

Considered: _____

WATER PERMIT NO. 5596-3

Phone: 612-639-1234

Name of Applicant: Northern States Power Company

Post Office Address: 414 Nicollet Mall, Minneapolis MN 55401

Amount of Water Claimed: 1.18 cfs Total Acres: NA

Source of Water Supply: groundwater

Water to be used for: industrial County: Minnehaha

About _____ miles East of Sioux Falls

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F.& C/.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY Date Received: 10-2-91 Fee: \$225 350 Remarks See Permit

No. 561-3

Corrected Application Received 11-27-91 Period of Annual Use Jan 1 - Dec 31

WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point: SW 1/4 NW 1/4 Sec 32-T102N-R48W

Land to be Irrigated: _____

		Ø	32		

Well Log: Driller: Layne-Minnesota Co. Licensed YES _____ NO _____

Depth of Well: 222' REMARKS _____

Type of Map: plat PREPARED BY: E. W. Benson Reviewed and the Number

Assigned on 12-3-91 By Karen Schlaak

10170203

Mail to: Water Rights Div.

523 E. Capitol
Pierre, SD 57501
(605) 773-3352

No. 5596-3 Hydrologic Unit Split Rock Creek
 Map No. Basin Big Sioux
 Newspaper Argus Leader, PO Box 5034

Sioux Falls 57117-5034

Application for Permit To Appropriate Water Within The State Of South Dakota

Check use of water: Industrial ☒ Commercial ☐ Municipal ☐ Other Common Distribution System ☐
 Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
 Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

New ☐ Vested Right ☐ Future Use ☐ Change Use ☒☒ Amend Permit No. 561-3 with old priority date retainedChange diversion point(s) ☐ Add diversion point(s) ☐ Other ☐ ---☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. ---☐ Construction to use water reserved by Future Use Permit No. ---

(612) 520-4182

1. Name of Applicant Northern States Power Company Phone No. 612/639-1234Post Office Address 414 Nicollet Mall Minneapolis State MN 55401
(Street, RR or Box) (City) Zip Code2. Amount of water claimed (c.f.s.) 4-237 C.F.S. or 550 GPM 532 gpm 1.18 cfs3. Source of water supply Split Rock Creek aquifer4. Location of point of diversion 1130 feet east and 185 feet North of the W1/4 corner of Sec. 32
T102N, R48W (SW1/4 NW1/4)County Minnehaha5. Counties where water will be used Minnehaha6. Annual period during which water is to be used Throughout year January 1 - December 31

7. Give a brief description of proposed project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Northern States Power Company (NSP) proposes to construct a Combustion Turbine Generator (CTG) facility at NSP's existing Pathfinder Power Plant near Sioux Falls. The proposed facility will consist of up to four CTG units and required equipment to support the units. The new CTG facility is anticipated to operate during periods of high electrical demand. It is expected that the proposed units will operate for and between 100 and 800 hours per year each with an annual full load average of 300 hours. The average full load operation of the existing Pathfinder facility is 100 hours per year.

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction) A map has already been filed with the previous Application depicting STATE OF SOUTH DAKOTA) this well location (under Permit 561-3 County of Minnehaha)

I, James Alders the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed James Alders1st day of October 1991Sylvia M C Wilms
Notary Public

SYLVIA M. C. WILMS
 NOTARY PUBLIC—MINNESOTA
 HENNEPIN COUNTY
 My Commission Expires Dec. 20, 1993

**SOUTH DAKOTA
WATER PERMIT No. 5596-3**

Date of first receipt of application October 3, 1991.

Date of return to applicant for corrections, amendments or changes
October 8, 1991.

Date of receipt of corrected application November 25, 1991.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5596-3 to Northern States Power Company, 414 Nicollet Mall, Minneapolis MN 55401 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5596-3 appropriates an additional 1.18 cubic feet of water per second (cfs) from one well authorized by Water Right No. 561-3. Water Right No. 561-3 diverts 0.04 cfs from one well (Split Rock Creek Aquifer) 222 feet deep located in the SW 1/4 NW 1/4 Section 32-T102N-R48W.
2. The water appropriated shall be used for the purpose of supplying water at the power plant and may not exceed the amount of water needed for beneficial use for industrial purposes.
3. The water is to be used during the following described annual period: January 1 - December 31.
4. The date of approval of Permit No. 5596-3 is March 4, 1992.
5. The date from which applicant may claim right is October 3, 1991.
6. One-fifth of the construction is to be completed on or before September 4, 1994.
7. All construction is to be completed on or before March 4, 1997.
8. Water is to be put to beneficial use on or before March 4, 2001.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

WATER MANAGEMENT BOARD

By: _____

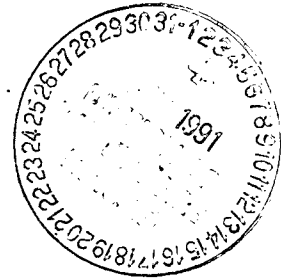
Chief Engineer, Water Rights Division
Department of Environment and Natural Resources

MAY 1 1992

_____ date

Supplemental Information

(type or print in ink)



1. Well Information - Proposed construction

- a) Drill Hole Diameter 25 inches Depth 222 feet
- b) Casing Type Standard Steel Diameter 12" Thickness 3/8"
- c) Screen Type Stainless Steel Diameter 12" Thickness unknown
- d) Gravel Pack Thickness 12" Length of Gravel Pack 60'
- e) Depth to Top of Water Bearing Material unknown
- f) Depth to Water (ground surface to water level) 60'
- g) Distance to nearest existing domestic well:

On applicants property 1,670' NW On property owned by others 2,500' East
 (this well is used for domestic purposes at the plant only)

2. Dugout Information Estimates Not Applicable

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

3. Water Storage Dams Not Applicable

If the proposed water use system contains one or more storage dams, please furnish the information requested below. The locations of each dam should be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam please give their name and address

_____ b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____
 If Pipe, diameter _____

f) Secondary Spillway Capacity _____
 Spillway width _____

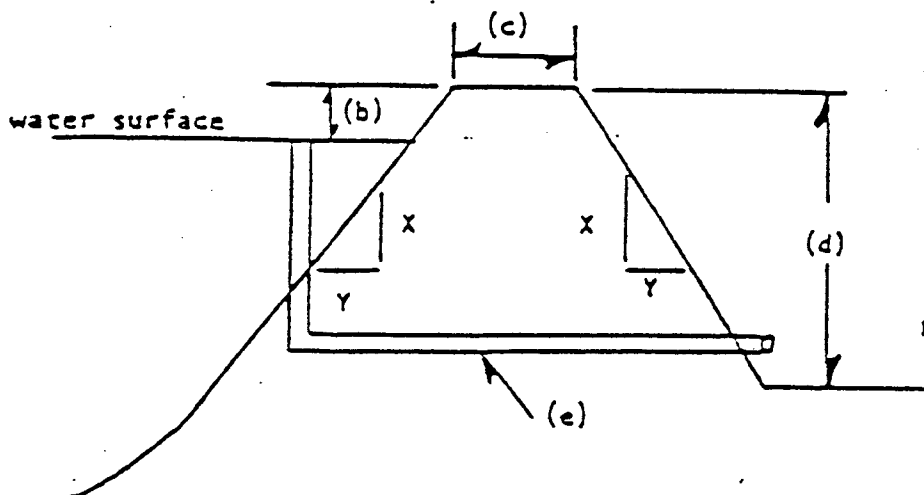
g) X & Y Slope
 Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____



Signature of Applicant _____

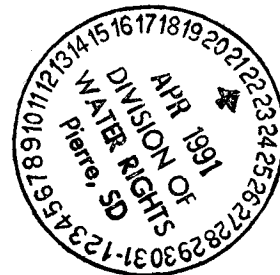


Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500

April 18, 1991

Mr John Hatch
South Dakota Department of Water & Natural Resources
Division of Water Rights
Joe Foss Building
Pierre, South Dakota 57501



CTG PERMIT APPLICATION ISSUES
NSP Pathfinder Site
Sioux Falls, South Dakota

Dear Mr Hatch:

The attached list of permit application issues pertains to a proposed Combustion Turbine Generator (CTG) project to be built at the existing Northern States Power (NSP) Pathfinder Site near Sioux Falls, South Dakota. Dames & Moore, on behalf of NSP, is preparing permit application documents for this project.

As recently discussed by telephone, we have proposed that a meeting be held in Pierre to discuss the issues that have been raised. We believe that it is in the best interest of all parties to address these questions together. A meeting has been scheduled for April 24 at 12:30 pm to be held at the Joe Foss Building, Conference Room 1, 3rd Floor. In preparation for our meeting, the attached list of issues is provided for your review. We have stated the NSP position or current understanding of each issue as a starting point for our discussion. Also attached for your convenience 1) a block diagram of the CTG water treatment system, 2) a copy of the existing NPDES Permit.

We look forward to receiving your input on this matter. Please contact Dave Pierce of NSP, (612) 330-6310 or myself at (612) 330-6082 if you have any questions or comments.

Very truly yours,

Chuck Donkers

Chuck Donkers
Senior Hydrologist

cc: David Pierce, NSP
Jim Alders, NSP
Angus Anson, NSP, SD

Larry Johnson, D&M
Robert Parker, D&M

PERMIT APPLICATION ISSUES

PROPOSED CTG PROJECT NSP PATHFINDER SITE

April 15, 1991

BACKGROUND

Based on current NSP forecasts, additional peaking capacity will be needed in the near future, perhaps as early as 1994. NSP proposes to construct a Combustion Turbine Generator (CTG) facility at the existing NSP Pathfinder site and is in the process of developing the facility permit application.

The two issues that we wish to discuss relate to water: (1) water appropriation and (2) waste water discharge. NSP is currently appropriating water from two on-site wells screened in the Split Rock Creek aquifer and discharging water to four existing disposal basins.

A summary of expected conditions during CTG operation is provided below.

- Maximum water withdrawal amount: 100,000,000 gal/yr
 - 60% generated as demineralized water for NO_x control
 - 40% demineralized waste water

- 1 cfs
- Maximum withdrawal rate: 450 gpm

- 306 ac-ft/annually
- Annualized withdrawal rate: 190 gpm

- Most probable operational period: June, July, August, September, and two winter months

WATER APPROPRIATION

1. Does a specific water source have to be defined now?

The earliest need for water appropriation is 1994. NSP prefers the Split Rock Creek aquifer because two existing on-site wells are completed in this aquifer and they are capable of providing water for the proposed project.

NSP realizes that the current multi-year Split Rock Creek aquifer study is still underway, and that a definitive answer about appropriation from this aquifer is dependent upon results that are still pending. However, NSP is faced with the dilemma of (1) planning to use its first choice for a water supply, with no assurance that an appropriation permit will be granted when needed, or (2) expending capital resources to identify and quantify alternative sources that may not be necessary.

