



98-RF-03798

CORRES. CONTROL
 OUTGONG LTR NO.
 DOE ORDER #
 98 RF 03798

July 27, 1998

DIST.	LTR	ENC
Bengal, P.		
Benson, C. A.		
Burdick, W.J.		
Crawford, A.C.		
Cypher, N.P.	X	X
Dunstan, L.A.		
Findley, M.		
Guinn, L.		
Hopkins, J. K.		
Huffman, F.M.	X	X
Hughes, F.P.		
Jenkins, K.		
Konwinski, G.		
Law, J. E.	X	X
Motyl, K. M.		
Primrose, A. L.		
Rukavina, F.		
Steffen, D. E.		
Wheeler, M.		

Norma I. Castañeda
 Environmental Compliance Division
 DOE/RFFO
 Building 460

TRANSMITTAL OF THE QUARTERLY STATUS REPORT FOR THE CONSOLIDATED WATER TREATMENT FACILITY - JEL-128-98

Rocky Mountain Remediation Services is pleased to deliver the attached copy of the Quarterly Status Report for Work Package B891 Groundwater Treatment Facility, in fulfillment of the scheduled milestone (WBS #1.1.03.08.04.02) due July 31, 1998. The task includes operations, maintenance and reporting activities for the Consolidated Water Treatment Plant and OU7 Passive Seep Interception and Treatment System.

If there is any additional information you would like to have incorporated into the existing format for next quarter's report or clarification of the current report, please do not hesitate to contact J. R. (Russ) Cirillo on extension 5876 or digital pager 212-6192.

John E. Law
 John E. Law
 Director
 Environmental Restoration

JRC:slm

Orig. and 1 cc - N. I. Castañeda

Attachment:
 As Stated

cc:
 S. J. Hahn - Kaiser-Hill - Bldg. T130C
 A. Rodgers - Kaiser-Hill - Bldg. T130C
 J. Uhland - Kaiser-Hill - Bldg. T130C

PATS (T130G)		
RMRS CC (116)	X	X
CORRES. CONTROL	X	X
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UNCLASSIFIED	X	X
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ADMIN RECORDS
 OU07-A-000513

QUARTERLY REPORT
CONSOLIDATED WATER TREATMENT FACILITY
AND
OU7 PASSIVE SEEP INTERCEPTION AND
TREATMENT SYSTEM

FOR APRIL THROUGH JUNE 1998
INCLUDING DATA SUMMARY FOR
JANUARY THROUGH MARCH 1998

Rocky Mountain Remediation Services, L.L.C.

JULY 1998

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SECTION A - CONSOLIDATED WATER TREATMENT FACILITY (CWTF)

1.0 INTRODUCTION

The CWTF went on-line February 29, 1996. The CWTF was designed as a comprehensive facility which combined individual IM/IRA treatment activities in order to reduce cost, increase efficiency, and offer treatment options to the Rocky Flats Environmental Technology Site (RFETS) in support of on-going Environmental Restoration (ER) activities and remediation.

The Consolidated Water Treatment Facility (CWTF) consists of the following specific unit operations:

- Chemical precipitation (T-900A/T-900B);
- Cross-flow membrane microfiltration (T-900A/T-900B);
- Ultraviolet Light/Hydrogen Peroxide Oxidation (Building 891);
- Granular Activated Carbon (Building 891); and
- Ion Exchange (Building 891).

A portable clay absorbent media drum is also available for use at the CWTF during water transfers from tanker trucks to CWTF influent storage tanks as a pretreatment of oily wastewaters. Waters are processed through the various CWTF unit treatment operations based on knowledge of the influent water characteristics in order to maximize treatment and reduce handling costs and waste generation.

The CWTF currently treats contaminated water from the following sources:

- Operable Unit (OU)1 groundwater and OU2 surface water
- Decontamination water from the Main Decontamination Facility (MDF) and Protected Area Decontamination Facility (PADF)
- Other ER waters (e.g., purge water, water pumped from containments, etc.)

