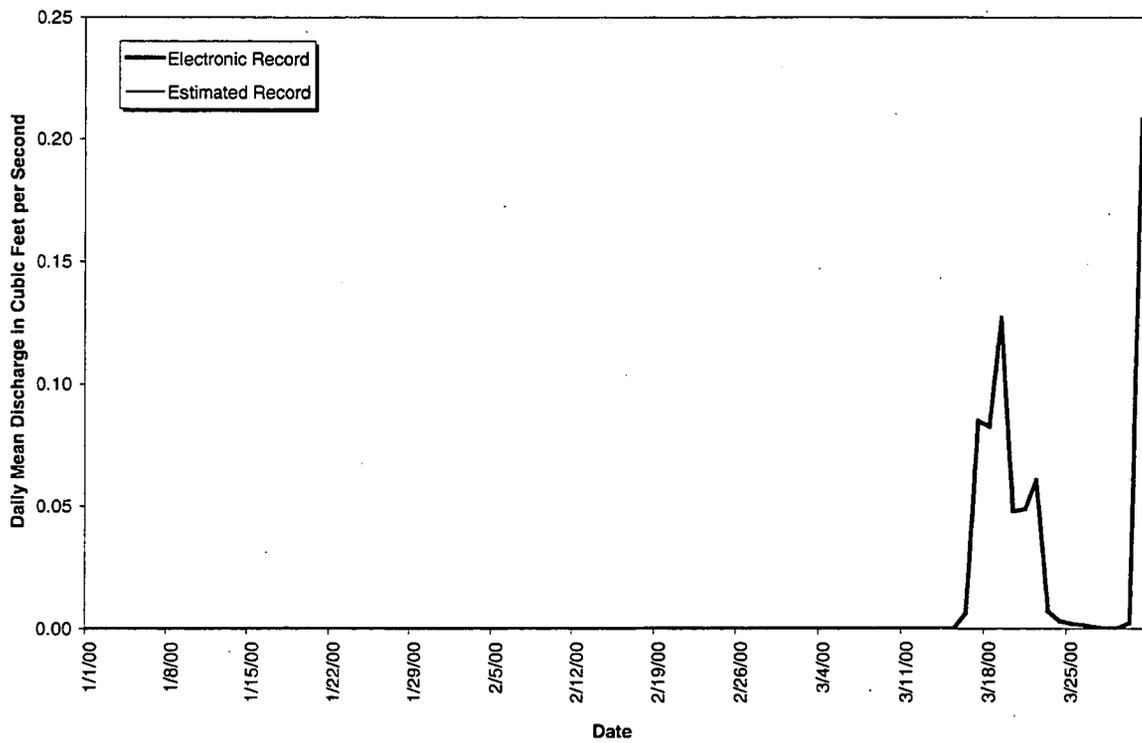


Figure 4-12. Mean Daily Discharge at SW027, Water Year 2000 (January, February, and March)

Table 4-13. Gaging Station SW091: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
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	0.0001	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	0.0001	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	NA	0.0000
31	0.0000	NA	0.0000
Monthly Average (cfs)	0.0000	0.0000	0.0000

Monthly Discharge

Cubic Feet	16	0	1
Gallons	121	0	10
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.

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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 RFCAs New Source Detection Location and monitors water draining from the area NE of the Solar Ponds. Storm event samples are collected for selected radionuclides.