Therefore, the question is raised: Does a specific source have to be identified now as part of a facility permit application, or can these details be deferred until the aquifer study has been completed.

- 5 years to complete construction and 4 years to place to beneficial use*
2 1/2 to complete 1/2 of construction - well already completed would constitute this
2. Specific questions regarding the Split Rock Creek aquifer:
- a. When will the aquifer study be completed?
 - b. Are the preliminary data available for review?
 - c. Is the current NSP appropriations permit still valid?
- An existing water appropriation permit was granted for 700 gpm. Presently, only 50 gpm is used.
 - d. If the permit is no longer valid, can a new appropriation be granted?
46-5-37 - the air permit is necessary
degradation of water availability
 - e. If a new permit is granted, will NSP have long-term access to the water, or will other entities have priority rights?
City of Sioux Falls has a future use permit for long-term use of water
3. Availability of a water source:

The presence of an adequate water source at the site is likely. NSP has identified three possible water sources and ranked them in order of preference.

- a. Split Rock Creek aquifer
- b. Combination of Split Rock Creek aquifer and alluvial deposits
- c. Alluvial deposits along the river
- d. Surface water from the river

The first choice is the Split Rock Creek aquifer since changes to the existing wells will not be necessary. Based on historical information, the water-bearing characteristics of this unit are best known. However, the long-term availability of this aquifer is uncertain based on (i) the unknown recharge availability, and (ii) the potential that priority allocation may be granted to other uses, such as a community drinking water supply.

The second choice is a combination of the Split Rock Creek aquifer and the alluvial deposits along the Big Sioux River. If the Split Rock Creek aquifer is unable to yield 450 gpm, then additional wells could be installed in the alluvium. The Split Rock Creek aquifer would be the primary source, and the alluvium would be the supplemental source. The advantages of this plan

are that (i) recharge to this alluvial aquifer from the river is more certain, and (ii) an efficient transfer from the Split Rock Creek aquifer to the alluvial aquifer can be made in the future if warranted by allocation priorities.

The third choice is the alluvial material. It is anticipated that adequate water quantity and quality are available from this source, but it is untested. Withdrawal of water from this source would not compete with the supply available to others from the Split Rock Creek aquifer.

The fourth and least preferable choice is surface water from the Big Sioux River. Water from this source will likely be high in suspended solids and contain organic material complicating the treatment process. Furthermore, operation typically will occur in the summer and winter.

4. Degree of detail necessary to document water source:

Documentation of the potential water supply in the Split Rock Creek aquifer will be provided in the current aquifer study performed by South Dakota Division of Geologic Survey. If this aquifer can be used for the CTG project, then further extensive documentation will not be necessary.

Water availability from the alluvial deposits and from the river can be estimated from published information. More definitive, and possibly premature, documentation will require time and capital to explore and test alternative water sources.

5. Identification of potential impacts to other users of the water supply:

NSP proposes to preliminarily evaluate impacts, based on hydrogeological assumptions and readily available data, for all of the potential water sources. A more detailed evaluation can be provided in the future, if necessary, when a specific water source has been selected.

WATER WASTE DISPOSAL

The existing facility utilizes four settling basins for water disposal. Two of the basins measure 100 ft x 75 ft and two are 125 ft x 250 ft. Each basin can operate to a depth of 10 ft for a total capacity of about 5,000,000 gallons. These basins when filled are designed to overflow to a diversion ditch which discharges to the river downstream of the plant. However as the existing plant has limited operation seepage and evaporation losses from the basins are sufficient to handle the water wastes so overflows and discharges to the river have not occurred.

For the CTG project NSP plans to utilize the existing basins. However under a reasonable high operating assumption for the CTG's the evaporation and seepage losses from the basins would be insufficient for the water waste generated and the basins would overflow to the diversion ditch and river. The expected maximum flow to the river would be 40,000,000 gallons per year, 400,00 gallons per day, or 20,000 gallons per hour. The CTG water waste is generated from the water treatment system and would consist primarily of groundwater in which the solids, dissolved and suspended, have been concentrated by a factor of 4. Under this scenario, a modification to the existing plants NPDES permit would be required. What, if any, constraints would be placed on the discharge?

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
DENVER PLACE
999 18TH STREET, SUITE 500
DENVER, COLORADO 80202-2405

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended,
(33 U.S.C. §1251 et seq; the "Act"),

Northern States Power,

is authorized to discharge from its Pathfinder Generating Plant located just
off Interstate Highway 90, approximately five (5) miles northeast of Sioux
Falls, SE1/4, Section 30, T.102 N., R.48 W.; Longitude 96° 38' 12"; Latitude
43° 36' 23", Minnehaha County, South Dakota,

to the Big Sioux River,

in accordance with discharge point(s), effluent limitations, monitoring
requirements and other conditions set forth herein. Authorization for
discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective August 1, 1990.

This permit and the authorization to discharge shall expire at midnight,
April 30, 1995.

Signed this 18th day of July 1990.


Authorized Permitting Official

Max H. Dodson, Director
Water Management Division
Title

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "30-day (and monthly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "7-day (and weekly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.
4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

A. Definitions (Continued)

- c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous collection of sample, with sample collection rate proportional to flow rate.
- 5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
 - 6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
 - 7. "Upset" means 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. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
 - 8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
 - 9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes 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. Severe property damage does not mean economic loss caused by delays in production.
 - 10. "Director" means Director of the United States Environmental Protection Agency's Water Management Division.
 - 11. "EPA" means the United States Environmental Protection Agency.
 - 12. "Sewage Sludge" is any solid, semi-solid or liquid residue that contains materials removed from domestic sewage during treatment. Sewage sludge includes, but is not limited to, primary and secondary solids and sewage sludge products.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an NPDES permit is a violation of the Clean Water Act and could subject the person(s) responsible for such discharge to penalties under Section 309 of the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under the Clean Water Act.

OutfallSerial NumberDescription of Discharge Point

001

There shall be no discharge from the 4-cell settling basin system.

002

The discharge is from the screen wash waters to the Big Sioux River.

C. Specific Limitations and Self-Monitoring Requirements

1. Effluent Limitations - Outfall 001

Effective immediately and lasting through the life of this permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:

There shall be no discharge.

2. Effluent Limitations - Outfall 002

Effective immediately and lasting through the life of this permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:

This water shall consist solely of Big Sioux River water to which no chemicals or process waters are added.

3. Self-Monitoring Requirements - Outfall 002

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

For any discharge, the date and time of the start and termination of each discharge shall be reported.

C. Specific Limitations and Self-Monitoring Requirements

4. Inspection Requirements

The permittee shall inspect its wastewater treatment facility on at least a weekly basis. The inspection shall be conducted to determine if a discharge is occurring, has occurred since the previous inspection, and/or if a discharge is likely to occur before the next inspection. In addition, the inspection shall be performed to determine if proper operation and maintenance procedures are being undertaken at the wastewater treatment facility. The permittee shall maintain a log recording information obtained during the inspection. At a minimum, the log shall include the following:

- a. Date and time of the inspection;
- b. Name of the inspector(s);
- c. The facility's discharge status;
- d. The measured amount of pond freeboard at the outlet works;
- e. Identification of operational problems and/or maintenance problems;
- f. Recommendations, as appropriate, to remedy identified problems;
- g. A brief description of any actions taken with regard to problems identified; and,
- h. Time and date of the start and termination of each discharge from outfall 002.
- i. Other information, as appropriate.

The permittee shall maintain the log in accordance with proper record-keeping procedures and shall make the log available for inspection, upon request, by authorized representatives of the U.S. Environmental Protection Agency or South Dakota Department of Water and Natural Resources. The reporting requirements for this information is contained in Part II.D.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Sludge samples shall be collected at a location representative of the quality of sludge immediately prior to use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. See Part I.C. for any applicable sludge monitoring procedures.
- C. Penalties for Tampering. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.
- D. Reporting of Monitoring Results. The required logs for inspection and outfall 002 obtained during the previous six (6) months shall be summarized and submitted in report form, postmarked no later than the 28th day of the month following the completed reporting period. The first report is due January 28, 1991. Until further notice, sludge monitoring results may be reported in the testing laboratory's normal format (there is no EPA standard form at this time), but should be on letter size pages. Whole effluent toxicity (biomonitoring) results must be reported on the most recent version of EPA Region VIII's Guidance For Whole Effluent Reporting. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements (see Part IV), and submitted to the Director, Water Management Division and the State water pollution control agency at the following addresses:

original to: United States Environmental Protection Agency
Region VIII
Denver Place
999 18th Street, Suite 500
Denver, Colorado 80202-2405

Attention: Water Management Division
Compliance Branch (8WM-C)

copy to: South Dakota Department of
Water and Natural Resources
Division of Land and Water Quality
Surface Water Quality Program
Joe Foss Building
Pierre, South Dakota 57501

- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
 3. The date(s) analyses were performed;
 4. The time(s) analyses were initiated;
 5. The initials or name(s) of individual(s) who performed the analyses;
 6. References and written procedures, when available, for the analytical techniques or methods used; and,
 7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this NPDES permit must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall report any noncompliance which may seriously endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the EPA, Region VIII, Emergency Response Branch at (303) 293-1788 and the State of South Dakota at (605) 773-3231.
2. The following occurrences of noncompliance shall be reported by telephone to the EPA, Region VIII, Compliance Branch at (303) 293-1589 and the State of South Dakota at (605) 773-3351 by the first workday (8:00 a.m. - 4:30 p.m. Mountain Time) following the day the permittee became aware of the circumstances:
 - a. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G., Bypass of Treatment Facilities.);
 - b. Any upset which exceeds any effluent limitation in the permit (See Part III.H., Upset Conditions.); or,
 - c. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit to be reported within 24 hours.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Compliance Branch, Water Management Division, Denver, Colorado, by phone, (303) 293-1589.
5. Reports shall be submitted to the addresses in Part II.D., Reporting of Monitoring Results.

- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D. are submitted. The reports shall contain the information listed in Part II.I.3.
- K. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Director advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, or 308 of the Act is subject to a fine of not less than \$5,000, nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both. Except as provided in permit conditions on Part III.G., Bypass of Treatment Facilities and Part III.H., Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.