The CWTF flowpath is flexible enough to allow waters to be treated through particular unit processes as necessary, and to allow for re-treatment if necessary.

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2.0 CWTF OPERATIONS (April, May, June 1998)

2.1 QUANTITIES OF WATER COLLECTED AND TREATED

Table 2-1 summarizes the quantities of water treated at the CWTF for the period April through June 1998. During this period the CWTF accepted water from the following sources:

- OU1 French Drain Sump
- OU1 Collection Well
- OU2 Surface Water Station SW-59
- Snow melt/rain water pumped from CWTF containments
- MDF and PADF Water
- 903 Pad Decontamination Activities
- B881 Roof leak
- B440 Rinse
- Groundwater Monitoring Well Purge
- Mound Treatment System Decontamination Water

Table 2-1, shows that a total of approximately 195,000 gallons of water were treated through the Building 891 Ion Exchange Columns from April, 1998 through June 30, 1998. Approximately 113,000 gallons of the total water volume were treated through the chemical precipitation/microfiltration trailers.

Please note that because the CWTF is equipped with three Influent Tanks, the amount of water treated may be less than or greater than the amount of water collected for any given period.

During the period from April through June 1998, 250,000 gallons of treated water were released to the South Interceptor Ditch (SID).

As of June 30, 1998, approximately 4,241,000 gallons of water has been processed through the Building 891 Ion Exchange Columns.

TABLE 2-1
CONSOLIDATED WATER TREATMENT FACILITY
APPROXIMATE QUANTITIES OF WATER COLLECTED AND PROCESSED a/

Month/Year	Gallons Collected from the OU1 French Drain Sump b/	Gallons Collected from the OU1 Collection Well b/	Gallons Accepted at Bldg 891 from the MDF and Other Sources c/	Gallons Pumped from Bldg. 891 Containments	Gallons Collected from the OU2 SW-59	Gallons Processed through T900A/T900B at Bldg 891	Gallons Processed through GAC at Bldg 891	Gallons Processed through IX at Bldg 891
Jan-98	21,105	1,860	3,754	1,446	2,367	24,531	0	20,780
Feb-98	20,475	1,270	0	511	0	23,720	12,200	31,766
Mar-98	31,913	1,530	0	10,811	2,380	45,957	44,836	42,824
1st Quarter Totals	73,493	4,660	3,754	12,768	4,747	94,208	56,836	95,170
Apr-98	95,014	1,120	6,450	18,931	0	37,440	124,799	123,287
May-98	32,114	1,680	4,753	8,736	2,435	60,791	54,097	51,477
Jun-98	4,335	1,680	6,301	3,020	880	15,090	20,982	20,231
2nd Quarter Totals	131,463	4,480	17,504	30,689	3,315	113,321	199,878	194,995
Jul-98								
Aug-98								
Sep-98								
3rd Quarter Totals	0	0	0	0	0	0	0	0
Oct-98								
Nov-98								
Dec-98								
4th Quarter Totals	0	0	0	0	0	0	0	0
Year-to-Date Totals	204,956	9,140	21,258	43,457	8,082	207,529	256,714	290,165

a/ Please note that because the CWTF is equipped with Influent Tanks, the quantity of water collected will not necessarily equate to the quantity of water processed. Also note that a 15,000 gallon surge tank (T-203) is in-line between the UV/GAC unit processes and IX #1, and therefore the quantity of water processed through UV/GAC will not equate to the quantity of water processed through IX.

b/ This ground water is collected each operating day (i.e., 5 days per week).

c/ Other sources may include purge water, ER Accelerated Action Project water, etc., such as the SW-59, 903 Pad Decon, or water collected.

d/ No UV/H₂O₂ effluent was treated through the GAC.