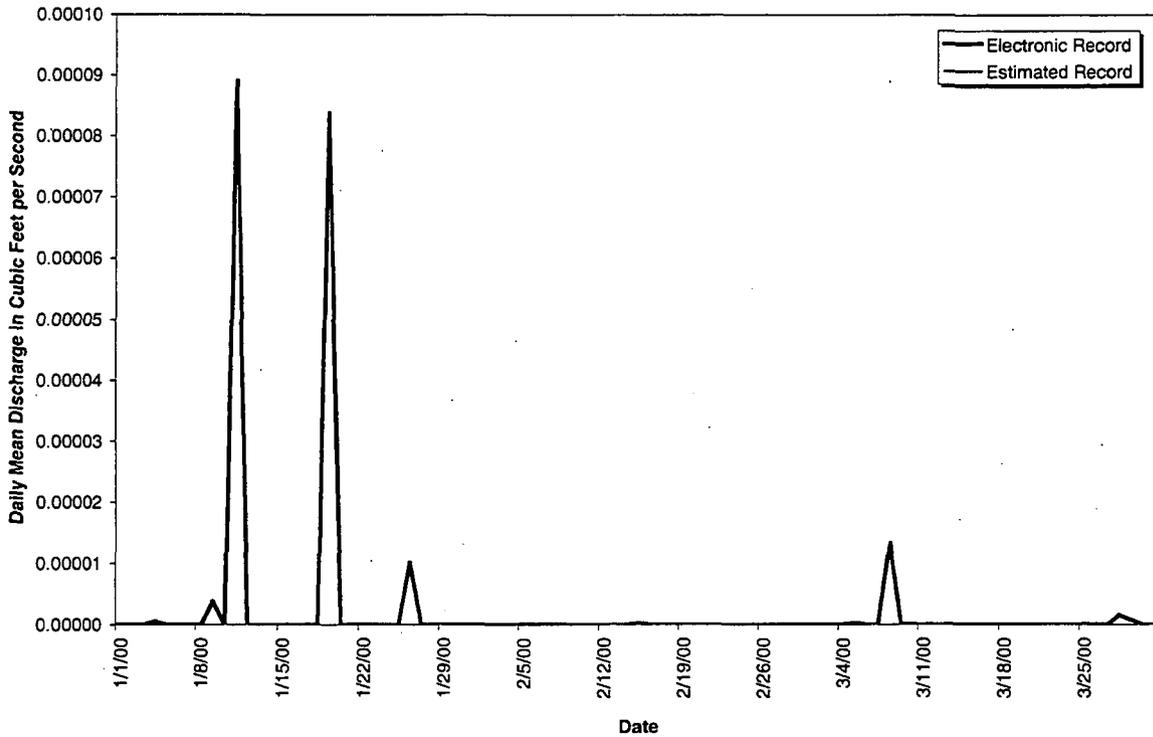


Figure 4-13. Mean Daily Discharge at SW091, Water Year 2000 (January, February, and March)

49

Table 4-14. Gaging Station SW093: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	0.091	0.069	0.075
2	0.082	0.112	0.080
3	0.070	0.102	0.087
4	0.073	0.084	0.088
5	0.075	0.094	0.101
6	0.059	0.096	0.102
7	0.063	0.087	0.104
8	0.076	0.096	0.106
9	0.081	0.109	0.072
10	0.080	0.114	0.060
11	0.089	0.112	0.059
12	0.088	0.069	0.055
13	0.075	0.064	0.051
14	0.079	0.075	0.055
15	0.083	0.077	0.075
16	0.086	0.064	0.509
17	0.095	0.061	0.437
18	0.095	0.127	0.327
19	0.101	0.116	0.306
20	0.090	0.113	0.152
21	0.095	0.176	0.423
22	0.099	0.116	0.257
23	0.093	0.108	0.211
24	0.096	0.094	0.160
25	0.093	0.095	0.103
26	0.120	0.078	0.071
27	0.222	0.078	0.061
28	0.101	0.078	0.064
29	0.053	0.076	0.281
30	0.042	NA	0.352
31	0.046	NA	1.019
Monthly Average (cfs)	0.087	0.094	0.190

Monthly Discharge

Cubic Feet	232629	236608	509709
Gallons	1740186	1769948	3812886
Acre-Feet	5.34	5.43	11.70

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

Gaging Station 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.