- F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the United States.
- G. Bypass of Treatment Facilities:
1. Bypass not exceeding limitations. 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. These bypasses are not subject to the provisions of paragraphs 2. and 3. of this section.
 2. Notice:
 - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 60 days before the date of the bypass.
 - b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I., Twenty-four Hour Reporting.
 3. Prohibition of bypass.
 - a. Bypass is prohibited and the Director may take enforcement action against a permittee for a bypass, unless:
 - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) 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 adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
 - (3) The permittee submitted notices as required under paragraph 2. of this section.
 - b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under Part II.I., Twenty-four Hour Notice of Noncompliance Reporting; and,
 - d. The permittee complied with any remedial measures required under Part III.D., Duty to Mitigate.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

- I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Director as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. One hundred micrograms per liter (100 ug/L);
 - b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
 - d. The level established by the Director in accordance with 40 CFR 122.44(f).
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. Five hundred micrograms per liter (500 ug/L);
 - b. One milligram per liter (1 mg/L) for antimony;
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
 - d. The level established by the Director in accordance with 40 CFR 122.44(f).

IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b);
 2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Part III.J.1.; or,
 3. There are any planned substantial changes to the existing sewage sludge facilities, the manner of its operation, or to current sewage sludge management practices of storage and disposal. The permittee shall give the Director notice of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. 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.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When 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 any report to the Director, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed as follows:
 - a. For a corporation: by a responsible corporate officer;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to authorization. If an authorization under paragraph IV.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2. must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for

G. Signatory Requirements (Continued)

gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- H. Penalties for Falsification of Reports. The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.
- J. 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.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, 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.
- L. Severability. The provisions of this permit are severable, and if any provision 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.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

M. Transfers (Continued)

3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2. above.

N. 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.O. Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
2. Wasteload Allocation: A wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
3. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.
4. Sewage Sludge: There have been substantial changes (or such changes are planned) in sewage sludge use or disposal practices; applicable management practices or numerical limitations for pollutants in sludge have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittee's sewage sludge use or disposal practices do not comply with existing applicable state or federal regulations.



Northern States Power Company
South Dakota

Angus C. Anson
General Manager and Chief Executive

500 West Russell
P.O. Box 988
Sioux Falls, SD 57101-0988
Telephone (605) 339-8358

September 23, 1991

Mr. Marshall Damgaard, Executive Director
South Dakota Public Utilities Commission
500 East Capitol Avenue
Pierre, South Dakota 57501

Pathfinder Combustion Turbine Generators
Energy Facility Permit Application

Dear Marshall:

Northern States Power Company hereby applies for an Energy Facility Permit for up to four 105 MW combustion turbine generators at the Pathfinder Power Plant Site near Sioux Falls.

In accordance with South Dakota Public Utilities Commission Rules, NSP has prepared an Application Document to address the content requirements of SDAR 20:10:22:05 to :39.

Several additional documents have been included in support of the application. They include an Environmental Impact Report to facilitate the preparation of the EIS, a copy of the EPA Air Quality Permit Application, a copy of the site screening study that resulted in the selection of the Pathfinder site, and a copy of NSP's application to the South Dakota Department of Environment and Natural Resources for water appropriation. In addition to these documents we will be submitting copies of NSP's applications for groundwater and surface water discharge permits shortly. We will also be providing testimony and a witness list.

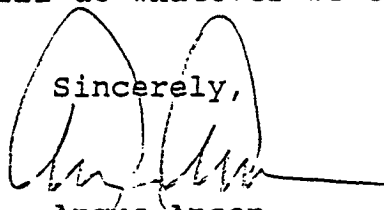
As requested, thirty copies of the application document and associated exhibits are enclosed. Applications are being provided to Governor Mickelson and Secretary Roberts as well. Northern States Power is also sending six copies of all the application materials to Mr. Vern Schaefer to assist in the preparation of the Environmental Impact Statement. We are also sending copies to the Local Review Committee and their support staff in Sioux Falls. If the Commission needs any additional copies or would like us to provide copies to anyone else, please let me know. We will be happy to provide them.

It is my understanding that the Commission will be providing NSP with its request for an initial fee deposit as provided in SDCL 49-41B-12 in the near future. We will provide the required deposit as soon as the commission determines the appropriate sum.

The application for facility permit remains consistent with the Notice of Intent, submitted last January, in all respects except for one. Currently Northern States Power is negotiating an agreement with Minnegasco Company to provide natural gas to the Pathfinder combustion turbines. At this time it is unclear whether facilities constructed by Minnegasco should be included in this application as associated facilities. We understand that Minnegasco will be providing the Commission with additional information about their plans and asking for a declaratory ruling on this matter. If necessary, supplemental pipeline information will be provided after the Commission makes its decision.

If, after your review of these materials, you determine that additional information is necessary, please let me know. We at NSP will do whatever we can to facilitate the permitting process.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Angus Anson', written over a large, light-colored oval shape.

Angus Anson
General Manager & Chief Executive

AA mb

cc: Governor George Mickelson
Secretary Robert Roberts

Attachments

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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

APPLICATION OF NORTHERN STATES POWER	)	
COMPANY FOR A CONSTRUCTION PERMIT FOR	)	APPLICATION
AN ENERGY CONVERSION FACILITY	)	
IN MINNEHAHA COUNTY, SOUTH DAKOTA	)	

Northern States Power Company ("Applicant"), pursuant to the provisions of SDCL 49-41B and in accordance with the rules of the South Dakota Public Utilities Commission (Chapter 20:10:22, Energy Facility Siting rules) does hereby respectfully apply for a permit to construct an energy conversion facility, as defined by SDCL 49-41B-11. The energy conversion facility will consist of up to four 105-megawatt (MW) simple cycle combustion turbine electric generators (CTG), and associated support facilities (hereinafter referred to as the "proposed CTG facility") at the Pathfinder Power Plant site in Minnehaha County, South Dakota.

The proposed CTG facility for which a construction permit is sought is located at the Pathfinder Power Plant site approximately 0.75 miles northeast of the Sioux Falls city limits and 6.5 miles northeast of the Sioux Falls city center, in Minnehaha County, South Dakota. The primary fuel to be fired in the proposed CTG facility will be natural gas.

RULE:20:10:22:06 NAME OF APPLICANT

The applicant is:

Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401-1927

Telephone number: (612) 330-5500

The individuals authorized to receive communications relating to the Application on behalf of the Applicant are:

James Alders, Manager New Facility Permitting (612) 330-6732
Angus Anson, General Manager and Chief Executive, South Dakota Region
(605) 339-8350

RULE 20:10:22:07 NAME OF OWNER AND MANAGER

The proposed energy conversion facility is to be owned by Northern States Power Company. The Project Manager of the energy conversion facility is:

David A. Pierce, Project Engineer
414 Nicollet Mall
Minneapolis, MN 55401
(612) 330-6310

RULE 20:10:22:08 THE PURPOSE OF THE ENERGY CONVERSION FACILITY

The purpose of the proposed CTG facility is to generate electrical energy for NSP's system needs during periods of high or peak electrical demand. A more detailed description of the purpose of the facility can be found in Exhibit A, Environmental Impact Report (EIR), Chapter 3.0, Alternatives.

RULE 20:10:22:09 ESTIMATED COST OF FACILITY

The estimated capital cost of the facility is dependent on the number of CTG units installed at the site. Table 1 presents the estimated cost to install up to four CTG units based on a 1994 in-service date.

Table 1
Estimated Cost of CTG Facility

Number of Units	Estimated Capital Cost
1	\$ 48,000,000
2	\$ 78,000,000
3	\$ 112,000,000
4	\$ 145,000,000

RULE 20:10:22:10 DEMAND FOR ENERGY CONVERSION FACILITY

Demand for the proposed CTG facility is based upon NSP's forecast of demand for electricity in future years and the resources currently available to meet that demand. NSP's existing generating plants, committed additions, and contracted capacity purchases together constitute the resources NSP currently has available to meet customer's future demand for electricity. The NSP forecast demand, adjusted for conservation and load management programs (past and future), is referred to as the net forecast. The net forecast of native energy requirements for NSP's service territory has a median average annual growth rate of 2.3 percent over the forecast horizon of 1991-2005. This represents a substantial decline from the 3.4 percent growth NSP experienced from 1985-1990.

To measure uncertainty and the attendant need for flexibility, NSP supplements the median scenario with four others: a semi-low and semi-high scenario to reflect a narrow range of alternative paths for the economy, and a low and high scenario to reflect broader based risk. The median native energy requirement growth rates for the semi-low and semi-high scenarios are 1.8 and 3.0 percent per year while the growth rates for the low and high scenarios are 1.2 percent and 3.5 percent per year, also generally lower than the 3.4 percent growth NSP experienced from 1985-1990.

The net forecast of median average annual peak growth between 1991 and 2005 is 1.7 percent per year while the semi-low, semi-high and low, high ranges are 1.4 to 2.4 and 0.4 to 3.0 percent per year, respectively. Due to aggressive conservation and load management, the net forecast of all scenarios is well below the 3.9 percent peak growth NSP experienced from 1984 to 1990.

The "bandwidth" bounded by the "semi-high" and "semi-low" scenarios is used most frequently in NSP's long-range forecasting to capture a "business as usual" context, (i.e., with a relatively narrow range of U.S. economic growth and no basic change in the relationship between regional and national economies). This scenario also assumes "normal" weather, (i.e., the average seasonal weather over the past 20 or more years). NSP estimates this narrow bandwidth to capture the middle 30 percent of probability for NSP's future requirements. As depicted in Figure 1, NSP Demand Forecast, NSP estimates there is a 65 percent chance that customer needs will remain on a path staying below the "semi-high" scenario, and similarly a 35 percent chance of remaining below the "semi-low" scenario.

NSP's future requirements include:

- Forecast summer peak demand, after adjustment for the expected impact of Demand Side Management programs;
- 15 percent Mid-Continent Area Power Pool reserve requirement;
- Contracted obligations to sell to other utilities.

Figure 2, NSP Obligations and Committed Resources, shows how NSP's future requirements, based on the semi-low to semi-high forecast, compare to existing and committed supply capability. This figure shows that the demand for electricity of peaking capacity is forecasted to exceed NSP's available resources by as much as 200 MW in 1994 and up to 700 MW by 1997.

Thus, based on a review of its projected forecasts and resource needs, NSP has concluded that the resource need in the 1990s will be primarily peaking capacity. NSP plans to meet this peaking capacity need through the installation of simple cycle CTGs.

