



**Public Service®**

16805 WCR 19 1/2; Platteville, Colorado 80651

Public Service  
Company of Colorado

February 27, 1996  
Fort St. Vrain  
P-96015

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Attention: Mr. Michael F. Weber, Chief  
Decommissioning and Regulatory  
Issues Branch

Docket No. 50-267

REFERENCE: PSCo Letter, Fisher to Weber, dated June 15, 1995 (P-95067)  
"Proposed Amendment to Fort St. Vrain NPDES Permit"

SUBJECT: **Amendment to Fort St. Vrain NPDES Permit**

Dear Mr. Weber:

Attached for your information is a copy of an amendment to the Fort St. Vrain (FSV) National Pollutant Discharge Elimination System (NPDES) Permit, Wastewater Discharge Permit No. CO-0001121. This amendment was requested from the Colorado Department of Public Health and Environment (CDPHE) to support decommissioning and repowering activities, as identified in the referenced letter. The CDPHE approved this amendment as a minor modification, which became effective on September 11, 1995.

The attached amendment to the FSV NPDES Permit is provided to the NRC in accordance with Section 3.2.c of the FSV Non-Radiological Technical Specifications, Appendix B to Facility Operating License No. DPR-34. Public Service Company of Colorado acknowledges that this amendment was not provided within 30 days as required, due to an oversight, and actions have been taken to prevent future delayed submittals. If you have any questions regarding this information, please contact Mr. M. H. Holmes at (303) 620-1701.

Sincerely,

*Frederick J. Borst*

Frederick J. Borst  
Decommissioning Program Director

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NWID 11

P-96015

February 27, 1996

Page 2

Attachment

FJB/SWC

cc: Regional Administrator, Region IV

Mr. Robert M. Quillin, Director

Radiation Control Division

Colorado Department of Public Health and Environment

## RJS/dc

# **COLORADO DISCHARGE PERMIT SYSTEM (CDPS)**

## **AMENDMENT NO. 5 - RATIONALE**

### **PUBLIC SERVICE COMPANY OF COLORADO FORT ST. VRAIN STATION**

**PERMIT NO. CO-0001121, WELD COUNTY**

- I. TYPE OF PERMIT:** *Industrial - Minor Modification*
- II. FACILITY INFORMATION:**
- A. Facility Type and Fee Category:** *Category 8, Subcategory 4 - Power Plants: Process Water from 1.0 to 4.999 MGD - Current fee \$4568 per year for the process related permit; and Category 24, Subcategory 2 - Individual Industrial Storm Water Permits: Ten Acres or More - Current fee \$300/year per CRS 25-8-502. Total fee = \$4868/year.*
- B. SIC No.:** *4911 (Electric Services)*
- C. Legal Contact:** *Alan Albrandt, Unit Manager, Environmental Programs,  
Public Service Company of Colorado  
P.O. Box 840 (1225 17th Street, Suite 2000)  
Denver, CO 80201  
(303)+294-2978*
- D. Facility Contacts:** *Alan Albrandt, Unit Manager, Environmental Programs  
(See above for address and phone number)*  
  
*Mary Fisher, Decommissioning Program Director  
PSC Fort St. Vrain Station  
(303)+620-1009*
- E. Facility Location:** *The Public Service Company Fort Saint Vrain Station is located approximately 3.5 miles northwest of Platteville, Colorado in Section 3, T3N, R67W; and Sections 34 and 35, T4N, R67W; 6th Principal Meridian, as shown in figure 1 and 2 of the permit.*
- F. Discharge Points:** *See renewal rationale for this facility for description of all the outfalls (discharge points 001A, 001B, 002, 003, 004, 005, 006, 007, and monitoring point 008) at this facility.*  
  