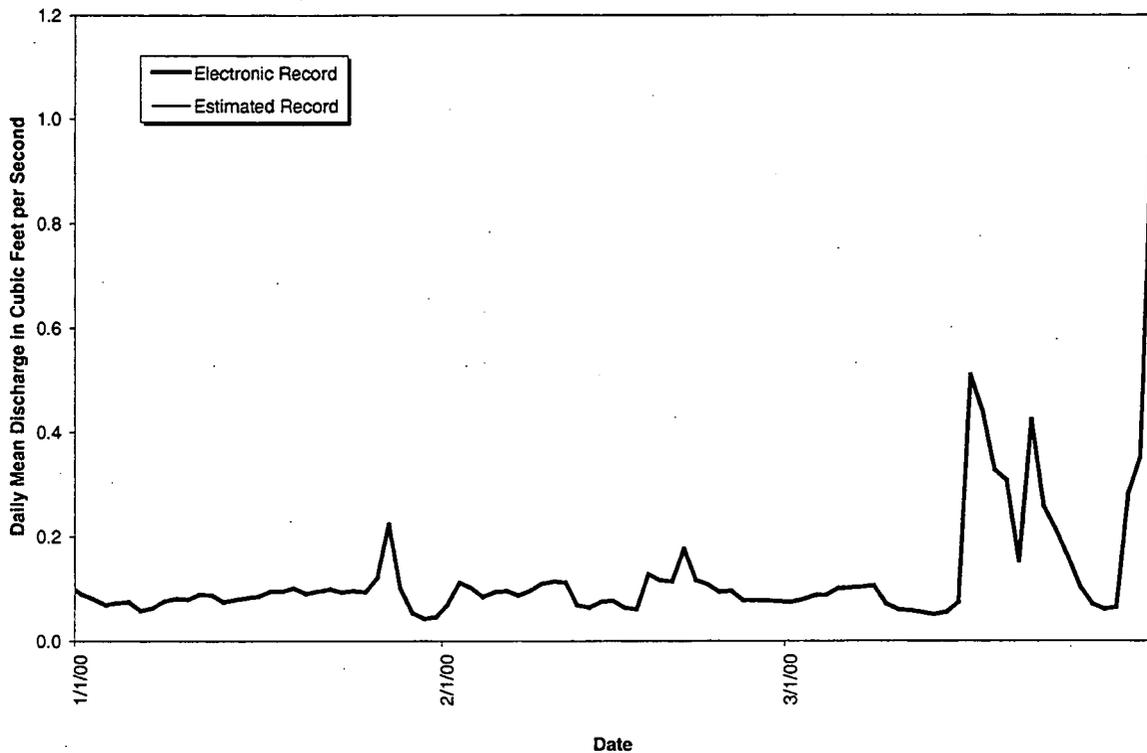


Figure 4-14. Mean Daily Discharge at SW093, Water Year 2000 (January, February, and March)

51

Table 4-15. Gaging Station SW120: Mean Daily Discharge (cubic feet per second)

Day	January-00	February-00	March-00
1	No Data	No Data	No Data
2	No Data	No Data	No Data
3	No Data	No Data	No Data
4	No Data	No Data	No Data
5	No Data	No Data	No Data
6	No Data	No Data	No Data
7	No Data	No Data	No Data
8	No Data	No Data	No Data
9	No Data	No Data	No Data
10	No Data	No Data	No Data
11	No Data	No Data	No Data
12	No Data	No Data	No Data
13	No Data	No Data	No Data
14	No Data	No Data	No Data
15	No Data	No Data	0.000
16	No Data	No Data	0.038
17	No Data	No Data	0.021
18	No Data	No Data	0.007
19	No Data	No Data	0.010
20	No Data	No Data	0.005
21	No Data	No Data	0.012
22	No Data	No Data	0.005
23	No Data	No Data	0.003
24	No Data	No Data	0.000
25	No Data	No Data	0.000
26	No Data	No Data	0.000
27	No Data	No Data	0.000
28	No Data	No Data	0.000
29	No Data	No Data	0.003
30	No Data	NA	0.005
31	No Data	NA	0.045
Monthly Average (cfs)	No Data	No Data	0.009

Monthly Discharge

Cubic Feet	0	0	13168
Gallons	0	0	98502
Acre-Feet	0.00	0.00	0.30

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

52

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.