Figure 1
NSP Demand Forecast

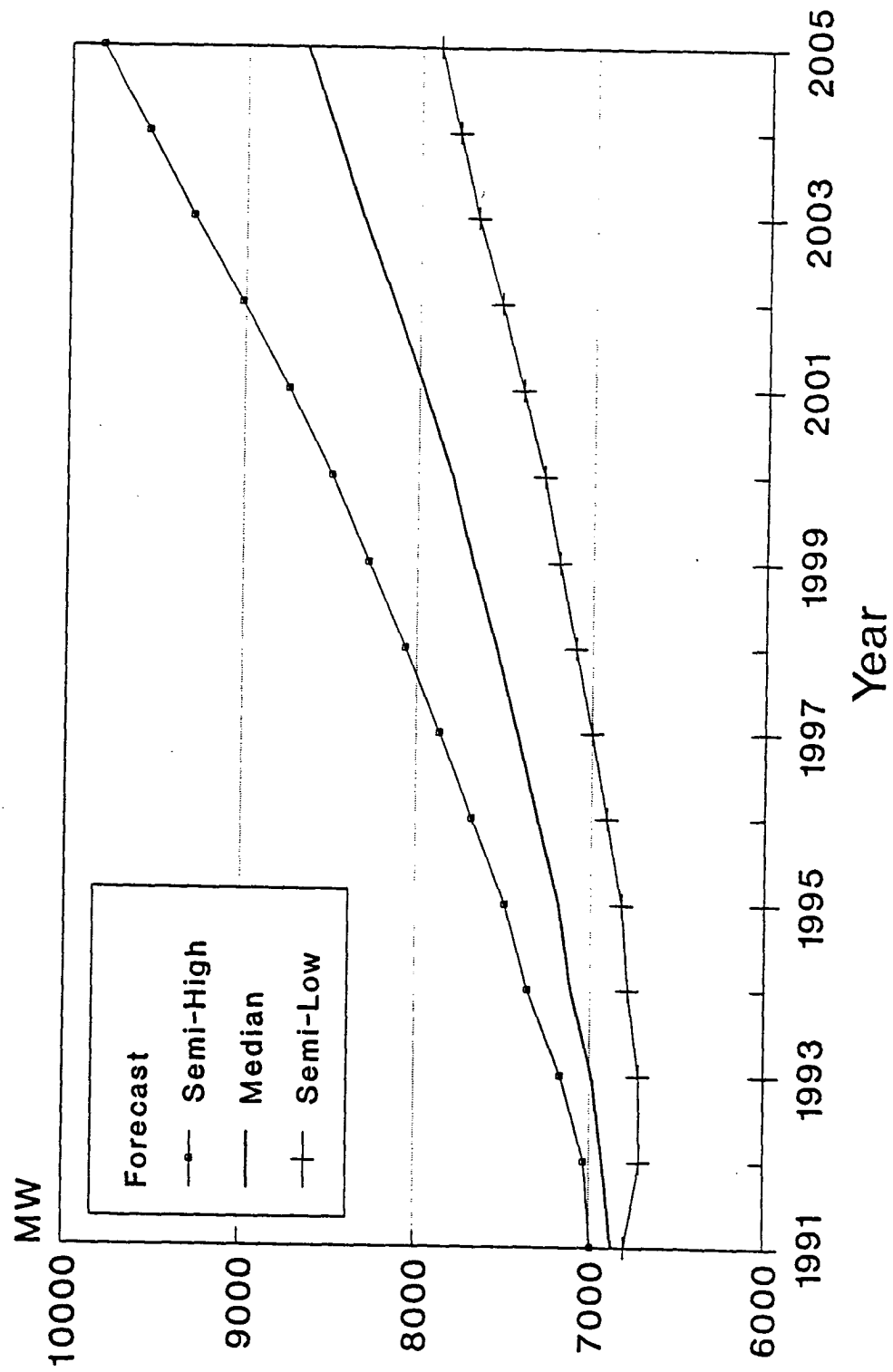
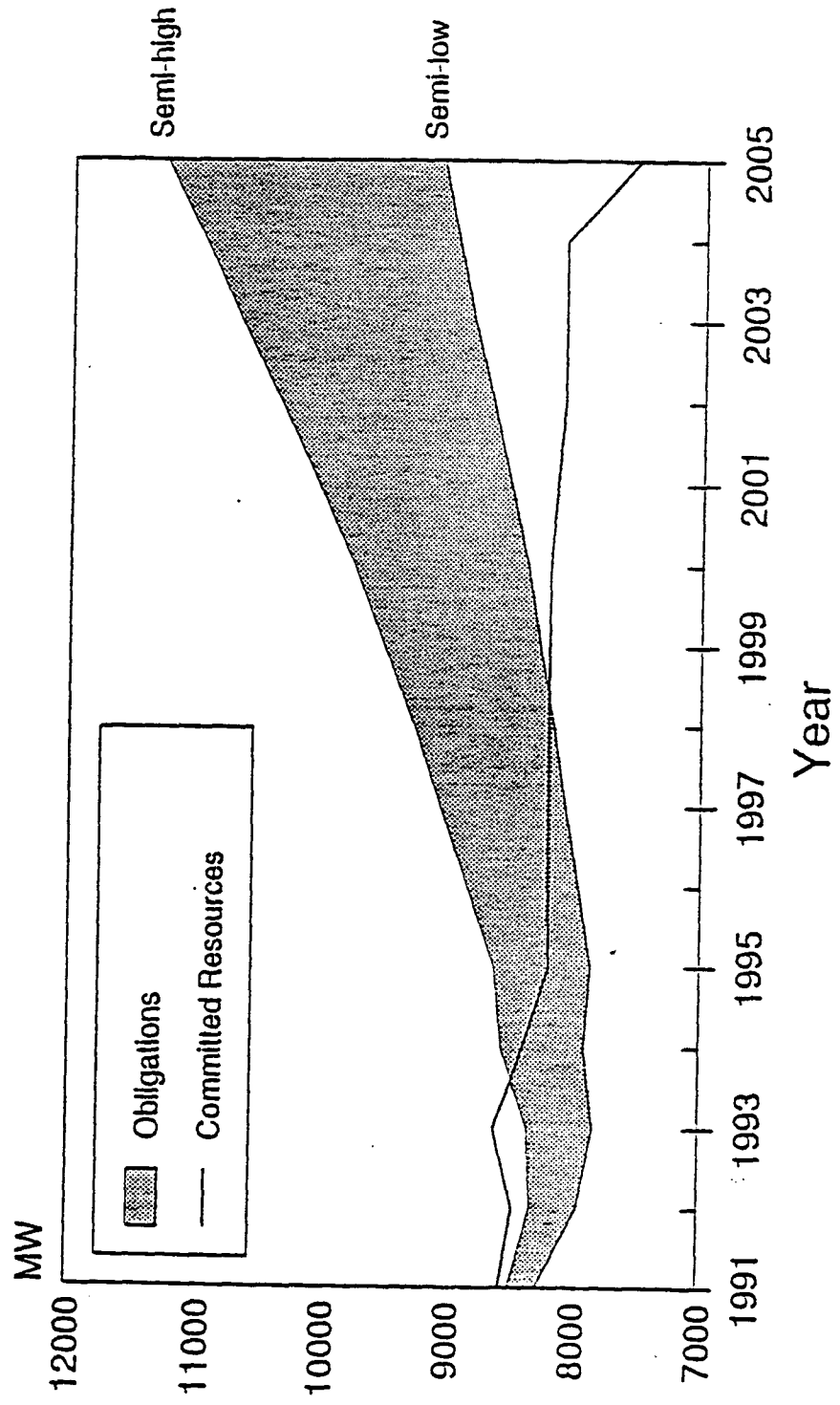


Figure 2

NSP Obligations and Committed Resources



A more detailed description of the methods used by NSP to determine future demand and resource needs is presented in Exhibit A, EIR, Chapter 3.2, No Action Alternative, and Chapter 3.3, Alternative Energy Resources.

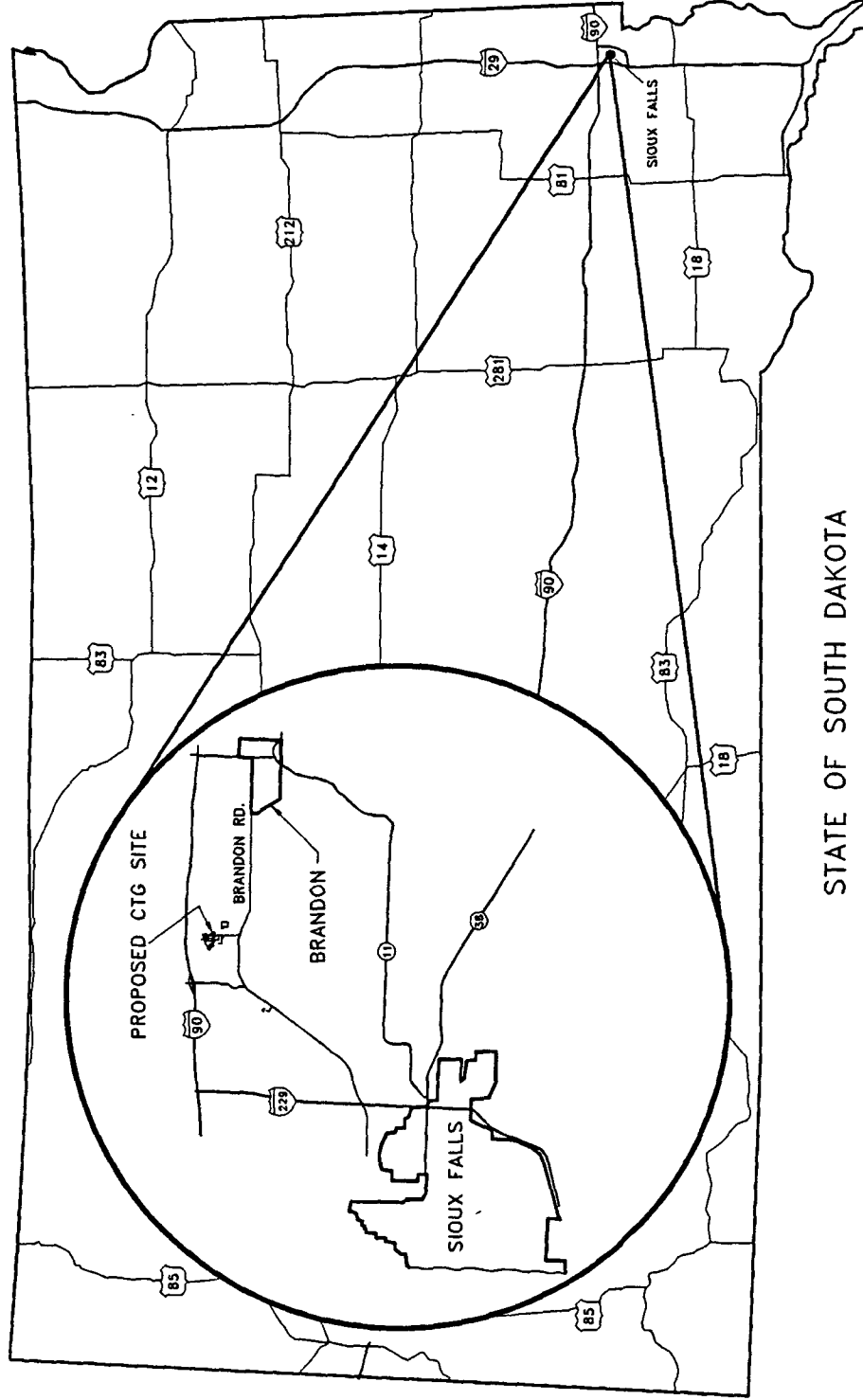
RULE 20:10:22:11 GENERAL SITE DESCRIPTION

The Pathfinder Power Plant site is located on property owned by NSP in the southwest quarter of Section 30, Township 102 north, Range 48 west in Minnehaha County, South Dakota. The site is approximately 0.75 miles northeast of the Sioux Falls city limits, 6.5 miles northeast of the Sioux Falls city center, and approximately 2.8 miles west of the city of Brandon. The site location is presented in Figure 3, Site Location Map.