2.2 CHEMICAL USAGE

The following chemicals are utilized during wastewater treatment operations at the CWTF:

- Building 891
 - Hydrogen peroxide (UV oxidation)
 - Hydrochloric acid (ion exchange regeneration and pH adjustment)
 - Sodium hydroxide (ion exchange regeneration)

- T-900A/T-900B trailers
 - Sulfuric acid (pH adjustment: TK-1 and effluent)
 - Calcium hydroxide (precipitation)
 - Ferric sulfate (precipitation)
 - Hydrogen peroxide (chemical cleaning of filter modules)
 - Sodium hydroxide (pH adjustment: TK-2)

Table 2-2 summarizes the quantities of chemicals utilized during the period of April through June 1998.

2.3 WASTE GENERATION

The following types of waste are generated during normal wastewater treatment operations at Building 891 and the T-900A/T-900B trailers:

- Building 891
 - used filter socks
 - neutralized ion exchange regenerant
 - personnel protective equipment
 - clay filter media

- T-900A/T-900B trailers
 - filter press sludge cake
 - personnel protective equipment
 - used filter membranes

Table 2-3 summarizes the types and quantities of the waste generated during wastewater treatment operations at the CWTF for the second quarter of 1998. From April 1, 1998 through June 30, 1998, 13,533 gallons of neutralized regenerant water from Tank 210 were sent to the Building 374 evaporator for processing.

**TABLE 2-2
CONSOLIDATED WATER TREATMENT FACILITY
CHEMICAL USAGE**

Month/Year	Building 891					T-900A/T-900B				
	Hydrochloric Acid 36% (gallons)	Sodium Hydroxide 50% (gallons)	Hydrogen Peroxide 50% (gallons)	Sulfuric Acid a/ 98% (gallons)	Calcium Hydroxide (pounds)	Ferric Sulfate (pounds)	Hydrogen Peroxide 35% (gallons)	Sodium Hydroxide 50% (gallons)	Sodium Hypochlorite (gallons)	
Jan-98	74.8	74.8	0.4	3.9	78.0	15.9	8.6	4.1	0.0	
Feb-98	199.0	102.0	1.4	3.8	90.0	11.5	7.9	4.6	0.0	
Mar-98	0.0	0.0	0.0	8.5	161.0	21.0	15.6	8.8	0.0	
1st Quarter Totals	273.8	176.8	1.8	16.1	329.0	48.4	32.1	17.5	0.0	
Apr-98	294.0	178.0	3.0	6.4	141.0	18.0	10.7	6.9	0.0	
May-98	106.0	60.0	1.4	9.4	240.0	26.0	7.3	13.7	0.0	
Jun-98	0.0	0.0	0.0	2.5	54.0	6.0	4.9	2.5	0.0	
2nd Quarter Totals	400.0	238.0	4.4	18.4	435.0	50.0	22.9	23.1	0.0	
Jul-98										
Aug-98										
Sep-98										
3rd Quarter Totals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Oct-98										
Nov-98										
Dec-98										
4th Quarter Totals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Year-to-Date Totals	673.8	414.8	6.2	34.5	764.0	98.4	54.9	40.6	0.0	

a/ In addition to the sulfuric acid quantity listed in this column, occasionally a small amount (approximately 1 gallon per effluent tank) of sulfuric acid is used in Building 891 for effluent pH adjustment.

**TABLE 2-3
CONSOLIDATED WATER TREATMENT FACILITY
WASTE GENERATION**

Month/Year	Building 891			T-900A/T-900B				Bldg 891/T-900A/T-900B
	Filter Socks (55-gal drum)	Neutralized Regenerant to 374 (gallons)	Spent Media (drums)	Sludge Production (55-gal drum)	Spent GAC (pounds)	Used Filter Membranes (55-gal drum)	Personal Protective Equip. (55-gal drum) a/	
Jan-98	--	4,565	0	2	0	0	--	
Feb-98	--	0	0	0	0	0	--	
Mar-98	--	0	1	2	0	0	--	
1st Quarter Totals	0	4,565	1	4	0	0	b/c/	
Apr-98	--	0	0	0	0	0	--	
May-98	--	0	0	0	0	0	--	
Jun-98	--	0	0	0	0	0	--	
2nd Quarter Totals	0	0	0	0	0	0	0	
Jul-98								
Aug-98								
Sep-98								
3rd Quarter Totals	0	0	0	0	0	0	0	
Oct-98								
Nov-98								
Dec-98								
4th Quarter Totals	0	0	0	0	0	0	0	
Year-to-Date Totals	0	4,565	1	4	0	0	0	

a/ PPE is monitored for radiological contaminants, and if determined to be acceptable for unrestricted release, is sent to the Rocky Flats landfill for disposal. Until the acceptance of water from an ER Accelerated Action Project in February 1996, no PPE from Building 891 or the T-900A/T-900B trailers had been found to be radiologically contaminated.