*Outfall 001A - the outfall 001 overflow from the farm pond at the Parshall flume, which is prior to entering the South Platte River, as shown in figure 3 of the permit.*
- G. Facility Flows:** *The following flows for 001A are unchanged from the previous rationale.*  
*001A = 2.065 MGD (average facility flow)*  
*= 3.7 MGD (maximum flow)*  
*001A 30-Day Average Flow Range: 1.03 - 2.88 MGD*  
*001A Daily Maximum Flow Range: 1.280 - 5.250 MGD*  
*(from Discharge Monitoring Reports from 1-1-94 through 6-30-1995)*  
  
*See previous renewal rationale for the other discharge flows.*

### III. RECEIVING STREAM:

Outfalls 001A and 003 go to the South Platte River (segment 1, Middle South Platte River subbasin); 001B is located in the Goosequill Ditch Stub, which then goes to Goosequill Ditch, which is tributary to the South Platte River (Goosequill Ditch is in segment 3, Middle South Platte River subbasin); and outfalls 002, 004, and 005 go to St. Vrain Creek (segment 3, St. Vrain Creek subbasin). Outfalls 006 and 007 are internal discharge points which do not discharge directly to any surface waters. These two internal outfalls eventually contribute to discharges at 001A, 001B, and/or 002. See the previous renewal rationale (February 8, 1993) for further details.

### IV. PURPOSE OF AMENDMENT:

This amendment includes details of some of the more significant modifications to the Fort St. Vrain CDPS permit which are needed to support decommissioning and repowering activities at this facility. These changes as part of the Phase 1A activities are further discussed in the following section.

### V. DISCUSSION OF AMENDMENT:

In a letter dated May 15, 1995, Public Service Company of Colorado (PSC) submitted a summary of more significant upcoming changes to the Fort St. Vrain station which are needed to support decommissioning and repowering activities at this facility. These activities were previously discussed in a meeting between Public Service Company and the State of Colorado Water Quality Control Division (WQCD) on March 7, 1995, and later summarized in a letter from PSC dated March 10, 1995. The following paragraphs indicate the changes to the facility that will be included in Phase 1A.

As has been previously indicated, the nuclear reactor and associated power generating equipment at the Fort St. Vrain Power Plant (FSV) have been shutdown since 1989, and the plant has been in the process of decommissioning since 1991. Work is now underway to repower this plant using two natural-gas fired Combustion Turbines (CT's) and two Heat Recovery Steam Generators (HRSG's) in a combined cycle operation, with the equipment to be installed in three phases (Phase 1A, 1B, and 2). Generally, Phase 1A involves construction and installation of the first Combustion Turbine (CT) unit (6-95 through 4-96) and Solar System (8-95 through 6-97); Phase 1B involves construction and installation of the first Heat Recovery Steam Generator (HRSG) (2-97 through 5-98); and Phase 2 includes construction and installation of the second HRSG and the second CT units (2-98 through 5-99). Further details of specific items in Phases 1A, 1B, and 2 were included in handout sheets from the meeting of March 7, 1995 and in the letter of March 10, 1995; this information is included in the permit file.

This following amendment discussion addresses only those changes resulting from the construction and operation of Phase 1A and from the completion of decommissioning; Phase 1A installs the first CT only. Construction commenced on June 1, 1995, with process flows and pre-operational testing to start January 2, 1996. Commercial operation is scheduled for April 30, 1996.

New water quality control equipment which will be installed to support the repowering project includes:

- 1) Installation of an "oil/water" (O/W) separator which will receive drainage from the CT area drains and the main auxiliary and generator step-up transformer area drains. The separator will have a capacity of 20,000 gallons of oil and water, and is designed to meet the limit of 10 mg/l of oil and grease in the effluent. Maximum discharge from the O/W separator is estimated to be 2,000 gallons per day (gpd) and will be routed to a wastewater collection sump. (Note: All transformers in this area are certified Non-PCB by the manufacturer.)
- 2) Installation of a "wastewater collection sump" with a maximum capacity of 6,400 gallons, and an estimated maximum discharge rate of 2,000 gpd. Wastewater discharged from the sump will be routed to the north yard drains where it will be combine with service water cooling tower blowdown and sewage treatment effluent prior to discharge to either outfall 001A or 002.