The plant site property is bordered by Interstate 90 to the north. The southern boundary is located approximately 3,400 feet south of Brandon Road. The Big Sioux River flows west to east across the site, forming the western boundary at the southwestern corner of the property and running through the property in the northern portion of the site. The existing Pathfinder Power Plant is located south of the Big Sioux River. There are three substations in the vicinity of the proposed CTG site. NSP's Lawrence Substation is located in the southwestern property corner, NSP's Split Rock Substation is located southeast of the proposed CTG facility site and the U.S. Bureau of Reclamation's Substation is located southwest of the proposed CTG site. Two railroad lines are located within NSP's property boundary, one operated by Burlington Northern and the other operated by Ellis & Eastern (see Figure 4, Site Facility Layout).

Existing facilities at the Pathfinder site include a 60 MW natural gas-fired generating plant, two 2-million gallon fuel oil storage tanks, a cooling tower, four settling basins, a river intake structure, two water supply wells, a substation and associated electric transmission facilities, and miscellaneous equipment required to support the operation of the steam plant (see Figure 4, Site Facility Layout). The existing Pathfinder Power Plant will continue to operate in addition to the proposed CTG facility.

The Pathfinder site was the location of a 1962 vintage demonstration nuclear power plant. The nuclear steam supply equipment was decommissioned. The reactor vessel has been removed from the site and removal of other equipment is in progress. The removal



STATE OF SOUTH DAKOTA

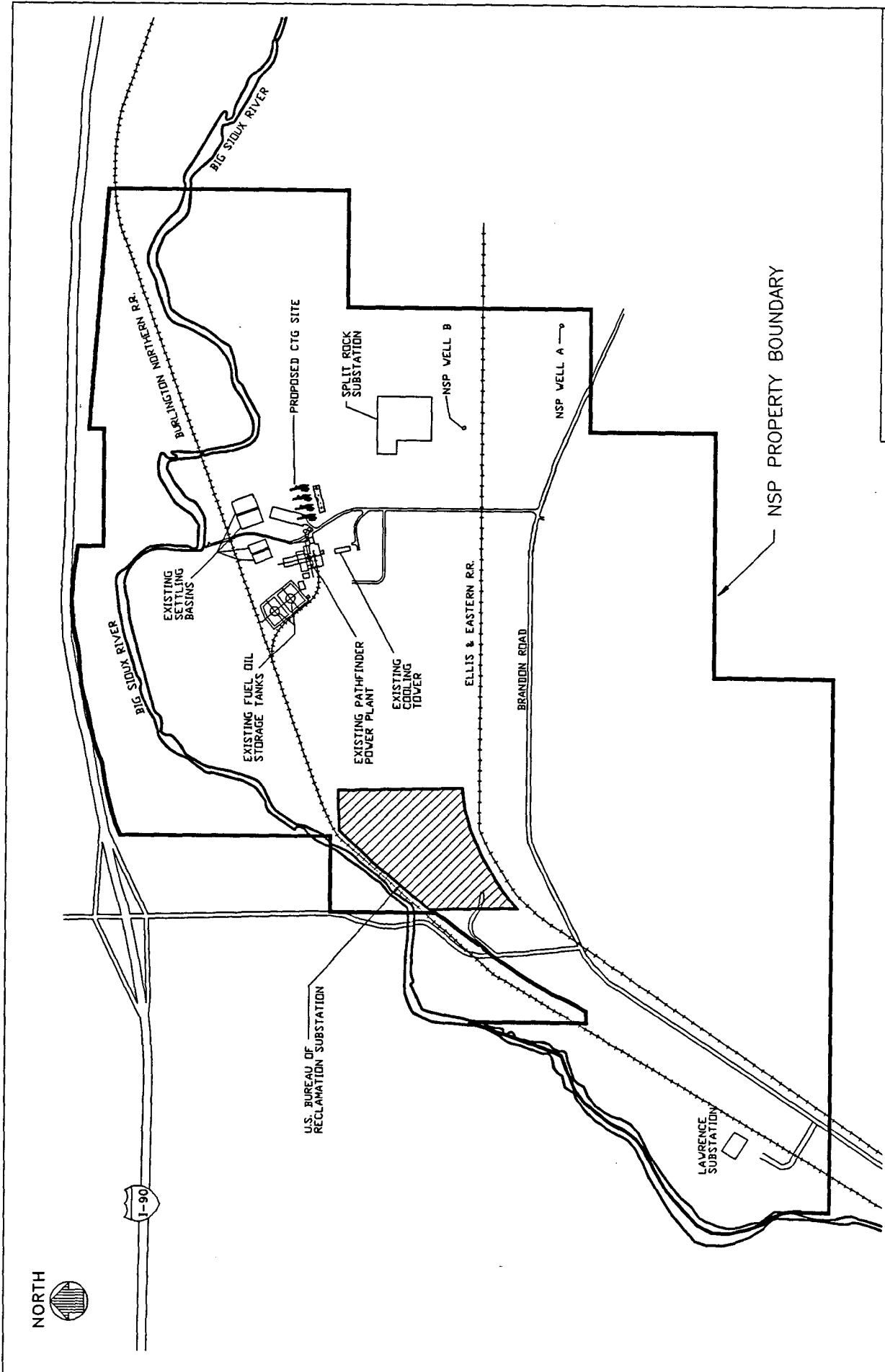
0 25 50 100
SCALE IN MILES

NORTHERN STATES POWER COMPANY
MINNEHAHA COUNTY, SOUTH DAKOTA

FIGURE 3
SITE LOCATION MAP

DWG NO.: N05644052.F107

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of all necessary equipment is scheduled for completion before the start of the proposed CTG facility construction.

NSP is unaware of any cemeteries, places of historical significance, or other public facilities adjacent to or abutting the plant site.

RULE 20:10:22:12 ALTERNATIVE SITES

The Pathfinder Plant site was selected as the proposed location for the CTG facility based on a comparison of life cycle costs and licensing and permitting factors from among 21 potential sites in a four state area (South Dakota, North Dakota, Minnesota and Wisconsin). Potential sites were initially selected based on their proximity to an existing NSP generating facility or substation. It was believed that the use of an existing facility (i.e., land, equipment, transmission access and personnel) to the extent available, would result in the lowest cost and minimize licensing and permitting impacts.

Further discussion of the siting study conducted for the proposed CTG facility is included in Exhibit A, EIR, Chapter 3.0, Alternatives, and Exhibit B, Combustion Turbine Generator Site Screening Study Final Report.

RULE 20:10:22:13 ENVIRONMENTAL INFORMATION

The proposed CTG facility will be constructed on industrially zoned land owned by NSP which is currently unused land vegetated with brome grass. The land surrounding the proposed CTG facility was once native tall grass prairie, but is now under agricultural use.

A more detailed description of the existing environment is found in Exhibit A, EIR, in Chapter 4.0, Affected Environment. Estimates of changes in the existing environment which are anticipated as a result of construction and operation of the proposed CTG facility are summarized below and discussed in more detail in Exhibit A, EIR, in Chapter 5.0, Environmental Impacts.

The overall impact of the construction of the proposed CTG facility at the site would be minimal since there is an existing power plant adjacent to the proposed site,

substations both south and west of the proposed site, and numerous transmission facilities in the area of the proposed site.

Several federal- and state-listed endangered or threatened species are believed to occur within the Sioux Falls area. However, since the site of the proposed CTG facility is adjacent to an existing power plant and in the vicinity of three substations, the impact on federal and state endangered or threatened species is expected to be minimal. Further discussion of the potential impacts to endangered or threatened species is presented in Exhibit A, EIR, in Chapter 5.0, Environmental Impacts.

Sound level impacts will occur initially from construction of the facility and from operation of the CTGs, but are not expected to be significant due to the large buffer zone surrounding the site.

The operation of the proposed CTG facility would produce air pollutants from fuel combustion of natural gas and/or No. 2 distillate fuel oil. Emissions of nitrogen oxides (NO_x) will be minimized through the use of water injection. Emissions of sulfur dioxide (SO_2) will be minimized through the use of natural gas as the primary fuel and 0.37 percent sulfur distillate oil as the backup fuel. Emissions of particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOCs), and beryllium (Be) will be minimized by maintaining proper combustion techniques and the use of natural gas as the primary fuel. Dispersion modeling analyses were conducted to demonstrate that maximum predicted concentrations of criteria pollutants from the proposed CTG facility were below respective Prevention of Significant Deterioration (PSD) increments and National Ambient Air Quality Standards (NAAQS). The proposed CTG facility was shown to have an insignificant impact upon PSD Class I areas, visibility, soil, and vegetation. Further discussion of potential air pollution impacts are presented in Exhibit A, EIR, Chapter 5.2.1, Air Pollution.

Ground water would be withdrawn from the Split Rock Creek Aquifer through existing wells and used to control nitrogen oxide emissions from the proposed CTG units. This is not expected to adversely affect the availability of ground water supplies in the area. Additional information about the potential impact to ground water supplies is presented in Exhibit A, EIR, Chapter 5.2.2.1, Water Use.

Wastewater from the proposed CTG facility and existing Pathfinder Power Plant will be discharged to four existing settling basins. It is anticipated that the capacity of the basins may be exceeded, resulting in a discharge to the Big Sioux River. The estimated wastewater discharge may exceed the South Dakota Department of Environment and Natural Resources (SDDENR) limit for Total Dissolved Solids (TDS). However, the discharge is not anticipated to significantly impact aquatic resources in the Big Sioux River. Further discussion of potential impacts is presented in Exhibit A, EIR, Chapter 5.2.2.3, Surface Water Quality. NSP is working with the SDDENR to develop an acceptable permit for the discharge from the settling basins to the Big Sioux River.

