



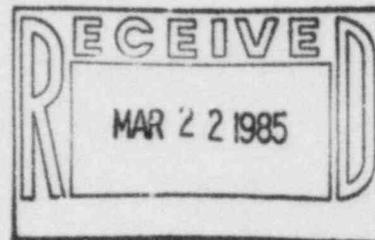
Public Service Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

March 14, 1985
Fort St. Vrain
Unit #1
P-85083

Regional Administrator
Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

ATTN: Mr. E. H. Johnson



Docket No. 50-267

SUBJECT: Final Permit, Colorado
Wastewater Discharge Permit
System No. CO-0001121

Dear Mr. Johnson:

In accordance with Appendix B to Operating License DPR-34, Section 3.2 c), Public Service Company of Colorado is herein transmitting a copy of Colorado Wastewater Discharge Permit CO-0001121 received March 5, 1985.

If you have questions with regards to this transmittal, please contact Mr. F. J. Borst of my staff at (303) 785-2224.

Sincerely,

J. W. Gahm
Manager, Nuclear Production
Fort St. Vrain Nuclear
Generating Station

JWG:JMS/dr

Enclosure

85-80

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RETURN ORIGINAL
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COLORADO DEPARTMENT OF HEALTH

Richard D. Lamm
Governor

Thomas M. Vernon, M.D.
Executive Director

FEB 21, 1985

CERTIFIED NO: P555466501

O.R. Lee
Vice President, Electric Production
PUBLIC SERVICE COMPANY OF COLORADO
P.O.Box 840
Denver, CO 80201

G-85075

rec'd 03/05/85

RE: Final Permit, Colorado Wastewater Discharge Permit System
Number: CO- 0001121

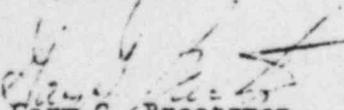
Gentlemen:

Enclosed please find a copy of the permit issued under the Colorado Water Quality Control Act.

Your discharge permit requires that specific actions be performed at designated times. You are legally obligated to comply with all terms and conditions of your permit.

Please read the permit and if you have any questions contact this office at 320-8333, extension 3740.

Sincerely,


Gary G. Broetzman
Director

WATER QUALITY CONTROL DIVISION

Enclosure

xç: Permits Section, Environmental Protection Agency
Regional Council of Governments
Local County Health Department
District Engineer, Field Services Section, WQCD, CDH
Stan May, Field Services Section, WQCD, CDH
Seth Goldstein, Administrative Section, WQCD, CDH
Ginny Torrez, DMR File, Permits and Enforcement Section, WQCD, CDH
Sandy Squire, Industrial Enforcement/
Permit Drafters, Permits and Enforcement Section, WQCD, CDH

GGB/dkg

Permit No.: CO-0001121

County: Weld

AUTHORIZATION TO DISCHARGE UNDER THE
COLORADO DISCHARGE PERMIT SYSTEM

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

PUBLIC SERVICE COMPANY OF COLORADO

is authorized to discharge from their Fort St. Vrain generating station

located in Sections 34 and 35, Township 4 North, Range 67 West and Section 3, Township 3 North, Range 67 West, 6th Principal Meridian

to the South Platte River and St. Vrain Creek

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Part I, II and III hereof.

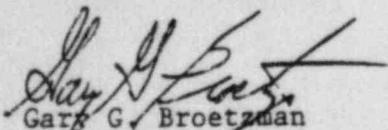
This permit shall become effective thirty (30) days after the date signed by the Director. Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, he must comply with Section 24-4-104 CRS 1973 and the Regulations for the State Discharge Permit System. Failure to contest any such effluent limitations, monitoring requirement, or other condition is consent to the condition by the Applicant.

This permit and the authorization to discharge shall expire at midnight,

December 31, 1989

Issued this 21st day of February, 1985

COLORADO DEPARTMENT OF HEALTH



Gary G. Broetzman
Director
Water Quality Control Division

LETTER NO. 555466501
2-21-85
PERMIT 3-21-85

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS -
SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

1. EFFLUENT LIMITATIONS - ALL DISCHARGE POINTS

- (a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- (b) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the State that the units in a particular location cannot operate at or below this level of chlorination.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

2. Effluent Limitations - Discharge Point 001 to the South Platte River

During the period beginning immediately and lasting through December 31, 1989 the permittee is authorized to discharge from outfall(s) serial number(s) 001, subject to the following effluent limitations and conditions:

Effluent Parameter	Discharge Limitations		Maximum Concentration		
	Maximum Weight kg/day (lbs/day)		mg/l	mg/l	mg/l
	30-day avg. <u>a/</u>	Daily max.	30-day avg. <u>a/</u>	7-day avg. <u>b/</u>	Daily Max. <u>c/</u>
Flow	N/A	N/A	N/A	N/A	N/A
Residual Chlorine*	N/A	N/A	N/A	N/A	0.014
Total Zinc	N/A	N/A	0.66	N/A	1.0
Total Copper	N/A	N/A	0.118	N/A	0.24
Total Iron	N/A	N/A	1.0	N/A	1.0
Total Chromium	N/A	N/A	0.2	N/A	0.2
Total Suspended Solid, net**	N/A	N/A	30	45	100
126 Priority Pollutants, except total chromium and total zinc	--NO DETECTABLE AMOUNT--				

The temperature of the discharge shall not exceed 30°C (86°F) at anytime. Oil and grease shall not exceed 10 mg/l and there shall be no visible sheen. If a visible sheen is observed, corrective action shall be taken immediately.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units c/

a/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) samples taken on separate weeks in a 30-day period (minimum total of three (3) samples);

b/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) samples taken on separate days in a 7-day period (minimum total of three (3) samples);

c/ This limitation shall be determined by a single properly preserved sample as required under monitoring requirements - Sample Type.

*See also, PART I A. 1. (b) above.

**TSS shall be monitored at two different locations so that net limitations may be applied:

- (1) raw water supply after sedimentation and before use in the plant;
- (2) after plant use but before mixing with dilution water (i.e. upstream of the discharge point applicable for all other parameters).

Both of these values and the resultant net TSS value shall be reported on the Discharge Monitoring Report Form.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

3. Effluent Limitations - Discharge Point 002 to St. Vrain Creek

During the period beginning immediately and lasting through December 31, 1989 the permittee is authorized to discharge from outfall(s) serial number(s) 002, subject to the following effluent limitations and conditions:

Effluent Parameter	Maximum Weight		Discharge Limitations		
	kg/day (lbs/day)		Maximum Concentration		
	30-day avg. <u>a/</u>	Daily max.	mg/l 30-day avg. <u>a/</u>	mg/l 7-day avg. <u>b/</u>	mg/l Daily max. <u>c/</u>
Flow	N/A	N/A	N/A	N/A	N/A
Residual Chlorine*	N/A	N/A	N/A	N/A	0.022
Total Zinc	N/A	N/A	0.75	N/A	1.0
Total Copper	N/A	N/A	0.112	N/A	0.224
Total Iron	N/A	N/A	1.0	N/A	1.0
Total Chromium	N/A	N/A	0.2	N/A	0.2
Total Suspended Solids**	N/A	N/A	30	45	100
126 Priority Pollutants, except total chromium and total zinc	-----NO DETECTABLE AMOUNT-----				

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units c/

- a/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) samples taken on separate weeks in a 30-day period (minimum total of three (3) samples);
- b/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) samples taken on separate days in a 7-day period (minimum total of three (3) samples);
- c/ This limitation shall be determined by a single properly preserved sample as required under monitoring requirements - Sample Type.

*See also PART I.A 1 (b) above.

**TSS shall be monitored at two different locations so that net limitations may be applied:

- (1) raw water supply after sedimentation and before use in the plant;
- (2) after plant use but before mixing with dilution water (i.e. upstream of the discharge point applicable for all other parameters).

Both of these values and the resultant net TSS value shall be reported on the Discharge Monitoring Report Form.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

4. Monitoring Requirements - 001 and 002

In order to obtain an indication of the probable compliance or noncompliance with the effluent limitations specified in Part I, the permittee shall monitor all effluent parameters at the following required frequencies.

<u>Effluent Parameter</u>	<u>Measurement Frequency d/e/</u>	<u>Sample Type f/</u>
Flow, mgd	Weekly	Instantaneous or Continuous
Residual Chlorine, mg/l	Weekly at 001A and 002	Grab
Zinc, mg/l	Monthly	Grab
Ammonia nitrogen, mg/l	Monthly	Grab
Total Suspended Solids, net, mg/l	Weekly	Grab
Phosphorus	Monthly	Grab or Composite
Oil and grease, mg/l	Weekly	Grab
Temperature	Weekly at 001A and 002	Grab
Total Copper	Monthly	Grab
Total Iron	Monthly	Grab
Total Chromium	Monthly	Grab
126 Priority Pollutants, except Cr and Zinc	Annually	Grab
pH	Weekly	Grab

d/ Monitoring is required only during periods of discharge. If "no discharge" occurs, this shall be reported at the specified frequency. (See Part B.)

e/ When the measurement frequency indicated is quarterly, the samples shall be collected during March, June, September and December, if a continual discharge occurs. If the discharge is intermittent, then samples shall be collected during the period that discharge occurs.

f/ See definitions, Part B

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

4. Monitoring Requirements - 001 and 002

Self-monitoring samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Discharge Point 001A - at the parshall flume at the outfall from the farm pond for temperature and residual chlorine; at (1) the turbine and reactor building drains and at (2) the sewage treatment plant outfall and before co-mingling with any other effluent streams for TSS, oil and grease and pH; and Discharge Point 001B - parshall flume at the Goosequill Ditch for all other parameters when discharge is via the 001 discharge point.

Discharge Point 002, at the parshall flume in the drainage slough prior to entering St. Vrain Creek, when discharge is via the 002 discharge point except that TSS, oil and grease and pH must also be monitored at (1) the turbine and reactor building drains and at (2) the sewage treatment plant outfall and before co-mingling with any other effluent streams. All discharge and monitoring points are as shown on Figures 1 and 3 of this permit. TSS levels must be monitored in plant for application of net limitation. See ** on previous two pages of this permit.