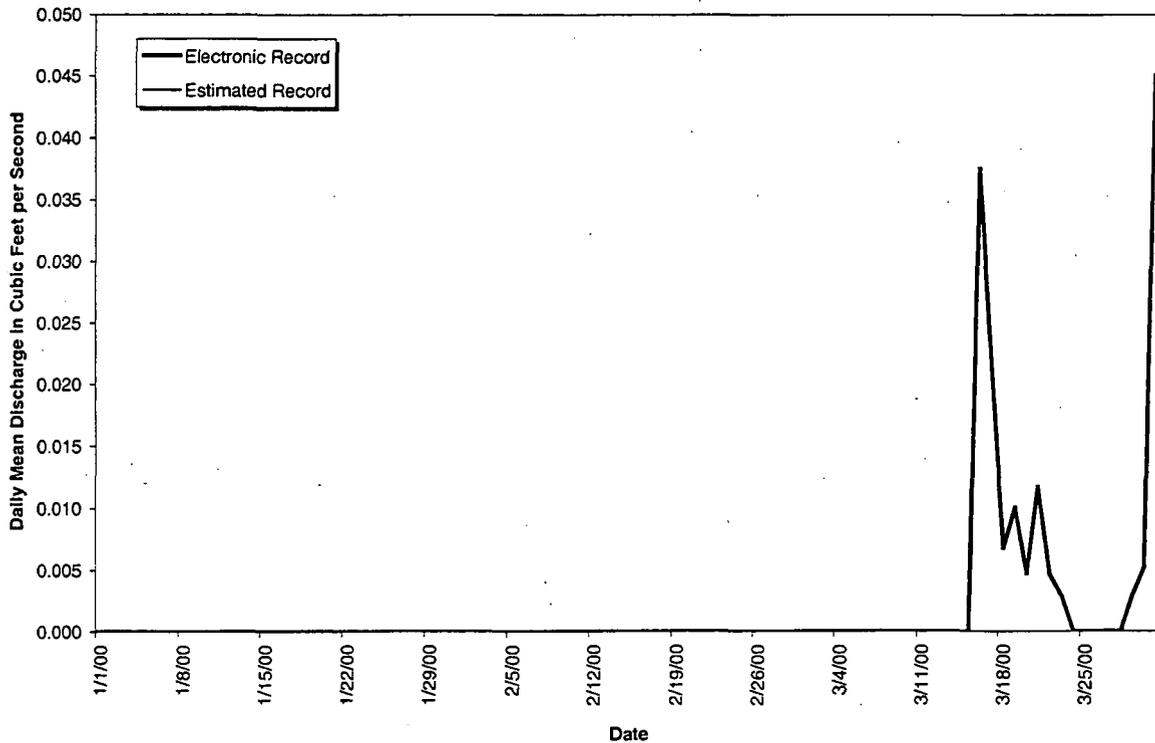


Figure 4-15. Mean Daily Discharge at SW120, Water Year 2000 (January, February, and March)

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4.2 WATER QUALITY DATA

Table 4-16. Radionuclides, Water Year 2000 (January, February, and March)