b/ PPE is collected from water treatment operations, MDF decontamination operations, etc. and is drummed collectively.

c/ These drums are filled gradually, and therefore only quarterly totals are reported.

d/ Used filter socks are drummed with other compatible wastes generated onsite, therefore the drums generated cannot be tracked.

SECTION A - CONSOLIDATED WATER TREATMENT FACILITY

3.0 INFLUENT AND EFFLUENT SAMPLING (January through March 1998)

3.1 OU1 FRENCH DRAIN SUMP, COLLECTION WELL, AND BUILDING 881 FOOTING DRAIN CHARACTERISTICS

Collection Well water is now collected separately from the French Drain Sump water, and collection and treatment of water from the Building 881 Footing Drain was discontinued in December 1994. Therefore the current French Drain Sump data is representative of only those waters that seep from the groundwater table into the French Drain. For the first quarter of 1998, quarterly sampling was performed at the French Drain Sump, the Collection Well, and the Building 881 Footing Drain.

VOCs, Radionuclides, Metals, and Water Quality for the French Drain Sump, the Collection Well, and the Building 881 Footing Drain have been reviewed and compared to the OU1 ARARs. Note that it has historically been assumed that the OU1 ARARs for radionuclides and metals are dissolved values. Those constituents which did exceed OU1 ARARs include the following:

FRENCH DRAIN SUMP (891COLGAL)			
Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
Selenium (Total)	15.6	ug/L	5
Gross Alpha	7 +/- 2	pCi/L	5
Gross Beta	7 +/- 2	pCi/L	8
Total Uranium	9.15 +/- 2.2	pCi/L	11
COLLECTION WELL (891COLWEL)			
Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
1,1-Dichloroethene	23	ug/L	7
Carbon Tetrachloride	6	ug/L	5
Tetrachloroethene	70	ug/L	5
Trichloroethene	540	ug/L	5
Selenium (Total)	471	ug/L	5
Gross Alpha	18 +/- 3	pCi/L	7
Uranium (Total)	20.05 +/- 3	pCi/L	11
BUILDING 881 FOOTING DRAIN (SW13494)			
Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
Tetrachloroethene	39	ug/L	5
Gross Alpha	9 +/- 2	pCi/L	7
Gross Beta	8 +/- 2	pCi/L	8

*CWTF ARAR is from the CWTF Sampling and Analysis Plan, Appendix A.

The Building 881 Footing Drain is currently being sampled for total radionuclides and total metals (refer to DOE letter ER:SRG:10199, dated December 29, 1994).

SECTION A - CONSOLIDATED WATER TREATMENT FACILITY

3.2 OU2 SURFACE WATER CHARACTERISTICS

Presently only SW-59 water is collected and treated. Effective May 6, 1994, the collection and treatment of SW-61 and SW-132 was discontinued as per the authorization obtained on April 24, 1994 from the Environmental Protection Agency (EPA) and the Colorado Department of Public Health and the Environment (CDPHE). Surface water is sampled on a quarterly basis from SW-59, SW-61, and SW-132.