V. DISCUSSION OF AMENDMENT: (Cont.)

- 3) Installation of a "compressor wash skid" and a 2,000 gallon "washwater holding tank". The compressor wash skid will provide a high pressure wash of the turbine blades utilizing demineralized water and detergent to remove combustion residue introduced from the natural gas and combustion air. Discharge from the washwater holding tank is estimated to average 200 gpd and will be routed to the "South evaporation pond".

Public Service Company of Colorado has inspected the South evaporation pond liner integrity. This inspection and the follow-up report verifying the liner integrity has been submitted to the WQCD.

Additional changes which may impact water usage and discharge rates include:

- 1) A decrease in service water cooling usage for reactor building equipment due to decommissioning. Commencing on approximately January 2, 1996, a service water cooling blowdown rate of approximately 4,000 gpd will be occurring to support cooling of the CT. The overall net effect of these two changes should not modify the previous renewal rationale, on page 6, of the FSV discharge permit, which indicated a maximum blowdown rate of 25,000 gpd for the service water cooling tower.
- 2) The Nuclear Regulatory Commission (NRC) licensing requirement for the 1,100 gpm bypass water during radioactive liquid waste discharges, will remain in effect until termination of the license by the NRC. Presently, it is anticipated that this licensing requirement will be cancelled by the third quarter of 1996.
- 3) Rerouting of the Reactor Building Sump (RBS) to the Turbine Building Sump (TBS), at the completion of decommissioning, to accommodate groundwater ingress. The amount of groundwater ingress and therefore the flow rates from this discharge can not be determined at this time. As agreed to in the meeting of March 7, 1995, PSC will submit a copy of the radiological analysis of this groundwater prior to rerouting this discharge flowpath.
- 4) Outfall 007 (the effluent from the Sewage Treatment Plant) flow rates should remain fairly constant due to an influx of repowering personnel, with a simultaneous decrease in decommissioning personnel.

Except for the detergent to be used in the CT compressor wash skid, no new chemicals will be introduced into the facility process waters. Copies of the Material Safety Data Sheets (MSDS) for representative CT washwater detergents were attached to the letter of May 15, 1995.

Also attached to the PSC letter of May 15, 1995 is a copy of the mass balance process flow diagram, the design water analysis data, and the rationale used to prepare the design water analysis. The design water analysis results are based upon analysis performed by PSC, Calgon and Nalco Chemical Companies, as well as data provided by the WQCD. From a review of this data, the range of chemical constituents in some areas is extreme. The Carter Lake Treatment Plant will be the source of most of the water needed for Phase 1A and is fairly consistent in quality. However, the range of the water quality for the St. Vrain and South Platte river waters may be variable. Therefore, PSC plans to monitor the rivers for key parameters on a more frequent basis and revise the water design analysis as additional data becomes available.

Since the Combustion Turbine Oil/Water Separator will be a new contributing source in the Fort St. Vrain facility, this amendment includes significant changes; however, as later discussed, no public notice requirements are applicable. The other more significant changes in the Phase 1A activities have been included in the above discussions of this amendment rationale. Other less significant changes have been summarized in the letter from PSC dated March 10, 1995. These minor modifications in part include: a) installation of a pH control system for the Turbine Building Sump; and b) sulfuric acid/sodium hydroxide treatment in the Turbine Building Sump and temporary rerouting of the North Yard drains. For further details, see the letter dated March 10, 1995.

V. DISCUSSION OF AMENDMENT: (Cont.)

The Division has reevaluated the applicable permit limitations as related to the calculated federal BPT/BAT limits. The federal limits were recalculated to include the new contributing source of treated wastewater from the Combustion Turbine, based upon the projected daily maximum flow of 2000 gpd (or 0.002 MGD). With the addition of this new source which is assumed to also be under the low volume waste categorical limits, all the sources were recalculated based upon the same assumptions as were used in Appendix A and in the existing (1992/1993) renewal permit rationale. The recalculations, which are summarized in Appendix B in the permit file, indicate no significant changes from the previous calculations of Appendix A and the existing limits for outfalls 001B and 002 for TSS, Oil and Grease, TRC, Total Chromium, and Total Zinc.