Seepage losses from the settling basins would enter the Big Sioux Aquifer. Under assumed worst-case operating conditions, the estimated wastewater discharge may exceed the South Dakota Groundwater Discharge Standards (SDGWDS) for four parameters, nitrate-nitrogen, chloride, TDS, and sulfate. This is anticipated to be the result of two primary factors: (1) the high concentration of these parameters in the inlet water supply sources, and (2) the concentrating effect of water treatment facilities on the inlet water supply. No additions to these chemical parameters are anticipated as a result of facility operations. Further discussion of potential ground water impacts is presented in Exhibit A, EIR, Chapter 5.2.2.2, Ground Water Quality. NSP is working with the SDDENR to develop an acceptable permit for the seepage of wastewater from the settling basins to the Big Sioux Aquifer.

The state of South Dakota will be conducting an archaeological survey to determine whether there are any known state or federally listed archaeological or historical resources within the proposed project area as part of the Environmental Impact Statement process.

Traffic will temporarily increase during the construction period, but is not expected to result in any adverse impacts. Major CTG facility components will be delivered to the site by rail. Once the CTG facility is operational, regular deliveries of fuel oil are anticipated to occur primarily between October and March. The actual number and timing of the deliveries will be dependent on the amount of fuel oil consumed by the CTG facility.

NSP is not aware of any major industrial facility under regulation which may have an adverse effect on the environment as a result of the construction or operation of the proposed CTG facility.

In summary, NSP does not anticipate that any significant, cumulative or synergistic hazards to the health and welfare of human, plant or animal communities as a result of the construction and operation of the proposed CTG facility.

RULE 20:10:22:14 EFFECT ON PHYSICAL ENVIRONMENT

(1) Regional Land Forms

The proposed CTG facility site lies on the southern flank of the Coteau des Prairies section of the Central Lowlands physiographic province. A more detailed description of the regional land forms surrounding the proposed CTG facility is contained in Exhibit A, EIR, Chapter 4.1.2, Regional Land Forms, and illustrated by a general map, Figure 4-2, Generalized Geological Cross-Section, included in the EIR.

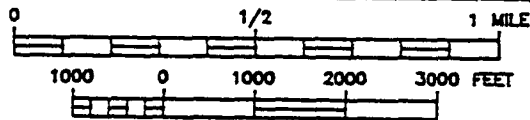
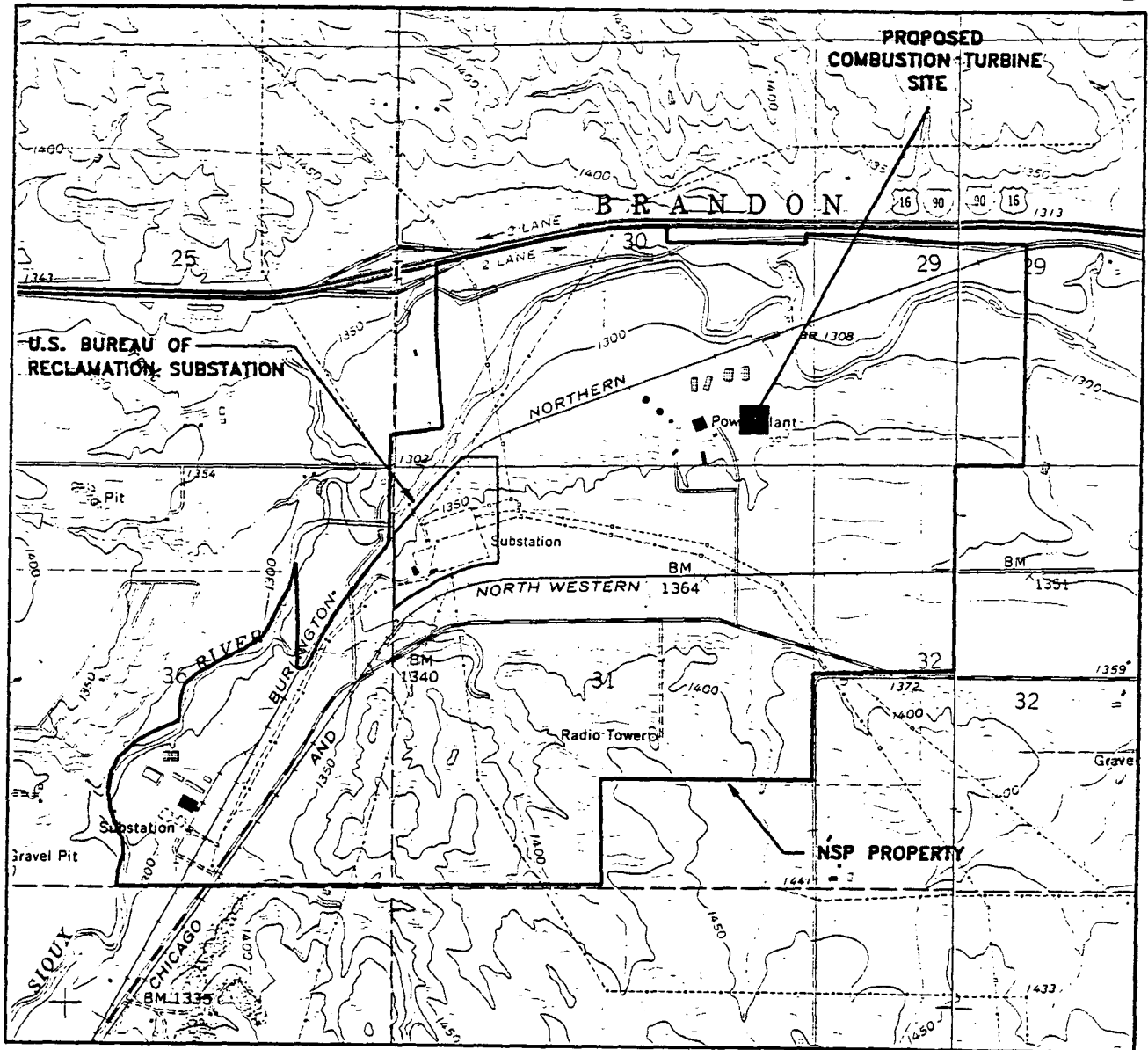
(2) Topographic Map

The CTG facility site area is on flat to gently rolling topography, which is the result of past glacial activity. Figure 5, Topographic Map, depicts the general topography of the area.

(3) Geological Features

The proposed CTG facility site is underlain by a series of alluvial, glacial, and marine sediments, some of which are approximately 570 millions years old. The most important geological units are the water-bearing portions of the Split Rock Creek formation and the surface sediments upon which the proposed CTG facility will be constructed. A summary of the existing geological features is set forth in Exhibit A, EIR, in Chapter 4.1.3, Geology.

NORTH



NORTHERN STATES POWER COMPANY
PATHFINDER SITE, SOUTH DAKOTA

FIGURE 5
TOPOGRAPHIC MAP

DWG NO.: N03644052.F117

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(4) Economic Deposits

Other than small sand and gravel deposits found along the present-day Big Sioux River Valley, the only other potential source of mineral resources in the CTG facility site area is the Sioux Quartzite formation which is presently used for concrete aggregate, railroad ballast, road construction, and production of ferro-silica for the steel industry (Jarret, 1990, 1991). A more detailed discussion of existing and potential economic deposits (i.e., mineral resources) in the CTG facility site area is contained in Exhibit A, EIR, in Chapter 4.1.6, Mineral Resources.

(5) Soils

There are four major soil associations surrounding the project area. The proposed CTG facility site will be located on Alcester Silt loam, a deep, moderately well-drained soil with fair to moderate natural fertility, and low to fair water-holding capacity. A more in-depth description of soil types at the proposed CTG facility site is contained in Exhibit A, EIR, in Chapter 4.1.7, Soil Resources and illustrated in Figures 4-6, Soils Associations Map, and 4-7, Plant Site Soil Mapping Units, in Exhibit A, EIR.

(6) Erosion and Sedimentation

The effects of possible soil erosion and sedimentation are discussed in Exhibit A, EIR, Chapter 5.1.5, Soil Erosion. According to Soil Conservation Service records, there are no highly erodible soils at the site of the proposed CTG facility.

(7) Seismic Risks, Subsidence Potential, and Slope Instability

The proposed CTG facility will be designed and constructed to meet generally accepted engineering standards and will comply with all applicable construction codes. Difficulties due to seismic activities, subsidence, and slope instability will be minimized through proper design and construction techniques. According to the United States Geological Survey (USGS), there are no known areas of high seismic risk or subsidence potential in the site area.

Seismic risks, soil erosion, and subsidence potential hazards are discussed in Exhibit A, EIR, Chapter 4.1.5, Seismic Activity and Chapter 5.1.5, Soil Erosion.

(8) Geological Constraints

A description of possible geological constraints within the project area is found in Exhibit A, EIR, Chapter 5.1.7, Geologic Hazards and Constraints. Geological characteristics within the project area do not appear to impose any unusual constraints on the design, construction or operation of the proposed CTG facility.

RULE 20:10:22:15 HYDROLOGY

The hydrology of the project area is discussed in Exhibit A, EIR, Chapter 4.1.8, Surface Water Resources and Chapter 4.1.9, Ground Water Resources and is summarized below.

The major surface water resource near the proposed CTG facility is the Big Sioux River, which flows just north of the proposed CTG facility. There are two principal aquifers which underlie the Pathfinder site, the shallow Big Sioux Aquifer, an alluvial aquifer which lies in the floodplain of the Big Sioux River, and the deeper Split Rock Creek Aquifer, a quartz sandstone aquifer derived from the weathering of the Sioux Quartzite formation.

(1) Surface Water Drainage Patterns

Figure 5-1, Drainage Patterns For Proposed CTG Facility Following Construction, in Exhibit A, EIR, shows expected drainage patterns at the site of the proposed CTG facility. Drainage from the CTG facility will be directed, by natural processes, to the Big Sioux River. It appears that minimal, if any, changes in the drainage patterns are anticipated from construction of the proposed CTG facility. Further discussion of drainage patterns is presented in Exhibit A, EIR, Chapter 5.1.4, Drainage Patterns.