Location	Sample Dates	Result (MDA)	Result (MDA)	Result (MDA)	Result (MDA)
		Pu-239, -240 [pCi/l]	Am-241 [pCi/l]	Total Uranium [pCi/l]	Tritium [pCi/l]
GS01	12/27/99 - 1/4/00	0.012	0.017	a	-14
GS01	1/4 - 1/14/00	-0.004	0.003	a	160
GS01	1/14 - 1/24/00	-0.004	-0.006	a	61
GS01	1/24 - 2/1/00	-0.001	0.002	a	160
GS01	2/1 - 2/11/00	0.007	0.002	a	407
GS01	2/11 - 2/29/00	-0.003	0.006	a	90
GS01	2/29 - 3/16/00	-0.003	-0.003	a	170
GS01	3/16 - 3/22/00	-0.007	0.010	a	c
GS01	3/22 - 3/31/00	0.001	-0.006	a	-69
GS01	3/31 - 5/2/00	c	c	a	c
GS03	12/13/99 - 1/27/00	d	d	a	d
GS03	1/27 - 1/31/00	0.007	-0.006	a	180
GS03	1/31 - 2/8/00	0.005	0.000	a	27
GS03	2/8 - 2/23/00	d	d	a	d
GS03	2/23 - 3/16/00	0.002	0.000	a	29
GS03	3/16 - 3/19/00	0.000	-0.005	a	54
GS03	3/19 - 3/21/00	0.031	-0.006	a	b
GS03	3/21 - 3/23/00	0.000	0.008	a	0
GS03	3/23 - 3/28/00	0.002	-0.003	a	32
GS03	3/28 - 4/13/00	c	c	a	-261
GS08	1/27 - 1/31/00	0.001	0.011	1.537	a
GS08	1/31 - 2/7/00	0.007	-0.001	1.319	a
GS08	3/16 - 3/19/00	0.005	0.007	1.394	a
GS08	3/19 - 3/22/00	0.007	0.006	1.446	a
GS08	3/22 - 3/27/00	-0.003	0.010	1.342	a
GS10	12/28 - 2/1/99	0.045	0.009	3.023	a
GS10	2/1 - 2/14/00	0.008	0.013	3.298	a
GS10	2/14 - 2/25/00	0.032	0.054	3.426	a

- a Not applicable
- b Not collected
- c Incomplete analysis
- d Non sufficient quantity

54

Table 4-15. Radionuclides, Water Year 2000 (January, February, and March), continued

Location	Sample Dates	Result (MDA) Pu-239, -240 [pCi/l]	Result (MDA) Am-241 [pCi/l]	Result (MDA) Total Uranium [pCi/l]	Result (MDA) Tritium [pCi/l]
GS10	2/25 - 3/8/00	0.014	0.013	3.695	a
GS10	3/8 - 3/17/00	0.078	0.115	2.104	a
GS10	3/17 - 3/22/00	0.027	0.026	2.531	a
GS10	3/22 - 3/30/00	0.043	0.062	4.236	a
GS10	3/30 - 4/6/00	0.084	0.076	2.265	a
GS27	2/19/00	0.163	0.048	0.040	a
GS27	3/16/00	0.268	0.025	0.217	a
GS32	12/30/99	0.106	0.343	9.205	a
GS32	1/14/00	0.755	0.247	17.529	a
GS32	1/26/00	0.069	0.022	10.181	a
GS32	2/18/00	0.474	0.341	1.090	a
GS32	3/28/00	2.030	1.870	2.305	a
GS39	10/7 - 11/22/99	0.012	0.001	a	a
GS39	11/22/99 - 3/22/00	0.123	0.034	a	a
GS39	3/22 - 4/3/00	0.068	0.042	a	a
GS40	12/10/99 - 2/11/00	0.001	0.012	a	a
GS40	2/11 - 3/22/00	0.012	0.02	a	a
GS40	3/22 - 4/13/00	b	b	a	a
GS43	8/5 - 11/11/99	0.004	0.005	10.815	a
GS43	11/11/99 - 5/20/00	-0.006	-0.001	16.103	a
SW022	10/7/99 - 3/21/00	0.057	0.002	1.246	a
SW022	3/21 - 4/3/00	0.072	0.011	0.735	a
SW027	10/21/99 - 3/30/00	0.011	0.003	2.400	a
SW027	3/30 - 5/11/00	b	b	b	a
SW093	12/27/99 - 1/7/00	0.005	-0.009	3.408	a
SW093	1/7 - 2/1/00	-0.009	-0.007	3.962	a
SW093	2/1 - 2/16/00	0.015	0.001	4.087	a
SW093	2/16 - 3/1/00	0.011	0.000	3.549	a
SW093	3/1 - 3/10/00	0.000	0.007	4.478	a
SW093	3/10 - 3/19/00	0.015	0.026	2.278	a
SW093	3/19 - 3/23/00	0.011	0.015	2.128	a
SW093	3/23 - 3/30/00	0.016	0.015	3.184	a
SW093	3/30 - 4/11/00	0.005	0.002	1.702	a
SW120	3/22 - 3/30/00	0.011	-0.006	6.929	a
SW120	3/30 - 4/30/00	0.292	0.090	2.123	a