In addition, the permittee shall monitor for BOD and Fecal Coliform monthly at the outfall from the sewage treatment plant final treatment lagoon. No numeric limitations shall apply at this point. This monitoring requirement is to serve as an indicator of plant performance. BOD shall be a composite sample and Fecal Coliform shall be a grab sample. If reported analyses show inadequate treatment then the Division may modify the permit to impose numeric limitations for these parameters at the STP outfall.

5. Effluent Limitations - Discharge Points 003 and 004

During the period beginning immediately and lasting through June 30, 1988 the permittee is authorized to discharge from outfall(s) serial number(s) 003 and 004, subject to the following effluent limitations and conditions:

003 - This discharge shall consist of South Platte River water and shall contain no heat or other chemicals or material other than that removed from the intake screens.

004 - This discharge shall consist of St. Vrain Creek water and shall contain no heat or other chemicals or materials other than that removed from the intake screens.

005 - This discharge shall consist of sluiced water from the St. Vrain Creek intake and shall contain no heat or other chemicals or materials other than that removed from the intake.

No monitoring will be required at these points.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results shall be summarized for each month and reported on applicable discharge monitoring report forms (EPA Form 3320-1), postmarked no later than the 28th day of the following month. If no discharge occurs during the reporting period, "No Discharge" shall be reported. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator and the State at the following addresses:

Colorado Department of Health	U. S. Environmental Protection Agency
Water Quality Control Division	1860 Lincoln Street - Suite 103
210 East 11th Avenue	Denver, Colorado 80295
Denver, Colorado 80220	Attention - Enforcement - Permit
Attention: Permits &	Program
Enforcement Section, WQCD	

3. Definitions

- a. A "composite" sample, for monitoring requirements, is defined as a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow.
- b. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
- c. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement using existing monitoring facilities.
- d. A "continuous" measurement, for flow monitoring requirements, is defined as using an automatic recording device to continually measure flow.
- e. A "visual" observation, for oil and grease monitoring requirements, is defined as observing the discharge to check for the presence of a visible sheen or floating oil. If either of these is present, a grab sample shall be taken and analyzed, and corrective measures taken immediately to correct the situation.

B. MONITORING AND REPORTING (Continued)

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Act, and Colorado State Effluent Limitations (10.1.5), under which such procedures may be required.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling;
- b. The dates the analyses were performed;
- c. The person(s) who performed the sampling;
- d. The person(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of all required analysis.

6. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1), or other forms as required by the Division. Such increased frequency shall also be indicated.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the State Water Quality Control Division.

C. SPILL PREVENTION AND CONTAINMENT PLAN

The permittee shall, within sixty (60) days after the effective date of this permit, submit to the State Water Quality Control Division, a spill prevention and containment plan, prepared by a professional engineer registered in the State of Colorado. Plans shall include information and procedures for the prevention and containment of spills of materials used, processed, or stored, at the facility which could possibly be spilled and might have a visible or otherwise detectable impact on the waters of the State. The plan should include but not necessarily be limited to the following:

1. A history of spills which have occurred in the three (3) preceding the effective date of this permit. The history shall include causation of the spills and a discussion of preventive measures designed to prevent them from reoccurring;
2. A description of the reporting system which will be used to alert responsible facility management, the State Water Quality Control Division, the Environmental Protection Agency, downstream water users, and local health officials;
3. A description of preventative facilities (including overall facility plot) which prevent, contain, or treat, spills and unplanned discharges;
4. A list of all materials used, processed, or stored, at the facility which represent a potential spill threat to surface waters;
5. An implementation schedule for additional facilities which might be required in (3) above, but which are not yet operational;
6. A list of available outside contractors, agencies, or other bodies which could be utilized in the event of a spill in order to clean up its effects;
7. Provision for periodic review and updating of the contingency plan.

The foregoing provisions shall in no way render inapplicable those requirements imposed by Section 311 of the Federal Water Pollution Control Act Amendments of 1972, regulations promulgated thereunder, the Colorado Water Quality Control Act, and regulations promulgated thereunder.

* Nothing herein contained shall be construed as allowing any discharge to waters of the State other than through the discharge points specifically authorized in this permit. Nothing herein contained shall be construed as waiving any liability the permittee might have, civil or criminal, for any spill.

If this facility has an approved spill prevention and containment plan now in effect, please submit a copy of this plan with an update, if necessary.

PART II

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated change in discharge location, facility expansions, production increases, or process modifications which will result in new, different, or increased discharges or pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the State Water Quality Control Division of such changes. Process modifications include, but are not limited to, the introduction of any new pollutant not previously identified in the permit, or any other modifications which may result in a discharge of a quantity or quality different from that which was applied for. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Noncompliance

(A) Definitions

- (1) Upset: An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee.
- (2) Bypass: The intentional diversion of waste streams from any portion of a treatment facility.
- (3) Severe Property Damage: Substantial physical damage to property, to the treatment facilities to cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. It does not mean economic loss caused by delays in production.

(B) Notification

- (1) If, for any reason, the permittee does not comply with or will be unable to comply with any maximum discharge limitations or standards specified in this permit, the permittee shall, at a minimum, provide the Water Quality Control Division and EPA with the following information:
 - a) A description of the discharge and cause of noncompliance
 - b) The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and
 - c) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

2. Noncompliance (cont'd)

- (2) The following instances of noncompliance shall be reported orally within 24 hours from the time the permittee becomes aware of the circumstances, and a written report mailed within five days of the time the permittee becomes aware of the circumstances:
 - a) Any instance of noncompliance which may endanger health or the environment
 - b) Any unanticipated bypass which exceeds any effluent limitation in the permit
 - c) Any upset which exceeds any effluent limitation in the permit (See Fed. Reg. Vol. 45, No. 98, 122.60 (h) for upset conditions)
 - d) Daily maximum violations for any toxic pollutants or hazardous substances limited in PART I-A of this permit.
- (3) The permittee shall report all instances of noncompliance not reported in "Notification", paragraph 2-(B)-(2) (above), at the time discharge monitoring reports are submitted (EPA Form 3320-1). The reports shall contain the information listed in "Notification", paragraph 2-(B)-(1) (above).
- (4) Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or report to the Division, it shall promptly submit such facts or information.

(C) Bypass

- (1) The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. No Division notification is required, and this case is not subject to the requirements in paragraphs 2-(C)-(2) through 2-(C)-(4), (below).
- (2) If the permittee knows in advance of the need for a bypass, it shall submit notice, if possible at least ten days before the date of the bypass, to the Division and the Environmental Protection Agency (EPA). The bypass shall be subject to Division approval, and limitations imposed by the Division and EPA.
- (3) For an unanticipated bypass, see the requirements listed in "Notification", paragraph 2-(B)-(2), (above).
- (4) Bypass is prohibited, and the Division may take enforcement action against a permittee for bypass, unless:
 - a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.

2. Noncompliance (Continued)

- b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- c) The permittee submitted notices as required in "Notification", paragraph 2-(B) (above).

3. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

4. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to waters of the State resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

6. Any discharge to the waters of the State from a point source other than specifically authorized is prohibited.

7. Reduction, Loss, or Failure of Treatment Facility

- (A) The permittee shall, to the extent necessary to maintain compliance with its permit, control production, or all discharges, or both until the facility is restored or an alternative method of treatment is provided.
- (B) This provision also applies to power failures, unless an alternative power source sufficient to operate the wastewater control facilities is provided.

B. RESPONSIBILITIES

1. Right to Entry

The permittee shall allow the Director of the State Water Quality Control Division, the EPA Regional Administrator, and/or their authorized representative, upon the presentation of credentials:

- (A) To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
- (B) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and
- (C) To enter upon the permittee's premises to reasonably investigate any actual, suspected, or potential source of water pollution, or any violation of the Colorado Water Quality Control Act. The investigation may include, but is not limited to, the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing of any persons having any knowledge related to the discharge, permit, or alleged violation, and access to any and all facilities or areas within the permittee's premises that may have any affect on the discharge, permit, or alleged violation.

2. Duty to Provide Information

The permittee shall furnish to the Division, within a reasonable time, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

3. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Regional Administrator and the State Water Quality Control Division.

4. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act and Regulations for the State Discharge Permit System 6.1.8, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State Water Quality Control Division and the Regional Administrator.

As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act, and Section 25-8-610 C.R.S. 1973.

5. Permit Modification

After notice and opportunity for a hearing, the permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- (A) Violation of any terms or conditions of this permit;
- (B) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- (C) A change in any condition which results in a temporary or permanent reduction, elimination, addition or increase of the permitted discharge. (Changes in Water Quality Standards, control regulation or duly promulgated plans would qualify as "a change in any condition.");
- (D) Changes in Water Quality Standards, control regulation or duly promulgated plans would qualify as "change in any condition".;
- (E) This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301 (b)(2)(C), and (D), 304 (b)(2), and 307 (a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved.
 - (1) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) Controls any pollutant not limited in the permit.The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable. - or -
- (F) Data submitted pursuant to Part I.A. of this permit indicates a potential for violation of instream water quality standards and/or established classifications and numeric standards.

6. Toxic Pollutants

Notwithstanding "Permit Modification", paragraph B-5 (above), if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

7. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (A-2-(C)) and "Reduction, Loss, or Failure of Treatment Facility", (A-7), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. (See Fed. Reg. Vol. 45, No. 98, 122.60).

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

10. Permit Violations

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit.

11. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

12. Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

13. At the request of a permittee, the Division may modify or terminate a permit and issue a new permit if the following conditions are met:

- (A) The Regional Administrator has been notified of the proposed modification or termination, and does not object in writing within thirty (30) days of receipt of notification; and
- (B) The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes, and regulations for such modification or termination; and
- (C) Requirements of public notice have been met.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

14. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Signatory Requirement

All applications, reports, or information submitted to the Division shall be signed and certified.