(2) Effect on Current or Planned Water Use

NSP proposes to supply the proposed CTG facility with water from two existing on-site wells screened in the Split Rock Creek Aquifer, which currently supply the Pathfinder Power Plant. Water Appropriations Permit Applications have been submitted to the State of South Dakota for both wells. The Water Appropriations Permit Applications are included as Exhibit F to this Application. These wells may supply water at a combined rate up to 650 gallons per minute (gpm). Based on available information, it appears that the Split Rock Creek Aquifer will be capable of adequately supplying the water needs for operation of the proposed CTG facility and Pathfinder Power Plant. Additional information about the Split Rock Creek Aquifer is presented in Exhibit A, EIR, in Chapters 4.1.9.2, Split Rock Creek Aquifer and Chapter 5.2.2, Impacts on Water Resources, and illustrated by Figure 4-3, Areal Extent of the Split Rock Creek Aquifer; Figure 4-4, Generalized Stratigraphic Column, Split Rock Creek Formation; Figure 4-8, Isopach Map, Sand Aquifer Within Split Rock Creek Formation; and Figure 5-2 Water Supply Wells Near the Proposed CTG Facility, presented in Exhibit A, EIR.

Four existing settling basins will be used to accommodate wastewater discharge from the proposed CTG facility as well as the existing Pathfinder Power Plant. Seepage losses from the settling basins would enter the Big Sioux Aquifer. Also, it is anticipated that the capacity of the basins may be exceeded resulting in a discharge to the Big Sioux River. Anticipated effects on current and planned water use in the vicinity of the site are anticipated to be minimal, and are discussed in detail in Exhibit A, EIR, Chapter 5.2.2, Impacts on Water Resources, and illustrated in Figure 5-2, Water Supply Wells Near the Proposed CTG Facility.

(3) Map of Surface and Groundwater Supplies

Figure 4, Site Facility Layout, presented earlier in this Application, depicts the location of the two existing on-site water supply wells, the four existing settling basins, and the Big Sioux River. Based on anticipated needs, no off-site pipelines or channels are required for water transmission to the proposed CTG facility.

(4) Specification of Aquifers

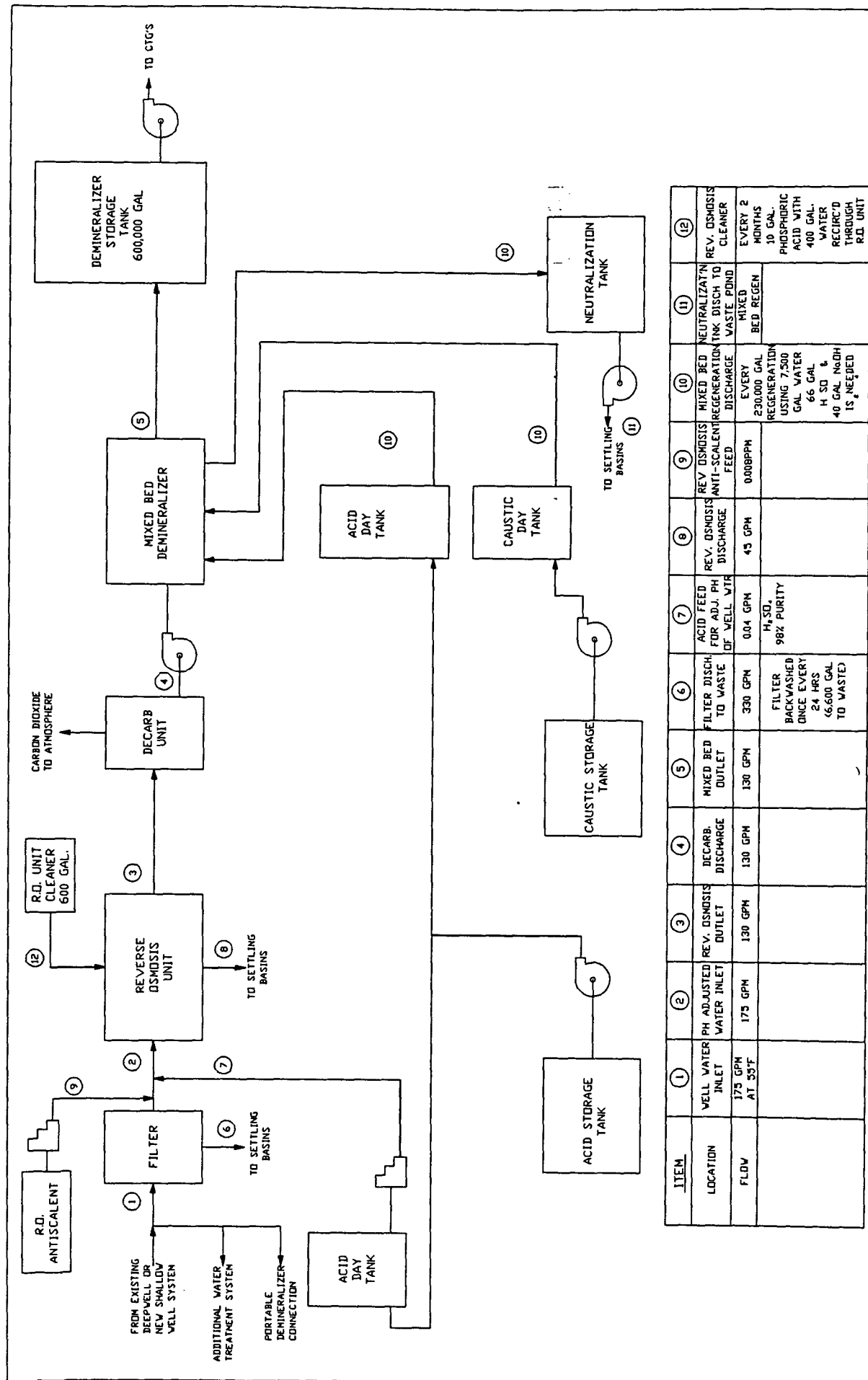
Ground water from the Split Rock Creek Aquifer is proposed for use as a source of process water for the proposed CTG facility. More detailed information about the Split Rock Creek Aquifer is provided in Exhibit A, EIR, in Chapter 4.1.9.2, Split Rock Creek Aquifer, and Chapter 5.2.2, Impacts on Water Resources, and illustrated by Figure 4-3, Areal Extent of the Split Rock Creek Aquifer; Figure 4-4, Generalized Stratigraphic Column, Split Rock Creek Formation; Figure 4-8, Isopach Map, Sand Aquifer within Split Rock Creek Formation; and Figure 5-2, Water Supply Wells Near the Proposed CTG Facility.

(5) Process Water Treatment

The water treatment system as outlined in Figure 6, Block Diagram Water Treatment System, produces demineralized water which will be injected into the combustor of the CTG for nitrogen oxide (NO_x) control. The water, which acts as a heat sink, reduces the peak flame temperature which directly reduces the formation of NO_x . Water injection is generally capable of reducing NO_x emissions from combustion turbines to 25 ppm and 42 ppm when firing natural gas and distillate oil, respectively. The injected water is then vaporized in the combustion process and discharged with the combustion gases. As proposed, the water treatment system would be supplied from the existing on-site water supply wells. Based on current plans, wastewater generated from the water treatment system will be neutralized as needed and discharged to the existing settling basins. There is no heated water discharge. CTG equipment is directly air cooled or has a closed air cooled cooling system.

(6) Deep Water Injection

Deep well injection is not required for effluent disposal.



ITEM	1	2	3	4	5	6	7	8	9	10	11	12
LOCATION	WELL WATER PH ADJUSTED INLET	PH ADJUSTED WATER INLET	REV. OSMOSIS OUTLET	DECARB. DISCHARGE	MIXED BED OUTLET	FILTER DISCH. TO WASTE	ACID FEED FOR ADJ. PH OF WELL WATER	REV. OSMOSIS DISCHARGE	REV. OSMOSIS ANTI-SCALENTREGNERATION FEED	MIXED BED DISCHARGE	NEUTRALIZATION WASTE POND	REV. OSMOSIS CLEANER
FLOW	175 GPM AT 55°F	175 GPM	130 GPM	130 GPM	130 GPM	330 GPM	0.04 GPM	45 GPM	0.008PPH	EVERY 230,000 GAL	MIXED BED REGEN	EVERY 2 MONTHS
						FILTER BACKWASHED ONCE EVERY 24 HRS. 46,600 GAL TO WASTE	H ₂ SO ₄ 98% PURITY			REGENERATION USING 7,500 GAL WATER 66 GAL H ₂ SO ₄ & 40 GAL NaOH IS NEEDED		10 GAL. PHOSPHORIC ACID WITH 400 GAL. WATER RECIRC'D THROUGH R.D. UNIT

NOTES:

1. ACID AND CAUSTIC STORAGE TANK SIZE TO BE VERIFIED DURING DETAIL DESIGN. SIZE SHOULD BE BASED ON ABILITY TO ACCEPT FULL TRUCK LOADS WHEN ABOUT 1/3 FULL.
2. 2 CTG UNITS ARE SERVED BY 1 WATER TREATMENT SYSTEM. A SECOND SYSTEM IS ADDED FOR A 4 CTG UNIT SITE.

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PATHFINDER SITE, SOUTH DAKOTA

FIGURE 6
BLOCK DIAGRAM
WATER TREATMENT SYSTEM

DWG NO.: N05644052.F119

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RULE 20:10:22:16 EFFECT ON TERRESTRIAL ECOSYSTEMS

The existing terrestrial ecosystem at the Pathfinder site consists mainly of cropland and animal species commonly associated with this type of environment (i.e., grassland bird species, white-tail deer, fox and red squirrels, cottontail rabbits, etc.) A more detailed description of the existing terrestrial ecosystem is contained in Chapter 4.2.2, Plant Communities and Chapter 4.2.3, Native Animals, in Exhibit A, EIR and illustrated by Table 4-13, List of Birds Observed on the Pathfinder Plant Site, and Table 4-14, Mammals Observed on the Pathfinder Site, in Exhibit A, EIR.

Impacts on terrestrial resources during construction of the proposed CTG facility are discussed in Exhibit A, EIR, Chapter 5.1.6, Impacts on Terrestrial and Aquatic Resources. It is not anticipated that the overall carrying capacity of the area would be impacted by construction of the proposed CTG facility.

Operational impacts on plant and animal resources in the vicinity of the proposed CTG facility are anticipated to be minimal since the proposed CTG facility is adjacent to an existing power plant and in the vicinity of three substations. A more detailed discussion is included in Exhibit A, EIR, Chapter 5.2.3, Impacts on Terrestrial Resources.

RULE 20:10:22:17 EFFECT ON AQUATIC ECOSYSTEMS

Overflow from the existing on-site settling basins will be directed to the Big Sioux River. Effects on aquatic ecosystems of the Big Sioux River are anticipated to be minimal. A more detailed description of the potential effects on the aquatic ecosystem is found in Exhibit A, EIR, Chapter 5.2.2, Impacts on Water Resources.