These federal limits were also recalculated based upon the addition of the Combustion Turbine unit treated wastewater and an assumed future deletion of the PCR/V wastewater source. Presently, the PCR/V wastewater source has been reduced to only a minimal amount of groundwater seepage; the exact amount of this seepage is not known. This additional reevaluation, which is also included in Appendix B, again showed no significant change from the previously calculated numbers or the existing limits for outfall 001B. Thus, there has been no change in the permit limitations for these parameters at this time.

However, with the future addition of other contributing wastewater sources or additional flows from a Heat Recovery Steam Generator for CT-1A and the second Combustion Turbine with its associated Heat Recovery Steam Generator, these limitations will need to be reevaluated and may need to be redetermined.

Also, some water quality data was included in attachments to the amendment request letter for certain of the contributing wastewater streams, as well as for background stream data (indicated as "design concentrations for water analysis"). This data was not used at this time for the federal limits recalculations, mainly because not all of the data for the contributing wastewater sources included in Appendix A and B were indicated. Also, with the later inclusion of additional contributing wastewater sources (such as the second Combustion Turbine unit, the two Heat Recovery Steam Generators, and possibly the Main Cooling Tower Blowdown source), this data may be more appropriate to include at that time and/or at the time of the next permit renewal. The background stream data submitted will be considered at the time of the next permit renewal.

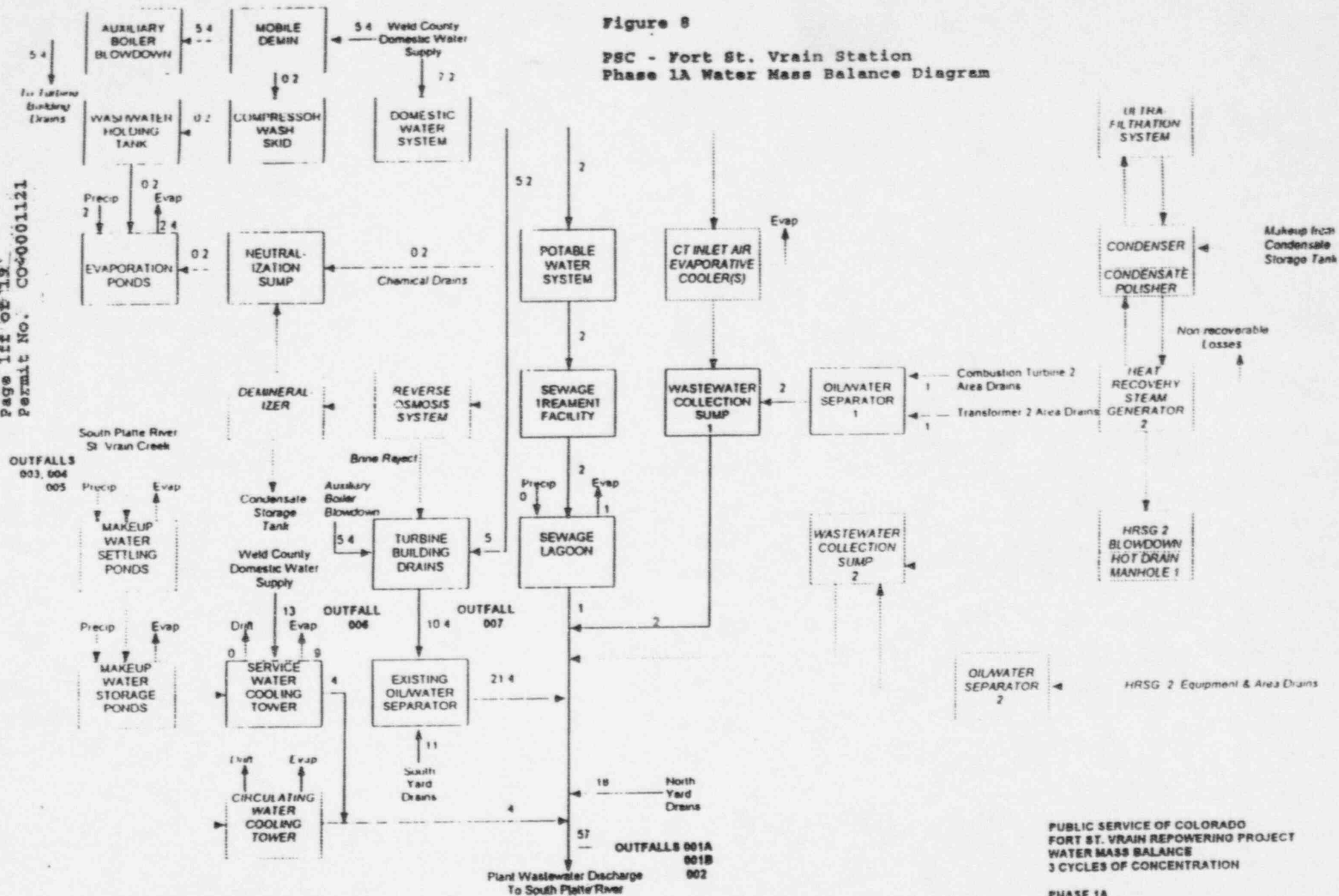
The only change that has been made in the permit for this amendment is the addition of figure 8 on page 1ff of 19. Figure 8 shows the Water Mass Balance Diagram which was submitted as part of this permit amendment.