A. GENERAL REQUIREMENTS

1. The permittee shall not discharge after the expiration date of this permit without authorization. In order to receive authorization to discharge after the expiration date, the permittee shall, no later than 180 days prior to the expiration date of this permit, submit a new CDPS application and fees as required by the permit issuing authority.
2. The permittee is required to submit a fee as set forth in Section 25-8-502 C.R.S. 1973 as amended. Failure to submit the required fee is a violation of this permit and will result in the suspension of said permit and enforcement action pursuant to Section 25-8-601 et. seq., 1973 as amended.
3. Within sixty (60) days of the effective date of this permit, the permittee shall file a statement with the Environmental Protection Agency and the State Water Quality Control Division which shall contain the names of the person or persons who are designated to report conditions as noted in "Noncompliance", Part II, Section A, Paragraph 2, and as referenced in "Oil and Hazardous Substance Liability", PART II, Section B, Paragraph 8. The permittee shall continually update this list as changes occur at the facility.
4. Within three (3) months after the effective date of this permit, a flow-measuring device shall be installed at all discharge points. At the request of the Regional Administrator of the Environmental Protection Agency or the Director of the State Water Quality Control Division, the permittee must be able to show proof of the accuracy of any flow-measuring device used in obtaining data submitted in the monitoring report. The flow-measuring device must indicate values within ten (10) percent of the actual flow being discharged from the facility.
5. Discharge points shall be so designed or modified that a sample of the effluent can be obtained at a point after the final treatment process and prior to discharge to state waters.

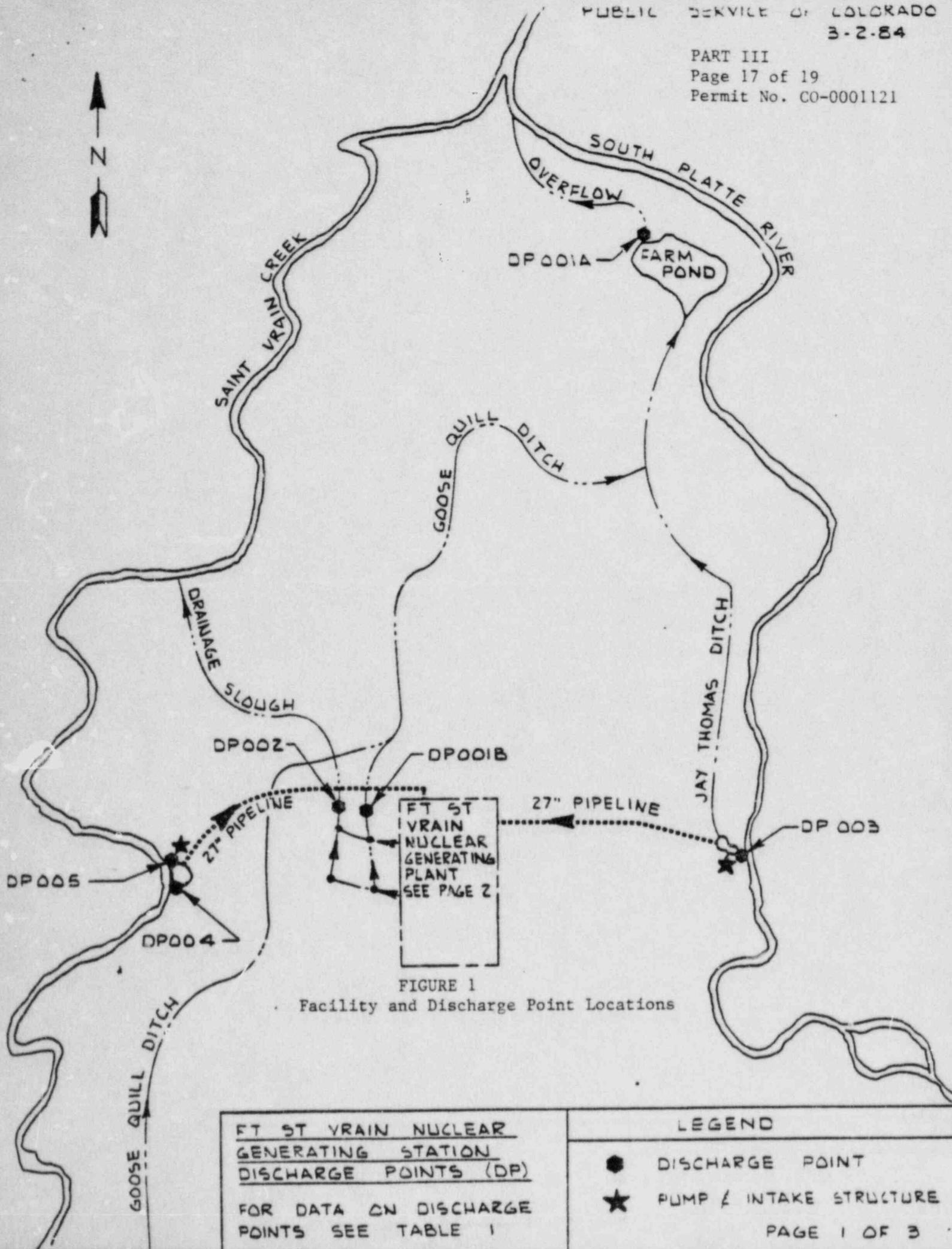
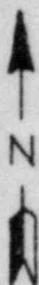
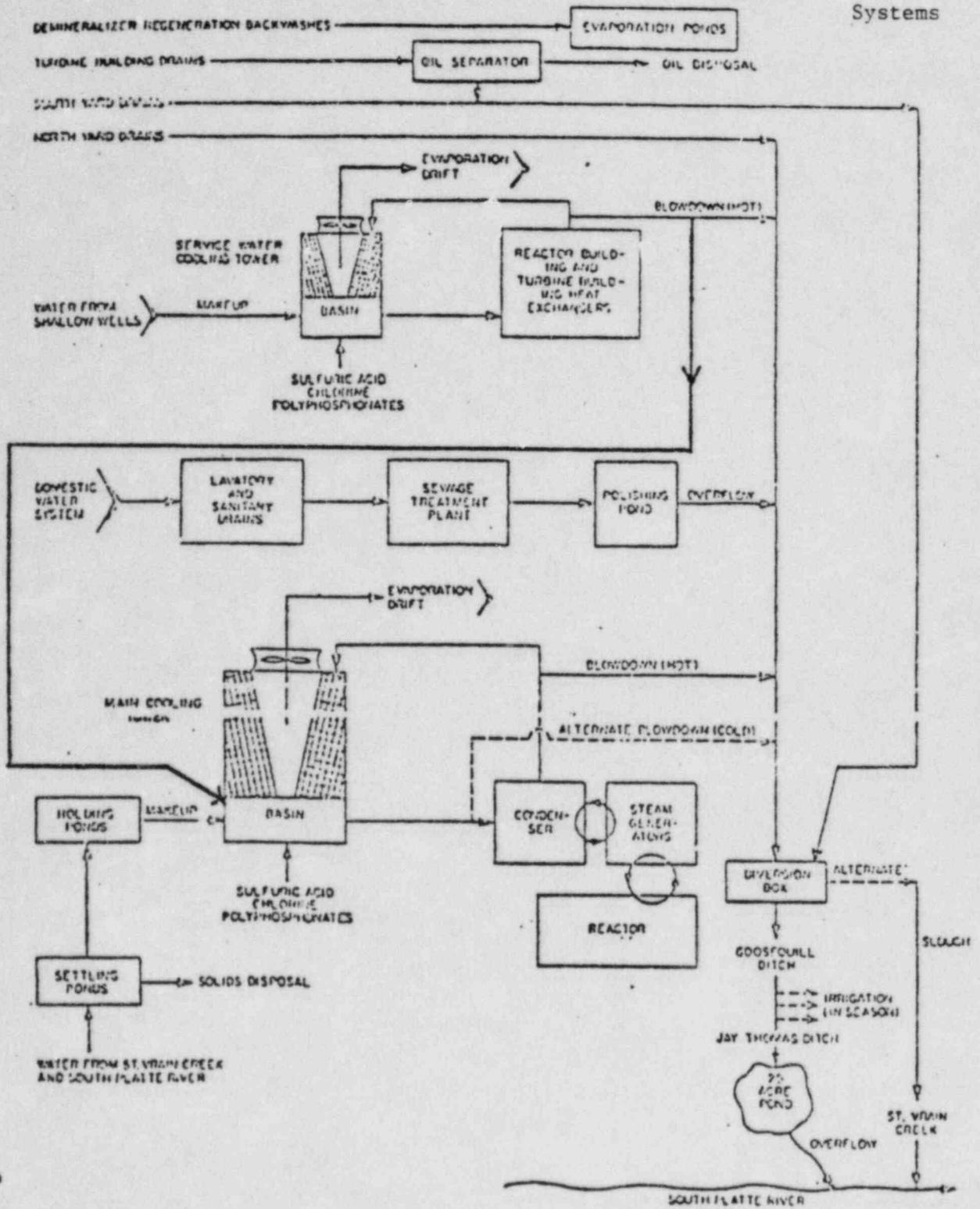


FIGURE 1
Facility and Discharge Point Locations

<p><u>FT ST VRAIN NUCLEAR GENERATING STATION</u> <u>DISCHARGE POINTS (DP)</u></p> <p>FOR DATA ON DISCHARGE POINTS SEE TABLE 1</p>	<p>LEGEND</p> <p>● DISCHARGE POINT</p> <p>★ PUMP & INTAKE STRUCTURE</p> <p>PAGE 1 OF 3</p>
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STATION'S NONRADIOACTIVE LIQUID WASTE SYSTEM