- a Not applicable
b Incomplete analysis

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Table 4-17. POE Metals, Water Year 2000 (January, February, and March)

Location	Sample Dates	Analyte Be ug/L	Analyte Dissolved Cd ug/L	Analyte Cr ug/L	Analyte Dissolved Ag ug/L
GS10	12/28 - 2/1/99	0.05	<0.08	0.85	<0.22
GS10	2/1 - 2/14/00	0.04	<0.08	0.29	<0.22
GS10	2/14 - 2/25/00	0.1	0.26	0.96	<0.22
GS10	2/25 - 3/8/00	0.08	<0.08	0.38	<0.22
GS10	3/8 - 3/17/00	0.23	0.3	6	<0.22
GS10	3/17 - 3/22/00	0.04	0.49	1.4	<0.22
GS10	3/22 - 3/30/00	0.22	0.17	5.1	<0.22
GS10	3/30 - 4/6/00	0.12	0.23	2.7	<0.22
SW027	10/21/99 - 3/30/00	<0.02	<0.08	0.34	<0.22
SW027	3/30 - 5/11/00	a	a	a	a
SW093	12/27/99 - 1/7/00	0.03	<0.08	0.82	<0.22
SW093	1/7 - 2/1/00	0.03	<0.08	<0.20	<0.22
SW093	2/1 - 2/16/00	0.05	<0.08	0.59	<0.22
SW093	2/16 - 3/1/00	0.08	0.13	1.4	<0.22
SW093	3/1 - 3/10/00	<0.02	<0.08	<0.20	<0.22
SW093	3/10 - 3/19/00	0.05	0.34	1.4	<0.22
SW093	3/19 - 3/23/00	0.03	0.6	0.62	<0.22
SW093	3/23 - 3/30/00	0.18	0.1	4.4	<0.22
SW093	3/30 - 4/11/00	0.07	0.23	1.8	<0.22

a Incomplete laboratory analysis

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Table 4-18. Other Metals, Water Year 2000 (January, February, and March)

Analyte ug/l	Result GS32, 01/14/00	Result GS32, 01/26/00	Result GS32, 02/18/00	Result GS32, 03/28/00
Aluminum	4120	688	2850	12600
Antimony	21.2	13.9	0.55	7.7
Arsenic	9.4	2.8	1.2	7.0
Barium	252	214	125	153
Beryllium	0.27	0.15	0.2	0.72
Cadmium	1.6	0.36	1.2	1.2
Calcium	164000	60300	40100	51200
Chromium	16.1	13.2	5.3	20.7
Cobalt	4.7	1.6	1.1	4.7
Copper	109	35.5	12.8	42.5
Iron	8340	1580	2710	13300
Lead	19	4.4	9.3	39.5
Lithium	117	143	18.9	32.2
Magnesium	10200	13200	4460	6000
Manganese	257	97.3	108	291
Mercury	0.23	0.27	0.05	0.05
Molybdenum	24.1	28.5	0.9	5.3
Nickel	11.1	5.6	4.7	13.1
Potassium	674000	428000	10400	15700
Selenium	0.5	2.4	0.55	0.55
Silver	0.1	0.1	0.11	2.1
Sodium	293000	190000	773000	297000
Strontium	2050	1190	230	259
Thallium	0.55	0.55	0.46	1.0
Tin	0.3	0.3	0.2	0.6
Vanadium	33.5	10.2	6.7	37.4
Zinc	5030	1660	294	1070