Since there have been no significant major modifications to the permit (i.e., no change in permit limits or monitoring requirements), public notice requirements are not applicable for this amendment. This minor modification was reviewed by PSC, and some changes were made to the preceeding text by the Division on September 1, 1995.

Don Holmer  
August 23, 1995  
Revised September 1, 1995

Figure 8

PSC - Fort St. Vrain Station  
Phase 1A Water Mass Balance Diagram



PUBLIC SERVICE OF COLORADO  
FORT ST. VRAIN REPOWERING PROJECT  
WATER MASS BALANCE  
3 CYCLES OF CONCENTRATION

PHASE 1A



County: Weld

AUTHORIZATION TO DISCHARGE UNDER THE  
COLORADO DISCHARGE PERMIT SYSTEM

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et. seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et. seq.; the "Act"),

PUBLIC SERVICE COMPANY OF COLORADO

is authorized to discharge from the Fort St. Vrain Station,

located in Section 3, T3N, R67W; and Sections 34 and 35, T4N, R67W; 6th Principal Meridian, as shown in figure 1,

to the South Platte River, St. Vrain Creek, and natural and man-made tributaries of these two streams,

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Part I, and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

The applicant may demand an adjudicatory hearing within thirty (30) days of the issuance of the final permit determination, per Regulation for the State Discharge Permit System 6.8.0 (1). Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, the applicant must comply with Section 24-4-104 CRS 1973 and the Regulation for the State Discharge Permit System. Failure to contest any such effluent limitation, monitoring requirement, or other condition, constitutes consent to the condition by the Applicant.

This permit and the authorization to discharge shall expire at midnight, January 31, 1998.

Issued and Signed this 19th day of February, 1993

COLORADO DEPARTMENT OF HEALTH

*Robert J. Shalle for*

J. David Holm, Director  
Water Quality Control Division

**CERTIFIED LETTER NO. P784031982**

**DATE SIGNED 2/19/93**

**EFFECTIVE DATE OF**

**PERMIT 4/1/93**

Amended 06/30/93

Effective 08/01/93

Amended 12/03/93

Effective 02/01/94

Corrected 12/23/93

Amended 11/30/94

Effective 01/01/95

Amended 12/14/94

Effective 02/01/95

Code: i - 1 Date: 2 - 84, revised 1-89

AMENDED 09/11/95

EFFECTIVE 09/11/95