Figure 2

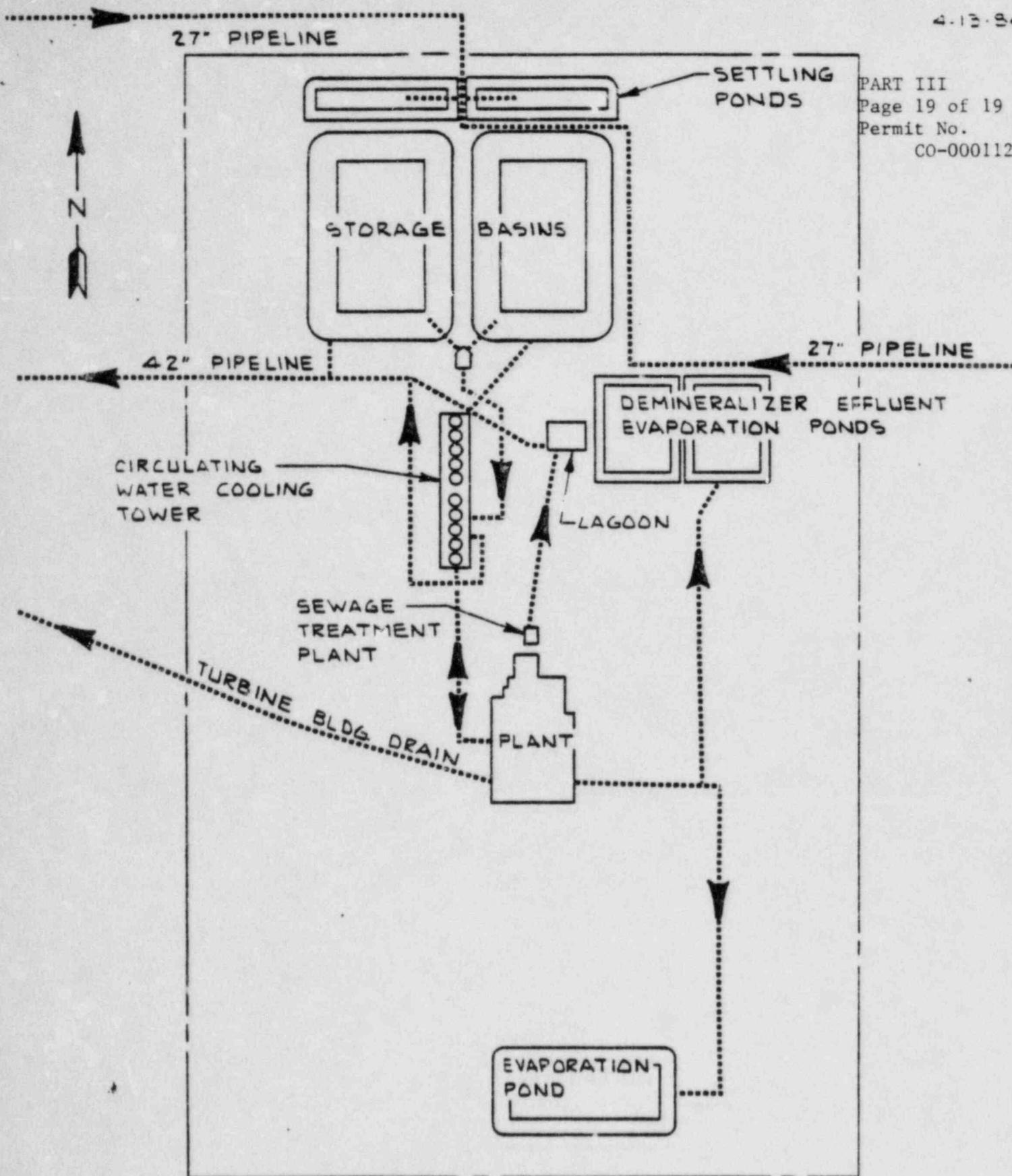


FIGURE 3
Plant Facilities and Discharge Points
FT ST VRAIN NUCLEAR
GENERATING STATION
DISCHARGE POINTS

COLORADO DEPARTMENT OF HEALTH
Water Quality Control Division
4210 East 11th Avenue
Denver, Colorado 80220

RATIONALE
PUBLIC SERVICE COMPANY OF COLORADO
FT. ST. VRAIN POWER PLANT
PERMIT NUMBER: CO-0001121
WELD COUNTY

FACILITY TYPE: Industrial - Renewal

SIC NO.: 4911

LOCATION: In Sections 34 and 35, T4N, R67W and Sec. 3, T3N,
R67W, 6th Principal Meridian

LEGAL CONTACT: O. R. Lee
Vice President, Electric Production
P. O. Box 840
Denver, CO 80201
(303)+571-7580

LOCAL CONTACT: Don Warembourg
P. O. Box 361
Platteville, CO 80651
(303)+758-2253

RECEIVING WATERS: 001A + B, and 003 - South Platte River
002 and 004 - St. Vrain Creek

SUB-BASIN, SEGMENT: South Platte River Basin - Segment 1

CLASSIFICATION: South Platte, Segment 1:
Recreational, Class 2
Aquatic Life, Class 2, (Warm)
Agricultural Use

St. Vrain, Segment 3:
Recreational, Class 2
Aquatic Life, Class 1 (Warm)
Agricultural Use

Q7-10 (Stream low-flow): South Platte = 20.1 cfs
St. Vrain = 35 cfs

DESIGN FLOW: Actual System capacity at maximum output = 4.5
MGD, see FACILITY DESCRIPTION for details.

The actual maximum flow is estimated to be 3.5 mgd.

FACILITY DESCRIPTION:

A.) General Description

The facility is a nuclear powered steam electric generating facility located near Platteville, Colorado. Figure 1, page 17 of the permit shows the facility location.

The plant is designed to generate 343 megawatts of electricity (total nameplate capacity). The facility has operated at approximately 50% of capacity for the last year (with some periods of complete shutdown).

This facility is unique in that the reactor is gas rather than liquid cooled; the facility has a high temperature, gas-cooled reactor (HTGR). The gas, helium, is the medium in primary contact with the fuel source. The helium heats water through non-contact tubing and the resulting steam drives the turbines, is condensed and returned to the reactor. The cooling water used in condensing steam from the turbines is non-contact and is cooled itself via mechanical draft cooling towers before return to condensers. The primary discharge stream from the facility is this cooling tower blowdown.

B.) Water Systems

Figure 2, page 18 of this permit shows the facility's liquid waste system. The following water systems summary includes a discussion from the Summary of Rationale of the previous permit¹ and additional information provided by a site visit and the renewal application.

1.) Demineralizer Regeneration Backwashes (Non-discharging System)

The condenser/feedwater system is a closed loop demineralized system providing feedwater to the primary coolant system (i.e. the loop on Figure 2 between the reactor and the steam generators). The demineralizer regeneration backwash is discharged to evaporation ponds lined with 30 mil PVC. These evaporation ponds, along with the layout of the rest of the plant facilities, are shown on Figure 3, page 19 of the permit; the evaporation ponds are to the north of the plant itself and to the east of the main cooling towers.

2.) Turbine Building Drains

Wastes from the turbine building sump are pretreated by an oil separator; the effluent from the separator is conveyed to the diversion box, where it is discharged with the main cooling tower blowdown. The oil is disposed of as solid waste. The turbine building effluent derives from the miscellaneous drains within the turbine building. Total discharge from this building averages 72 gpm (100,000 gpd).

¹Paul E. Williamson, March 16, 1978

FACILITY DESCRIPTION:

B.) Water Systems

3.) Service Water Cooling Tower Blowdown

The service water system serves to provide cooling for various individual pieces of equipment and/or closed cooling systems within the reactor or turbine generator supporting systems. The service water makeup is domestic drinking water; the shallow well system is used as backup. Presently, the service water cooling tower blowdown is discharged to the main cooling tower system. The blowdown can be routed to the north yard drain and discharged with the circulating water system blowdown to the South Platte River (001) or through the alternate (002) to the St. Vrain Creek. Flow rate of the service water tower discharge averages 400,000 gpd.

4.) Domestic Wastewater Treatment System

Approximately 175 persons contribute to the domestic wastewater treatment system. Effluent flows estimated at 3,000 gpd are treated in an aerated lagoon system. The overflow from the lagoon is mixed with the north yard drain. Domestic wastewater constitutes less than 1% of the total effluent flow volume. Water supply for domestic purposes is the Central Weld County Water District.

5.) Main Cooling Tower Blowdown

The circulating water system provides coolant to the main condenser for use in condensing steam from plant sources, and transfers the heat to the atmosphere by means of a cooling tower. The system also serves as a water reservoir for the fire protection system and is a backup to the service water system. Makeup is normally the South Platte River and/or the St. Vrain River. Shallow wells are used as a backup makeup source. Blowdown is routed to the north yard drain which discharges to the South Platte River (001) or to the alternate St. Vrain Creek (002). Flow rate for the circulating water blowdown averages at full load 1.5 (This includes Service Water cooling tower blowdown). The major effluent is from the main cooling tower blowdown, which is discharged after about 2 1/2 to 5 cycles to the diversion box and through 001 or 002. Sources of this water are the South Platte River and the St. Vrain Creek.

FACILITY DESCRIPTION:

B.) Water Systems

6.) Reactor Building Sump

Contents of the reactor building sump are normally filtered, monitored, and discharged at a restricted flow of 10 gpm. The filters are capable of removing potentially radioactive particulate matter from the effluent. This effluent passes to the liquid waste disposal line through an oil separator and out to the cooling tower blowdown. Batch discharges from the reactor building sump may be made at a flow rate of 50 gpm. The water source for the reactor building sump is miscellaneous drains within the reactor building. Normal discharge from this sump averages 10 gpm (less than 15,000 gpd due to intermittent use).

This intermittent effluent is monitored for any radioactive materials prior to discharge; the discharge of any radioactive materials, including liquid wastes, is regulated by the Nuclear Regulatory Commission. Liquid effluent reports required by the Nuclear Regulatory Commission will be submitted as a part of the NPDES report. A summary of the radiological data submitted with the permit application has been included as Appendix A to this rationale.

7.) Water Sources to the facility

The water sources to the facility are summarized below:

1. South Platte River and St. Vrain Creek: 3,000 gpm (4.3 MGD) average estimated at full plant load; supplies the main cooling system. (Discharge points 003 and 004 are for cleaning the trash screens at these intake structures for the South Platte River and St. Vrain Creek respectively.)
2. Six (6) shallow wells, 40 to 120 foot depth, total rated capacity of 8,000 gpm; average pumping rate of 200 gpm (0.3 MGD). Supplies the service water system; flows can be diverted to the main cooling system if required.
3. Domestic source is from the Central Weld Water District, estimated at 100,000 gpd.