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Table 4-19. Other Metals, Water Year 2000 (January, February, and March) continued

Analyte ug/l	Result GS43, 08/05/99 – 11/11/99	Result GS43, 11/11/99 – 05/20/00	Result SW120, 03/22/00 – 03/30/00	Result SW120, 03/30/00 – 04/30/00
Aluminum	29.8	a	300	1900
Antimony	1.1	a	1.4	1.4
Arsenic	0.96	a	1.1	1.4
Barium	93.2	a	331	272
Beryllium	0.01	a	0.03	0.11
Cadmium	0.05	a	0.19	0.38
Calcium	43800	a	157000	87500
Chromium	0.6	a	0.85	2.5
Cobalt	0.09	a	0.44	0.69
Copper	1.7	a	3.5	4.9
Iron	22.3	a	238	1450
Lead	0.88	a	0.29	1.3
Lithium	12.1	a	62.0	23.7
Magnesium	16600	a	31700	14300
Manganese	0.96	a	8.8	44.1
Mercury	0.05	a	0.05	0.05
Molybdenum	5.0	a	1.1	0.78
Nickel	0.79	a	2.6	2.9
Potassium	5120	a	12500	12300
Selenium	2.0	a	0.55	0.55
Silver	0.1	a	0.11	0.11
Sodium	42900	a	490000	601000
Strontium	466	a	966	534
Thallium	0.55	a	0.46	1.2
Tin	0.3	a	0.2	0.2
Vanadium	2.3	a	0.96	4.6
Zinc	117	a	52.2	77.2

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Table 4-20. Water Quality Parameters, Water Year 2000 (January, February, and March)

Location	Sample Dates	Analyte Hardness mg/L
GS10	12/28 - 2/1/99	190
GS10	2/1 - 2/14/00	250
GS10	2/14 - 2/25/00	260
GS10	2/25 - 3/8/00	270
GS10	3/8 - 3/17/00	250
GS10	3/17 - 3/22/00	280
GS10	3/22 - 3/30/00	300
GS10	3/30 - 4/6/00	a
SW027	10/21/99 - 3/30/00	470
SW027	3/30 - 5/11/00	c
SW093	12/27/99 - 1/7/00	300
SW093	1/7 - 2/1/00	370
SW093	2/1 - 2/16/00	330
SW093	2/16 - 3/1/00	370
SW093	3/1 - 3/10/00	350
SW093	3/10 - 3/19/00	420
SW093	3/19 - 3/23/00	410
SW093	3/23 - 3/30/00	420
SW093	3/30 - 4/11/00	a

a Incomplete laboratory analysis

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5. INCIDENTAL WATERS

5.1 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 5-1. Incidental Waters Routing Matrix

Incidental Water Routing	Routing Criteria	Treatment Processes
Ground/Storm Drain	<ul style="list-style-type: none"> • Water meets discharge limits per Incidental Waters procedure 	N/A
Building 995 Waste Water Treatment Plant (WWTP)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)

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5.2 QUARTERLY INCIDENTAL WATER DISPOSITIONS

Ten (10) incidental waters were sampled and dispositioned during the second quarter of FY00. The following table summarizes the location and route of disposal for those incidental waters sampled:

Table 5-2. Quarterly Incidental Water Dispositions FY2000 (January, February, and March)

Location/ Building	Location Type	# of Incidental Waters	Route of Disposal
886	Foundation Drain	1	Discharge to ground
886	Electrical Pit	1	Treatment (B374)
875	Foundation Drain	1	Discharge to ground
782	Building Pit	2	Treatment (B374)
300 Area	Manhole PP2	1	Treatment (B995)
300 Area	Manhole PP3	1	Treatment (B995)
300 Area	Manhole PP4	1	Discharge to ground
300 Area	Manhole PP20	1	Treatment (B891)
300 Area	Manhole PP21	1	Discharge to ground

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

- Building 995 – WWTP 2
- Building 891 – CWTF 1
- Building 374 2

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