The data for OU2 surface water has been reviewed and compared to the relevant ARARs; it has historically been assumed that the OU2 ARARs for radionuclides and metals are total values. Those constituents which did exceed OU2 ARARs include the following:

SURFACE WATER STATION: SW-59

Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
Carbon Tetrachloride	110	ug/L	5
Tetrachloroethene	33	ug/L	5
Trichloroethene	40	ug/L	5
Gross Alpha	6 +/- 2	pCi/L	7

SURFACE WATER STATION: SW-61

Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
Vinyl Chloride	6	ug/L	2
Gross Alpha	6 +/- 2	pCi/L	7

SURFACE WATER STATION: SW-132

Compound	Exceedance Value	Units	CWTF ARAR* (Chemical Specific)
Gross Beta	9 +/- 2	pCi/L	8

*CWTF ARAR is from the CWTF Sampling and Analysis Plan, Appendix A.

3.3 TREATED EFFLUENT CHARACTERISTICS

Treated effluent from the CWTF is stored in one of three Effluent Storage Tanks prior to discharge. An Effluent Storage Tank is sampled and is discharged if the data show that ARARs have not been exceeded. 250,000 gallons of treated water were discharged during the second quarter of 1998.

4.0 ENVIRONMENTAL COMPLIANCE

4.1 PERIODS OF NON-COLLECTION

All collections were performed for the second quarter. It should be noted that the production of water at the SW-59 site was very low over the course of the quarter. Collection of water from SW-59 was stopped on June 25, 1998, due to the installation of the Mound plume treatment system.

4.2 AIR MONITORING

Air monitoring was performed with no reading found above background during process runs and transfers of incidental waters.

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SECTION A - CONSOLIDATED WATER TREATMENT FACILITY

5.0 ANTICIPATED OPERATIONS FOR NEXT QUARTER

Collection and treatment of water from the French Drain Sump will continue as normal. Water from the Collection Well will continue to be collected using the portable trailer and transported to the CWTF for off-loading and treatment. Purge, incidental, and decontamination pad waters will continue to be accepted and treated.

The CWTF will continue to accept and treat waters from Environmental Restoration Projects. Projects being supported with water treatment activities include the Trench 1 remediation and 903 Pad Characterization. The CWTF will need to package two drums of filter cake from the sludge press system.

Sampling of OU1 and OU2 locations will continue to be performed by groundwater and surface water groups.

SECTION B - OU7 PASSIVE SEEP INTERCEPTION AND TREATMENT SYSTEM

6.0 INTRODUCTION, OPERATIONS, AND SAMPLING

The OU7 Passive Seep Interception and Treatment System (PSITS) is designed to collect and treat OU7 seep water and thereby eliminate, to the extent practicable, the discharge of the FO39-listed waste contained in this seep water to the East Landfill Pond. The collection and treatment system is comprised of the following items:

- A seep interception system.
- A settling basin to remove total suspended solids.
- A bag filtration system consisting of two filters operated in parallel (currently 25 micron bags are in use in the system).
- Two 55 gallon drums of granular activated carbon (GAC) are operated in series to remove volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs).

During the second quarter of 1998 the bag filters were changed on April 6, April 20, April 23; May 4; and June 16. Also, during this period GAC was changed on April 23 and June 4. Changeout of the bag filters for May was delayed to poor weather conditions. During the bag filter replacement on April 23, 1998 the flow meter became clogged with sediment and flow is now being visually estimated. Repairs to the flow meter have not been initiated since it is anticipated the treatment method may be reconfigured in the near future.

There were two periods of system bypass during the second quarter of 1998. The first bypass occurred April 4, 1998 starting at 0915 and continued until bag filter replacement on April 6, 1998 at 10:00. The second period of bypass occurred on April 19, 1998 at 0915 and lasted until filter sock replacement on April 20, 1998 at 1000. Both periods of bypass were due to bag filters becoming clogged from high sediment loading during heavy flow rates. Brief periods of system bypass occurred during bag filter change out, each bypass lasted less than half an hour. The EPA and CDPHE will be notified immediately in any instance where bypass continues longer than 72 hours. Periods of bypass less than 72 hours will be documented in this report.

OU7 treatment has continued including monthly GAC changeouts and quarterly sampling. Further modifications may become necessary based on future evaluations of the system.

On April 22, 1998 samples were collected at the landfill outfall (SW196). No constituents were detected which exceeded the Treatment System Performance Objectives for the second quarter of 1998.

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