FACILITY DESCRIPTION:

C.) Discharge Points

The following table summarizes the discharge points, their sources, average flows when operating and the receiving streams.

<u>Discharge Point</u>	<u>Source</u>	<u>Average Flow when operating</u>	<u>Receiving Stream</u>
001A	Main Cooling Tower Blowdown-via N. yard drain	1.1 mgd	(farm pond overflow to) South Platte
	Service Water Cooling Tower Blowdown-via N. yard drain	0.5 mgd	South Platte
	Domestic Wastewater via N. yard drain	0.003 mgd	South Platte
	Turbine Building Sump-via S. yard drain	0.100 mgd	South Platte
	Reactor Building Sump-via S. yard drain	0.015 mgd	South Platte
	Bypass water-via N. yard drain	1.7 mgd	South Platte
	001B	same sources as for 001A	
002	alternate discharge for 001 during ditch maintenance (does not contain Jay Thomas ditch water)		St. Vrain Creek
003	discharge from trash screens at South Platte River intake	no flow Data available	South Platte
004	discharge from trash screens at St. Vrain Creek intake	no flow data available	St. Vrain Creek
005	discharge from St. Vrain Creek settling pond	no flow data available	St. Vrain Creek

Total flow = 3.318 mgd
 Estimated maximum flow = 3.5 mgd
 (Actual capacity of system at full power = 4 to 4.5 mgd)

The flow of 001B or 002, whichever is the discharge point, is diluted by raw water by a flow of 1.7 mgd at a minimum. This is a requirement of the Nuclear Regulatory Commission (NRC) during liquid waste releases.

Public Service leases land adjoining the plant site to farmers for agricultural purposes. Plant discharge may be intermingled with water in the Goosequill Ditch, Beeman Ditch and Jay Thomas Ditch during irrigation periods.

MONITORING SUMMARY AND OPERATING HISTORY:

A.) Operating History

The facility has had a few violations of their permit limits for TSS, pH, and some metals (iron, zinc) in the last three years. TSS violations have usually occurred in the spring or summer when precipitation increases the suspended solids levels in the intake water. As a result of these violations Public Service Company has requested that they be allowed to meet net limitations in this permit. Net limitations based on process water (cooling and low volume wastewaters) concentration minus the concentration of TSS in the raw water after sedimentation, have been included in this permit. See DISCUSSION, Part E. of this rationale.

On 3 occasions waste acid from the condensate polisher regeneration system has entered a discharge point rather than being diverted to the neutralization sump. (The source of this problem has been traced to conductivity recorder and valving failure in the automatic mode. This problem was eliminated by the installation of an interlock system in April, 1983). These system breakdowns resulted in pH violations and the acidic conditions probably caused dissolution of cooling tower scale, resulting in metals violations.

B.) State Sampling Data

Appendix B summarizes state sampling data since 1979.

C.) Self-Monitoring Reports

Appendix C summarizes self-monitoring data for discharge points 001 and 002 and intake data since 1979. Radiological data has been included as Appendix A.

APPLICABLE RULES AND REGULATIONS:

A.) Federal

This facility is subject to Effluent Regulations for Steam Electric Power Generating Point Source Category, which were published in final form on November 19, 1982, 40 CFR Part 423.12 (BPT) and 423.13 (BAT).

BPT for all subcategories includes the following provisions:

- (1) The pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0.
- (2) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

APPLICABLE RULES AND REGULATIONS: (Continued)

A.) Federal (Continued)

- (3) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the State that the units in a particular location cannot operate at or below this level of chlorination.

There are two regulated categories of waste streams at the facility: (1) low volume waste sources and (2) cooling tower blowdown. Following is a discussion of these effluent streams and the applicable federal limitations for each:

1.) Low Volume Waste Source

Low volume waste sources are defined as:

"wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems."

At this facility low volume waste sources would include turbine building drains, and reactor building drains. See previous discussion, items B.) 2.) and 6.) under facility description, in this SOR. These streams constitute an average flow of 115,000 gpd.

The effluent limitations applicable to low volume waste sources are as follows:

<u>BPT/BAT</u>	<u>BPT effluent limitations</u>	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS	100.0	30.0
Oil and Grease	20.0	15.0

APPLICABLE RULES AND REGULATIONS:

2.) Cooling Tower Blowdown

Cooling tower blowdown includes blowdown from both the service water cooling tower and the main cooling tower. The maximum total blowdown at full operating capacity is estimated to be 1.5 mgd.

The effluent limitations applicable to cooling tower blowdown are as follows:

The quantity of pollutants discharged from cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed in the following table:

Effluent characteristic	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine	0.5	0.2
Effluent characteristic	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed-- (mg/l)
Zinc	1.0	1.0
Chromium	0.2	0.2
Phosphorus	5.0	5.0
Other corrosion inhibiting materials	(¹)	(¹)

¹Limit to be established on a case by case basis.

APPLICABLE RULES AND REGULATIONS:

A.) Federal (Continued)

3.) Domestic Wastewater

Domestic wastewater constitutes less than 1/10 of 1% of the total effluent discharge. In order to establish that secondary standards for sewage treatment plants (Regulations for Effluent Limitation, 10,1.0) are being met, this effluent stream must be monitored before it is combined with any other effluent streams.

B.) State

State Effluent Standards (SES, 10.1.4) apply to all discharges at this facility. In this case, State Effluent Standards will limit oil and grease to 10 mg/l and no visible sheen.

In addition to State Effluent Standards, the water quality standards for the receiving streams (3.8.6) also apply. The following dissolved oxygen, pH and fecal coliform limitations apply to both the South Platte River and St. Vrain Creek and to their tributaries at this facility's discharge points:

D.O. = 5.0 mg/l
pH = 6.5-9.0
Fecal Coliforms = 2000/100 ml

In addition the Water Quality Standards (WQS) for Segment 3 of St. Vrain Creek are as follows: (mg/l)

NH₃ = 0.06*, unionized
Residual Cl₂ = 0.003
Cyanide (free) = .005
S as H₂S = 0.002 undis.
Boron = 0.75
Nitrite (NO₂) = 0.5*
Arsenic (As) = 0.05
Cadmium (Cd) = 0.001
Chromium (tri) = 0.05
Chromium (hex) = 0.025
Copper (Cu) = 0.015
Lead (Pb) = 0.05

Mercury (Hg) = .00005
Nickel (Ni) = 0.2
Selenium (Se) = 0.02
Silver (Ag) = 0.00015
Zinc (Zn) = 0.1
Iron (Fe, tot) = 3.0
Manganese (Mn, tot) = 1.0

APPLICABLE RULES AND REGULATIONS:

B.) State (Continued)

The WQS for Segment 1 of the South Platte River are as follows: (mg/l)

<u>NH₃</u> = 0.10*, unionized	<u>Mercury</u> (Hg) = .00005
<u>Residual Cl₂</u> = 0.003	<u>Nickel</u> (Ni) = 0.1
<u>Cyanide</u> (free) = .005	<u>Selenium</u> (Se) = 0.02
<u>S as H₂S</u> = 0.002 undis.	<u>Silver</u> (Ag) = 0.0001
<u>Boron</u> = 0.75	<u>Zinc</u> (Zn) = 0.14
<u>Nitrite</u> (NO ₂) = 0.5*	<u>Iron</u> (Fe, tot) = 1.25
<u>Arsenic</u> (As) = 0.05	<u>Manganese</u> (Mn, tot) = 1.0
<u>Cadmium</u> (Cd) = 0.001	
<u>Chromium</u> (tri) = 0.05	
<u>Chromium</u> (hex) = 0.025	
<u>Copper</u> (Cu) = 0.025	
<u>Lead</u> (Pb) = 0.025	

NH₃, NO₂, assuming that numeric standards can be achieved through good secondary treatment. See stream standards for complete text.

The Planning and Standards section of the Water Quality Control Division estimate the annual Q7-10 low flows of the receiving streams to be as follows:

St. Vrain Creek	35 cfs (22.6 mgd)
South Platte River	20.1 cfs (13 mgd)

These stream flows are used in a mass balance calculation with background concentrations and stream standards for the receiving streams to determine the allowable concentration of each constituent in the effluent stream.

APPLICABLE RULES AND REGULATIONS:

B.) State (Continued)

Following is a sample calculation for zinc, being discharged to St. Vrain Creek:

$$Q_s C_s = Q_d C_d + Q_b C_b$$

Where,

C_d = concentration in discharge, unknown

Q_d = discharge flow = 3.5 mgd

C_b = background concentration in stream, assumed to be zero in this case

Q_b = stream flow = 35 cfs

C_s = allowable stream concentration
 = stream standard = 0.1 mg/l

Q_s = downstream flow
 = $Q_d + Q_b = 35 \text{ mgd} + 22.6 \text{ mgd}$
 = 26.1 mgd

$$C_d = \frac{C_s Q_s - C_b Q_b}{Q_d} = 0.1 \text{ mg/l} \frac{(26.1 \text{ mgd})}{(3.5 \text{ mgd})}$$

$$= 0.1 \text{ mg/l} (7.46)$$

$$= 0.75 \text{ mg/l}$$

Thus the allowable concentration of zinc in the effluent stream when being discharged to St. Vrain Creek is 0.75 mg/l.

A summary of the allowable levels of water quality limited parameters for the two discharge points are as follows: (the dilution ratio for discharge to the South Platte is 4.71).

<u>Parameter</u>	<u>St. Vrain</u>	<u>South Platte</u>
NH ₃ , unionized	0.45 mg/l	0.47 mg/l
Residual Cl ₂	0.022 mg/l	0.014 mg/l
Free CN	0.037 mg/l	0.024 mg/l
S as H ₂ S, undissociated	0.015 mg/l	0.009 mg/l
Boron	5.6 mg/l	3.53 mg/l

APPLICABLE RULES AND REGULATIONS:

B.) State (Continued)

<u>Parameter</u>	<u>St. Vrain</u>	<u>South Platte</u>
Nitrite (NO ₂)	3.73 mg/l	2.36 mg/l
Arsenic	0.373 mg/l	0.236 mg/l
Cadmium	0.0075 mg/l	0.0047 mg/l
Chromium (tri)	0.373 mg/l	0.236 mg/l
Chromium (hex)	0.187 mg/l	0.118 mg/l
Copper	0.112 mg/l	0.118 mg/l
Lead	0.373 mg/l	0.118 mg/l
Mercury	0.0004 mg/l	0.00024 mg/l
Nickel	1.492 mg/l	0.471 mg/l
Selenium	0.149 mg/l	0.094 mg/l
Silver	0.001 mg/l	0.0005 mg/l
Zinc	0.746 mg/l	0.66 mg/l
Total Iron	22.38 mg/l	5.89 mg/l
Total Manganese	7.46 mg/l	4.71 mg/l

EFFLUENT LIMITATIONS, RATIONALE AND MONITORING FREQUENCIES:

The following table summarizes effluent limitations, rationale and monitoring frequencies and locations:

A.) Discharge Point 001 - South Platte

<u>Parameter</u>	<u>Limitation</u>	<u>Rationale</u>	<u>Monitoring Frequency</u>	<u>Monitoring Location</u>
Flow	N/A	Monitor	Weekly	001B
Residual Chlorine*	0.014 mg/l (daily max)	Stream Standard	Weekly at 001A	001A
Zinc	0.66/1.0 mg/l	Stream Standards/ BAT for cooling tower blowdown	Monthly	001B
Ammonia Nitrogen (net)	N/A	Monitor only	Monthly	001B
Total Suspended Solids	30/45/100 mg/l	State Effluent Std./BPT for low volume wastes	Weekly	**
Oil and grease	10 mg/l, no sheen	State Effluent Standard	Weekly	**
Phosphorus, Total (net)	N/A	Monitor	Monthly	001B
Temperature	30°C (86°F)	Stream Std.	Weekly at 001A	001A
Cu				001B
Fe				001B
Cr				001B
126 P.P.				001B
pH				**

*Because the present detection level for chlorine is 0.05 mg/l, TRC levels reported ≤ 0.05 mg/l will be considered in compliance until such detection level is lowered.

**At (1) turbine and reactor building drains and at (2) the sewage treatment plant outfall, and before co-mingling with any other effluent streams

EFFLUENT LIMITATIONS, RATIONALE AND MONITORING FREQUENCIES:

A.) Discharge Point 001 - South Platte

<u>Parameter</u>	<u>Limitation</u>	<u>Rationale</u>	<u>Monitoring Frequency</u>
Total Copper	0.118 mg/l	Stream Standard	Monthly
Total Iron	1.0/1.0 mg/l	BPT/BAT for metal cleaning wastes	Monthly
Total Chromium	0.2/0.2 mg/l	BAT-cooling tower blowdown	Monthly
126 Priority Pollutants, except Total Chromium and Total Zinc	No detectable amount	BAT	Annually
pH	6.5-9.0	Stream Standard	Weekly

B.) Discharge Point 002 - St. Vrain Creek

<u>Parameter</u>	<u>Limitation</u>	<u>Rationale</u>	<u>Monitoring Frequency</u>	<u>Monitoring Frequency</u>
Flow	N/A	Monitor	Weekly	002
Residual Chlorine	0.022 mg/l (daily maximum)	Stream Standard	Weekly	002
Zinc	0.75/1.0 mg/l	Stream Standard/ BAT	Monthly	002
Ammonia nitrogen, net	N/A	Monitor	Monthly	002
Total Suspended Solids	30/45/100 mg/l Std./BPT	State Effluent	Weekly	**
Oil and grease	10 mg/l, no sheen	State Effluent Standard	Weekly	**
Phosphorus, Total (net)	N/A	Monitor	Monthly	002
Temperature	30°C(86°F)	Stream Standard	Weekly	002
Total Copper	0.112	Stream Standard	Monthly	002
Total Iron	1.0/1.0 mg/l	BPT/BAT for metal cleaning wastes	Monthly	002
Total Chromium	0.2/0.2 mg/l	BAT-cooling tower blowdown	Monthly	002
126 Priority Pollutants, except Total Chromium and Total Zinc	No detectable amount	BAT	Annually	002
pH	6.5-9.0	Stream Standard	Weekly	**

**At (1) turbine and reactor building drains and at (2) the sewage treatment plant outfall and before co-mingling with any other effluent streams

EFFLUENT LIMITATIONS, RATIONALE AND MONITORING FREQUENCIES:

C.) Discharge Points 003 and 004

Discharge points 003 and 004 are limited to South Platte River water and St. Vrain Creek water respectively and are for the purpose of cleaning the trash screens only.

D.) Discharge Point 005

Discharge point 005 is a continuous discharge of water from the settling basin sluice way. Water will be sluiced continuously via an eighteen inch square -bottom slide gate off of the intake from St. Vrain Creek. Sluicing will be shut off only "during dredging operations, repairs on the gate valve and pump and when the intake is closed off."

E.) All Discharge Points

In addition to the previous limitations, the following limitations apply to all discharge points:

- (a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.
- (b) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the State that the units in a particular location cannot operate at or below this level of chlorination.

DISCUSSION:

A.) Chlorine

BPT for cooling tower blowdown is 0.2/0.5 mg/l free available chlorine. There are no technology based limitations on chlorine for low volume wastes. Because cooling water constitutes the bulk of the process water effluent stream, a mass balance shows that the technology based standards translate directly into effluent standards for the entire process water effluent stream: 0.5 mg/l as a daily maximum, and 0.2 mg/l as an average concentration for free available chlorine.

The following calculations on stream standards for both receiving streams show that the cooling tower blowdown can't exceed 0.03 mg/l residual chlorine and still meet the Water Quality Standard at the South Platte or exceed 0.05 mg/l and meet the standard at St. Vrain Creek:

$$Q_S C_S = Q_d C_d + Q_b C_b$$

Where,

- Q_S = stream low flow and raw water flow + discharge flow
- C_S = allowable instream concentration = 0.003 mg/l
- Q_d = discharge flow (excluding raw water)

DISCUSSION:

A.) Chlorine

- C_d = discharge concentration (excluding raw water)
 Q_b = background stream flow = Q_{7-10} + raw water flow
 C_b = background concentration, in this case assumed to be zero

$$C_d = \frac{Q_s C_s - Q_b C_b}{Q_d}$$

South Platte River as receiving stream

$$C_d = \frac{(13 \text{ MGD} + 3.5 \text{ MGD}) 0.003 \text{ mg/l}}{1.5 \text{ MGD}}$$

= 0.03 mg/l residual chlorine

St. Vrain Creek as receiving stream

$$C_d = \frac{(22.6 \text{ MGD} + 3.5 \text{ MGD}) 0.003 \text{ mg/l}}{1.5 \text{ MGD}}$$

= 0.05 mg/l residual chlorine

Because total residual chlorine reflects free residual chlorine and combined residual chlorine, it will limit the free available chlorine levels to below BPT. Therefore there is no need to impose the technology based standard at a point before mixing with the raw water; Water Quality standards dictate effluent limitations for chlorine.

When discharge point 001A and 002 are used, the discharge includes raw water flow. Thus the numeric effluent limitation must be adjusted so that the allowable discharge concentration reflects the total discharge volume, rather than just process water effluent:

- C_d = total concentration at monitoring point (includes raw water)
 Q_d = total flow at monitoring point (includes raw water)

$$C_d = \frac{Q_s C_s - Q_b C_b}{Q_d}$$

South Platte - 001A

$$= \frac{(13 \text{ MGD} + 3.5 \text{ MGD}) 0.003 \text{ mg/l}}{3.5 \text{ MGD}}$$

= 0.0141 mg/l

DISCUSSION:

A.) Chlorine

St. Vrain - 002

$$= \frac{(22.6 \text{ MGD} + 3.5 \text{ MGD}) 0.003 \text{ mg/l}}{(3.5 \text{ MGD})}$$

$$= 0.0224 \text{ mg/l}$$

B.) Phosphorus

Because phosphates may be used in the plant, monitoring for phosphorus remains as a condition of this permit.

C.) Zinc

Stream standards for zinc dictate 30-day average levels; BAT levels for cooling tower blowdown are more restrictive as daily maximums, hence BAT levels dictate daily maximum levels.

D.) Ammonia

Ammonia levels are not limited in this permit. Ammonia levels are relatively high in the intake water and data indicates that the facility reduces ammonia nitrogen levels. Monitoring for ammonia nitrogen will still be required.

E.) Total Suspended Solids

State Effluent Standards (10.1.4) for TSS are 30 mg/l as a 30 day average and 45 mg/l as a 7-day average. These standards apply to all discharges except storm runoff waters and agricultural return flows. BPT effluent limitations for TSS for low volume waste are 30.0/100.0 mg/l as 30 day average and daily maximums, respectively. The above standards will be applied to the process waste streams. Dilution to meet technology based effluent limitations is not allowed. The permittee combines process wastewater with about an equal volume of dilution water before the monitoring and discharge point. Therefore, in order to use net limitations for TSS the permittee must monitor process water and meet net TSS effluent limitations before mixing with dilution water and monitor the sedimentation pond effluent before use in the process so that compliance with net effluent limitations can be determined. The TSS level of the intake (after sedimentation), the process water effluent stream (before mixing with dilution water) and the net TSS values shall be reported.

DISCUSSION:

F.) Oil and Grease

BPT for low volume wastes is 15.0/20.0 mg/l. Since low volume wastes make up such a small percentage of wastewater flow, the state effluent standard of 10 mg/l applicable to the cooling tower effluent stream dictates.

G.) Temperature

The temperature limitation is based on protection of warm water aquatic life in the receiving streams.

H.) Total Iron and Total Copper

Total iron and total copper are limited by BPT and BAT for metal cleaning wastes. Although the plant does not discharge chemical metal cleaning wastes per se, the facility has had unintentional discharges of high metal concentrations due to acid spills from the condensate demineralization circuit. This acid probably solubilized system metals and resulted in higher than normal metals concentrations being discharged. (Ion exchange regenerant wastewaters which contained the acid should have been routed to the evaporation pond.) The net effect of the system breakdown was the discharge of waters similar in content to those of metal cleaning waste streams.

In the case of total copper, stream standards are more restrictive than BPT/BAT and are therefore applied. If no further problems with the condensate regeneration system or high metal levels occur within the next two years the permittee may wish to request a review of the applicability of these effluent limitations.

I.) Total Chromium, 126 Priority Pollutants

Total chromium and the 126 priority pollutants effluent limitations are dictated directly by BAT effluent limitations for cooling tower blowdown.

J.) pH

pH levels are dictated by stream standards.

K.) Biocides

A review of available information on the biocides that the permittee proposes to use indicates that the following additives (among others) are not known to be or contain priority pollutants:

Bromine Chloride
Cocodiamine

DISCUSSION:

K.) Biocides (Cont'd.)

Glycols to Hexylene Glycol
Dodecyl guanidine acetate and hydrochloride
Isopropanol
n - alkylbenzyl - N-N-N-trimethyl ammonium chloride
Dodecyl dimethyl ammonium chloride
n - alkyl (60% C₁₄, 30% C₁₆, 5% C₁₂, 5% C₁₈) dimethyl benzyl
ammonium chloride
Dibromonitrilopropionamide

This does not preclude the possibility that some of these may degrade into priority pollutants or at a later date be determined to be priority pollutants. The permittee is required to monitor for the 126 priority pollutants on an annual basis and chromium and zinc on a monthly basis.

As an alternative to analyzing for the 126 toxic pollutants on a yearly basis the permittee may submit the following:

1. A list of the certified analytical contents of all biofouling and maintenance formulations used (manufacturer's certification as to contents and priority pollutant status); and
2. Engineering calculations demonstrating that any of the priority pollutants present in the maintenance chemicals would not be detectable in the cooling tower discharge using appropriate analytical methods. (These calculations must be based on the cooling tower discharge only and should not include dilution by any other effluent streams.)

If the Division's review of these submittals indicates compliance, the yearly analytical requirement may be waived provided the chemicals used and basis for calculations does not change during the life of the permit. The permittee is required to report any changes in additive used at the site and the permit may be reopened to address these new additives or to reflect new findings concerning what is or could degrade into a priority pollutant. Additional analysis and/or limitations may be required at that time.

L. Expiration Date

This permit will expire on December 31, 1989. .

Judy Bruch
June 11, 1983

APPENDIX A-1
 1982

	UNITS	JAN	FEB	MAR	QUARTERLY TOTAL	
1. Gross Beta Radioactivity						
a) Total Release	Curies	1.40E-05	1.04E-04	3.09E-05	1.49E-04	
b) Avg. Conc. before Dilution	μCi/ml	4.50E-07	1.22E-06	4.52E-07	8.19E-07*	
	Avg Conc. Released	μCi/ml				
c) after Dilution	above bkgd	2.35E-09	3.05E-09	1.39E-09	2.34E-09*	
2. Tritium						
a) Total Release	Curies	2.55E-02	6.73E-01	2.74E+01	9.48E+01	
b) Avg. Conc. before Dilution	μCi/ml	8.27E-04	7.52E-01	3.97E-01	5.04E-01*	
	Avg. Conc. Released	μCi/ml				
c) after Dilution	above bkgd	4.82E-06	1.59E-03	1.37E-03	1.26E-03*	
3. Dissolved Noble Gases						
a) Total Release	Curies	NSA	NSA	2.37E-07	2.37E-07	
b) Avg. Conc. before Dilution	μCi/ml	NSA	NSA	2.95E-08	2.95E-08	
	Avg. Conc. Released	μCi/ml				
c) after Dilution	above bkgd	NSA	NSA	9.69E-11	9.69E-11	
4. Gross Alpha Radioactivity						
a) Total Release	Curies	8.92E-07	1.85E-06	1.73E-06	4.47E-06	
5. Total Volume of Liquid Released before Dilution						
	Liters	3.08E+04	8.55E+04	6.84E+04	1.85E+05	
6. Total Volume of Liquid Used for Dilution						
	Liters	5.46E+06	3.96E+07	1.90E+07	6.41E+07	
7. Estimated Total Radioactivity Released by Radioisotope above Background						
Nuclide	MPCw (μCi/ml)	Curies				
3H	3E-03		2.55E-02	6.73E+01	2.74E+01	9.48E+01
137Cs	2E-05		1.15E-06	9.23E-07	3.44E-06	5.51E-06
134Cs	9E-06		5.99E-07	NSA	NSA	5.99E-07
60Co	5E-04		3.02E-07	NSA	NSA	3.02E-07
97Nb	9E-04		NSA	1.11E-05	NSA	1.11E-05
133Xe *	2E-04		NSA	NSA	2.37E-07	2.37E-07

*Represents a "weighted" average.

4.7E-05 = 4.7 x 10⁻⁵

5.2E+03 = 5.2 x 10⁺³

NSA means no significant activity.

APPENDIX A-2
 1982

	UNITS	APR	MAY	JUN	QUARTERLY TOTAL
1. Gross Beta Radioactivity					
a) Total Release	Curies	2.88E-05	2.13E-05	3.86E-05	8.86E-05
b) Avg. Conc. before Dilution	Ci/ml	2.86E-07	3.40E-07	3.50E-07*	8.19E-07*
	Avg. Conc. Released				
c) after Dilution	Ci/ml above bkgd	1.16E-09	9.10E-10	1.68E-09	1.30E-09*
2. Tritium					
a) Total Release	Curies	1.07E+01	3.56E+01	1.44E+01	6.07E+01
b) Avg. Conc. before Dilution	Ci/ml	1.09E-1	5.84E-01	1.59E-01	2.47E-01*
	Avg. Conc. Released				
c) after Dilution	Ci/ml above bkgd	4.28E-04	1.37E-03	7.62E-04	7.89E-04*
3. Dissolved Noble Gases					
a) Total Release	Curies	1.23E-04	1.23E-03	5.14E-04	1.86E-03
b) Avg. Conc. before Dilution	Ci/ml	1.51E-06	2.37E-05	5.81E-06	8.64E-06*
	Avg. Conc. Released				
c) after Dilution	Ci/ml above bkgd	7.95E-09	4.70E-08	2.68E-08	2.52E-08*
4. Gross Alpha Radioactivity					
a) Total Release	Curies	2.56E-06	1.38E-06	2.23E-06	6.18E-06
5. Total Volume of Liquid Released before Dilution					
	Liters	9.75E+04	6.29E+04	9.23E+04	2.53E+05
6. Total Volume of Liquid Used for Dilution					
	Liters	2.11E+07	2.28E+07	1.93E+07	6.32E+07
7. Estimated Total Radioactivity Released by Radioisotope above Background					
Nuclide	MPCw (uCi/ml)	Curies			
133Xe	200E-04	1.23E-04	1.23E-03	5.14E-04	1.86E-03
135Xe	200E-04	2.77E-07	NSA	5.75E-07	8.52E-07
3H	300E-03	1.07E+01	3.56E+01	1.44E+01	6.07E+01
110Ag(m)		NSA	1.02E-06	NSA	1.02E-06
133Xe(m)	200E-04	NSA	2.52E-06	NSA	2.52E-06

*Represents a "weighted" average.

$4.7E-05 = 4.7 \times 10^{-5}$

$5.2E+03 = 5.2 \times 10^3$

NSA means no significant activity.

APPENDIX A-3
 1982

	UNITS	JUL	AUG	SEP	QUARTERLY TOTAL
1. Gross Beta Radioactivity					
a) Total Release	Curies	1.18E-05	4.53E-06	4.61E-06	2.10E-05
b) Avg. Conc. before Dilution	mCi/ml	1.35E-07	8.56E-08	6.53E-08	9.89E-08*
	Ci/ml				
c) after Dilution	above bkgd	3.01E-10	1.27E-10	4.96E-11	1.72E-10*
2. Tritium					
a) Total Release	Curies	1.31E+01	2.98E-01	1.92E+02	1.34E+01
b) Avg. Conc. before Dilution	mCi/ml	1.53E-01	5.65E-03	2.68E-04	6.40E-02*
	Ci/ml				
c) after Dilution	above bkgd	4.32E-04	2.48E-05	1.13E-06	1.83E-04*
3. Dissolved Noble Gases					
a) Total Release	Curies	1.46E-04	6.58E-05	6.99E-07	2.12E-04
b) Avg. Conc. before Dilution	mCi/ml	1.69E-06	1.29E-06	9.14E-08	1.46E-06*
	Ci/ml				
c) after Dilution	above bkgd	5.67E-09	5.60E-09	3.57E-10	5.36E-09*
4. Gross Alpha Radioactivity					
a) Total Release	Curies	2.09E-06	9.63E-07	1.09E-06	4.14E-06
5. Total Volume of Liquid Released before Dilution					
	Liters	8.80E+04	5.32E+04	7.05E+04	2.12E+05
6. Total Volume of Liquid Used for Dilution					
	Liters	2.22E+07	1.23E+07	1.64E+07	5.08E+07
7. Estimated Total Radioactivity Released by Radioisotope above Background					
Nuclide	MPCw (uCi/ml)	Curies			
133Xe	2.0E-04		1.46E-04	6.58E-04	6.99E-07
					2.12E-04

*Represents a "weighted" average.

4.7E-05 = 4.7 x 10⁻⁵

5.2E+03 = 5.2 x 10⁺³

NSA means no significant activity.

APPENDIX B - STATE SAMPLING

Date	Discharge Point	Flow (MGD)	pH (s.u.)	D.O. (mg/l)	Residual Chlorine (mg/l)	Oil & Grease (mg/l) VISUAL	TSS (mg/l)	Iron (mg/l)	Tin (mg/l)	Zinc (mg/l)
11/10/82	001A	4.43	---	0.0	--	K10.0	--	---	---	---
	001B	2.64	8.29	9.6	--	K10.0	10.0	0.20	K0.20	0.025
11/10/82	INTAKE	---	---	---	--	--	--	0.220	K0.20	K0.010
7/7/82	001B	2.86	8.24	6.8	--	--	74	1.120	2.000	0.079
4/14/82	001A	---	---	---	0.0	--	--	---	---	---
	001B	2.34	8.42	8.5	--	--	36	0.580	K0.20	0.130
1/5/82	001A	---	7.97	11.8	0.45	--	--	---	---	---
	001B	0.52	---	---	--	--	26	0.450	K0.20	0.042
10/13/81	001A	3.52	--	---	0.0	K10.0	--	---	---	---
	001B	0.52	8.28	8.6	--	--	19	0.570	K0.20	0.043
7/9/81	001A	K6.86	--	---	0.0	K10.0	--	---	---	---
	001B	4.26	8.1	7.0	--	--	28	0.610	K0.20	0.120
4/28/81	001A	(estimated) 0.05	--	---	0.0	--	--	---	---	---
	001B	---	7.84	12.7	--	K10.0	34	0.450	K0.20	0.110
1/20/81	001A	---	7.7	10.3	0.0	K10	K10	---	---	0.730
9/23/80	001A	3.17	8.21	8.9	0.0	K10	22	0.42	K0.10	0.10
11/16/79	001A	2.0	7.7	12.8	--	K10	10	K0.10	K0.20	K0.02
11/16/79	001A	hexavalent chromium 0.1 mg/l, silver 0.02 mg/l								

K = Less Than

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APPENDIX C

COLORADO DEPARTMENT OF HEALTH
Water Quality Control Division
Rationale - Page 23
PERMIT NUMBER: CO-0001121.

Average/Maximum except for pH and temperatures, which are minimum/maximum

Parameter Date	Ammonia Nitrogen (mg/l)	Tot. Res. Chlorine (mg/l)	Flow (MGD)	Total Iron (mg/l)	Oil & Grease (mg/l)	pH (w.u.)	Total Phosphorus (mg/l)	Tot. Filt. Residue (mg/l)	Temp. (°F)	Tot Tin (mg/l)	Non-Filt. Residue (mg/l)	Total Zinc (mg/l)
1/1-4/1/79	3.95/4.20	0.00/0.00	2.77/ 5.47	0.353/ 0.584	27.75/ 231.90	7.36/ 8.80	10.44/ 15.40	1172/1893	34.0/ 50.0	0.0000/ 0.0000	14.48/ 25.00	0.905/ 2.450
7/1-10/1/79	0.44/0.44	0.00/0.00	2.26/ 3.41	0.283/ 1.480	7.72/ 18.3	6.69/ 8.63	1.17/ 2.86	630.5/ 783.0	67.0/ 85.0	--	26.23/ 52.00	0.142/ 0.550
10/1-1/1/80	2.86/5.20	0.00/0.00	2.61/ 3.38	0.281/ 0.485	9.05/ 23.5	7.35/ 8.07	2.24/ 3.18	754.0/ 782.0	45.0/ 62.0	--	13.19/ 22.8	0.053/ 0.115
1/1-4/1/80	7.07/13.10	0.00/0.00	3.20/ 5.50	0.224/ 0.460	4.36/ 8.66	7.32/ 8.24	3.19/ 6.70	861.5/ 975.0	33.0/ 44.0	0.010/ 0.012	9.59/ 18.8	0.084/ 0.183
4/1-6/30/80	1.37/2.00	0.0125/ 0.150	2.70/ 3.59	1.914/ 9.420	8.43 28.3	1.92/ 9.8	2.50/ 4.60	841.5/ 887.0	47.0/ 72.0	0.0995/ 0.1080	59.52/ 112.0	0.035/ 9.19
7/1-10/1/80	0.30/0.30	0.0125/	2.54/ 3.30	0.295/ 1.070	4.54 17.4	7.7/ 8.71	1.62/ 2.72	1112.0/ 1596.0	58.0/ 75.0	0.079/ 0.122	34.56/ 78.80	0.118/ 0.400
10/1-1/1/81	1.30/1.80	0.00/0.00	2.51/ 2.86	0.2313/ 0.6020	6.09/ 16.0	7.62/ 8.66	1.83/ 4.70	1323.0/ 1644.0	45.7/ 56.0	0.1360/ 0.1360	16.11/ 28.00	0.1336/ 0.520
1/1-4/1/81	3.87/6.80	0.00/0.00	2.86/ 4.55	0.2225/ 0.6080	4.12 10.2	7.30 8.36	3.38/ 7.81	1410.2/ 2052.5	34.0/ 54.0	0.0435/ 0.0720	21.28/ 54.0	0.2306/ 0.688
4/1-7/1/81	1.033/1.600	0.00/0.00	2.68/ 3.18	0.370/ 1.000	2.66/ 6.50	7.81/ 8.46	1.605/ 2.904	961.5 1376.0	59.2/ 77.0	0.00/ 0.00	29.75/ 81.4	0.129/ 0.413
7/1-10/1/81	0.563/1.090	0.00/0.00	2.95/ 4.12	0.566/ 0.994	2.40/ 12.8	7.81/ 8.40	1.11/ 2.24	1899.2/ 2199.0	60.0/ 80.0	0.00/ 0.00	36.18/ 65.0	0.203/ 0.685
10/1-12/31/81	3.669/6.50	0.00/0.00	3.02/ 3.39	0.2833/ 0.6140	3.88/ 9.50	7.79 8.46	2.040/ 2.92	1196.0/ 2061.0	37.0/ 57.0	0.00/ 0.00	14.86/ 29.5	0.1471/ 0.5920
1/1/-3/31/82	5.64/6.91	0.00/0.00	2.90/ 3.88	0.416/ 1.180	4.63/ 17.6	6.96/ 6.48	3.56/ 9.47	785.0 805.0	33.0/ 53.0	--	11.14/ 7.120	0.632/ 7.120
4/1-6/30/82	1.56/3.11	0.058/ 0.200	2.69/ 3.30	0.538/ 0.996	2.70/ 6.60	7.00/ 8.69	1.755/ 2.670	1427.3/ 1637.0	43.0/ 79.0	--	25.96/ 62.50	0.1226/ 0.3170
7/1-9/30/82	0.118/0.185	0.00/0.00	2.75/ 3.18	0.195/ 0.92	3.63/ 15.00	6.99/ 8.50	1.44/ 2.06	1568.33/ 1945.00	53.0/ 74.0	0.00/ 0.00	56.1/ 94.0	0.1395/ 0.323
10/1-12/31/82	1.31/2.50	0.00/0.00	2.92/ 3.30	0.2782/ 0.6110	4.40 12.04	7.95 8.44	1.1008/ 1.9600	894.3/ 975.0	38.0/ 53.0	0.050/ 0.050	12.25/ 26.00	0.0434/ 0.1050

2) Discharge Point 002

10/1/79-1/1/80	4.1/4.1	0.00/0.00	2.30/ 2.30	0.413/ 0.413	14.2/ 14.2	7.78/ 7.78	2.03 2.03	835.0/ 835.0	40.0/ 40.0	--	13.7 13.7	0.048/ 0.048
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APPENDIX C

Self-Monitoring Reports (Continued)
 3) Intake Date (after settling)

Date	Parameter	Ammonia Nitrogen (mg/l)	Non-Filt. Residue (mg/l)	Total Phosphorus (mg/l)	Tot. Filt. Residue (mg/l)	Total Iron (mg/l)	Tot Tin (mg/l)
1/1-4/79		8.5/ 12.0	8.00/ 16.40	3.23/ 6.40	--	--	--
7/1-10/1/79		0.563/ 0.890	23.73/ 55.60	0.872/ 1.490	565.1/ 726.0	0.276/ 0.650	
10/1-1/1/80		3.80/ 5.80	14.09/ 22.80	1.761/ 3/010	827.3/ 858.0	0.338/ 0.550	
1/1-4/1/80		7.10/ 9.90	17.66/ 116.00	2.55/ 3.61	781.2/ 789.6	0.272/ 0.466	0.0325/ 0.0540
41-630/80		0.1000/ 0.2000	35.49/ 76.40	0.753/ 1.953	437.5/ 715.6	1.047/ 3.240	0.120/ 0.122
7/1-10/1/80		0.4000/ 0.7000	29.1/ 63.2	0.8102/ 2.2350	649.7/ 773.2	0.2662/ 0.840	0.0735/ 0.1220
10/1-1/1/81		1.60/ 2.60	11.17/ 24.00	1.011/ 2.770	890/ 945	0.196/ 0.656	0.016/ 0.016
1/1-4/1/81		6.73/ 10.70	11.76/ 22.60	2.42/ 3.33	809/ 835	0.33/ 2.32	0.0345/ 0.0540
4/1-7/1/81		1.10/ 1.170	24.8/ 68.4	1.19/ 1.97	776/ 802	0.39/ 1.53	0.12/ 0.20
7/1-10/1/81		0.22/ 0.26	27.7/0 59.0	0.65/ 1.34	1104/ 1178	0.44/ 1.02	0.02/ 0.021
10/1-12/31/81		3.60/ 6.40	13.85/ 27.60	1.72/ 2.40	793/ 800	0.36/ 0.53	0.02/ 0.02
1/1-3/31/82		5.80/ 6.91	10.44/ 16.00	2.62/ 4.08	783/ 796	0.36/ 0.58	
4/1-6/30/82		1.70/ 3.73	21.2/ 36.5	0.98/ 2.17	935/ 1146	0.53/ 0.91	--
7/1-9/30/82		0.15/ 0.19	36.3/ 58.5	0.84/ 2.26	759/ 792	0.915/ 1.430	0.12/ 0.20
10/1-12/31/82		1.41/ 3.00	12.81/ 24.50	0.95/ 1.92	887/ 972	0.30/ 0.62	0.07/ 0.07