RULE 20:10:22:18 LAND USE

(1) Land Use Maps

Figure 4-12, Land Use Map and Figure 4-13, Zoning Map, in Exhibit A, EIR, depict land use and zoning designations in the project area. Land use in the project area is predominantly agricultural with isolated rural residential subdivisions. Land use and

ownership is discussed in Exhibit A, EIR, Chapter 4.3.1, Land Use, and Chapter 4.3.2, Zoning.

(2) Homes and Persons to be Displaced

No homes or persons will be removed or displaced by the construction or operation of the proposed CTG facility.

(3) Land Use Compatibility

The proposed CTG facility is not anticipated to have significant effect on rural life and the business of farming. The facility will be constructed adjacent to an existing power generation facility on industrially-zoned land. There is a large buffer zone between the site and nearby neighbors which will minimize potential noise concerns. However, some unavoidable visual impact will occur as discussed in Exhibit A, EIR, Chapter 5.2.7, Aesthetics..

(4) Effects on Land Use and Plans to Ameliorate Adverse Impacts

Potential land use impacts have been minimized by locating the proposed CTG facility adjacent to an existing power plant. No adverse impacts to sensitive land uses are expected. Existing land uses in the vicinity of the proposed CTG facility are discussed in Exhibit A, EIR, Chapter 4.3.1, Land Use.

RULE 20:10:22:19 LOCAL LAND USE CONTROLS

Zoning jurisdiction is discussed in Exhibit A, EIR, Chapter 4.3.2, Zoning. NSP will comply with all zoning requirements. Based on initial evaluation, it appears that no land use controls by any of the governing bodies restrict the use of the land for the purpose of constructing and maintaining the proposed CTG facility.

RULE 20:10:22:20 WATER QUALITY

The existing sanitary facilities at the Pathfinder Plant will be adequate to handle the sanitary needs of the proposed CTG facility. Sanitary wastewater will continue to be

directed to the existing on-site septic system. No new additions to the sanitary facilities are planned. Existing sanitary facilities and/or portable facilities will be used during construction of the proposed CTG facility.

There are four existing wastewater settling basins at the Pathfinder site which currently receive wastewater from the existing Pathfinder Power Plant. Two of the basins measure approximately 100 feet x 200 feet and two measure approximately 150 feet x 250 feet. The basins can operate to a depth of about 7 feet. Sources of wastewater from the proposed CTG facility which will be routed to these basins include filter backwash, reverse osmosis waste discharge, and wastewater from regeneration of a mixed bed demineralizer. It is anticipated that the settling basins may exceed their capacity, resulting in a discharge to the Big Sioux River. This discharge is expected to comply with all relevant water quality standards and regulations except for the Total Dissolved Standards (TDS) parameter. NSP is working with the SDDENR to develop an acceptable permit for the discharge from the settling basins to the Big Sioux River.

Seepage losses from the settling basins would enter the Big Sioux Aquifer which is in the current flood plain of the Big Sioux River. Four parameters [nitrate-N, chloride, sulfate, and Total Dissolved Solids (TDS)] may exceed the South Dakota Ground Water Discharge Standards at assumed worst-case operating conditions. However, the concentrations of these parameters in the discharge water are anticipated to result from two primary factors:

- The high concentration of these parameters in the inlet water supply sources, and
- The concentrating effect of facility water treatment processes on the inlet water supply.

No additions to these four parameters are anticipated as a result of facility operations. NSP is working with the SDDENR to develop an acceptable permit for the seepage of wastewater from the settling basins to the Big Sioux Aquifer.

Precipitation runoff will, in general, be routed through natural drainage processes to the Big Sioux River. The existing fuel oil storage tanks are provided with separate containment dikes designed to contain over 110 percent of the volume of the tank to protect against catastrophic spills or tank ruptures. Normally, precipitation will evaporate from the containment dike. If the containment areas become full due to large amounts of rain or spring snow melt, the precipitation will be tested for the presence of No. 2 distillate fuel oil. If fuel oil is found to be present above the NPDES permit limits, then steps will be taken to treat the precipitation to remove the fuel oil. The treated water will then be discharged to the existing wastewater settling basins. If the testing of the precipitation indicates that no fuel oil is present or is present at levels below the NPDES permit limits, then the precipitation will be discharged to the settling basins.

Further discussion of existing water quality in the project area is presented in Exhibit A, EIR, Chapter 4.1.8, Surface Water Resources and Chapter 4.1.9, Ground Water Resources. Further discussion of the anticipated impact to water quality is presented in Exhibit A, EIR, Chapter 5.2.2, Impacts on Water Resources.

RULE 20:10:22:21 AIR QUALITY

The proposed CTG facility will emit NO_x, SO₂, CO, total suspended particulates (TSP), particulate matter less than 10 μ m diameter (PM₁₀), VOCs, and unburned hydrocarbons when natural gas is burned. When distillate fuel oil is combusted, beryllium (Be) will also be emitted. Table 5-3, Estimated Pollutant Emission Rates for Proposed CTGs at the Pathfinder Site in Exhibit A, EIR, provides estimated worst-case, controlled emission rates for the proposed CTG facility. Table 5-4, National Ambient Air Quality Standards (NAAQS), PSD Increments, Significant Emission Rates, Significant Impact Increments, and De Minimis Concentrations in Exhibit A, EIR, lists a summary of NAAQS, PSD increments, and significant emission rates. The pollutants that have New Source Performance Standards (NSPS) emission limitations include NO_x and SO₂. However, any pollutant emitted (i.e., NO_x, CO, SO₂, VOCs, TSP/PM₁₀ and Be) in an amount which exceeds the PSD emission threshold will require an emission limit determined by Best Available Control Technology (BACT) analyses. These BACT analyses take into account energy, environmental, and economic impacts of various emission control technologies.

Emissions control for the proposed CTG facility based on the BACT analyses are as follows:

- NO_x control will be by water injection when combusting either natural gas or No. 2 distillate fuel oil;
- CO emissions, which are a byproduct of the combustion process, are controlled by maintaining proper combustion techniques;
- SO₂ emissions will be minimized by using natural gas as the primary fuel. When the use of the back-up fuel oil is required, No. 2 distillate fuel oil, a low sulfur fuel oil (anticipated sulfur content of 0.37 percent by weight) will be used to minimize SO₂ emissions;
- VOC emissions will be minimized by maintaining proper combustion techniques;
- TSP/PM₁₀ emissions will be minimized by using natural gas as the primary fuel and by maintaining proper combustion techniques; and
- Emissions of Be will be minimized by using natural gas as the primary fuel.

Table 5-5, Comparison Of ISCST And COMPLEX I Maximum Predicted Concentrations Due To The Proposed Modification With Significant Impact Increments And De Minimis Concentrations; Table 5-6, Comparison Of ISCST And COMPLEX I Maximum Predicted Concentrations Due To The Proposed Modification With PSD Increments; and Table 5-7, Comparison Of ISCST And COMPLEX I Maximum Predicted Concentrations Due To The Proposed Modification With NAAQS, in Exhibit A, EIR, compare the maximum predicted concentrations of criteria pollutants with respective PSD increments and NAAQS. As shown in these tables, PSD increments and NAAQS will be met for all of the criteria pollutants, for all applicable averaging periods.

To minimize adverse ground-level air quality impacts, 50-foot tall stacks will be constructed to exhaust spent gas from the proposed CTG units. Air quality modeling was performed to ensure that adverse air quality impacts will be minimized. A discussion of the existing air quality in the project area is contained in Exhibit A, EIR, Chapter 4.1.1, Climate and Air Quality. A more detailed discussion of anticipated impacts to air quality from operation of the proposed CTG facility is contained in Exhibit A, EIR, Chapter 5.2.1, Air Pollution. In addition, the Prevention of Significant Deterioration (PSD) Permit Application is included with this Application as Exhibit E.

RULE 20:10:22:22 TIME SCHEDULE

The proposed CTG facility is scheduled for a June, 1994 in-service date. The following are the major milestones and target dates to achieve this schedule:

Table 2
Proposed CTG Facility Time Schedule

Milestone	Target Date
Facility Permit Application filed	9/91
Release CTG for engineering and manufacturing	9/91
Receive Facility Permit, PSD Permit, and other permits	9/92
Start CTG construction	6/93
Commercial operation	6/94

RULE 20:10:22:23 COMMUNITY IMPACT

(1) Forecast of Socioeconomic Impact on Community and Government

Anticipated socioeconomic impacts are anticipated to be minimal and are discussed in Exhibit A, EIR, Chapter 5.0, Environmental Impacts.

(2) Property or Other Tax Impact

The impact on sales taxes and property taxes will be dependent on the number of CTGs installed at the Pathfinder site, as indicated in Table 3.

Table 3
Anticipated Sales and Property Tax Payments

No. Units	Estimated Project Cost (\$1000)	Sales Tax*		Property Tax	
		Rate	Amount (\$1000)	Rate	Amount per year (\$1000)
1	\$ 48,000	1.33 %	\$ 640	2.15 %	\$1,030
2	78,000	0	0	2.15 %	1,680
3	112,000	0	0	2.15 %	2,410
4	145,000	0	0	2.15 %	3,120

* The sales tax rate and amount include the refund for large projects.

(3) Agricultural Impacts

Construction and operation of the proposed CTG facility is not anticipated to have significant impact on agricultural production and uses in the project area since the CTG facility will be located adjacent to an existing power plant.

(4) Socioeconomic Impacts

It is expected that socioeconomic benefits will accrue to the City of Sioux Falls and the Township of Brandon in the form of purchased goods and services during construction of the proposed CTG facility. After construction, the principal socioeconomic benefit will be in the form of revenue distributions as indicated above in Table 3. Anticipated socioeconomic impacts are discussed in Exhibit A, EIR, Chapter 5.0, Environmental Impacts.

(5) Transportation Impacts

The proposed CTG facility is not anticipated to have a significant impact on transportation facilities in the project area. Sioux Falls Municipal Airport (Joe Foss Field) is located approximately 5.4 miles west of the proposed CTG site. No impacts to air traffic are anticipated from the operation of the proposed CTG facility.

Minor temporary increases in highway and county road traffic will occur during the construction phase of the proposed CTG facility. Once the CTG facility is operational, regular deliveries of fuel oil are anticipated from October through March. The number and timing of these deliveries will be dependent on the amount of fuel oil consumed by the CTG facility. These deliveries are not anticipated to significantly impact traffic volume in the vicinity of the site. Expected traffic impacts during construction of the proposed CTG facility is discussed in Exhibit A, EIR, Chapter 5.1.3, Traffic. Expected traffic impacts during operation of the proposed CTG facility is discussed in Exhibit A, EIR, Chapter 5.2.6, Traffic Impacts.

(6) Impact on Cultural Resources

The South Dakota Historic Preservation office has requested an archeological survey of the proposed CTG facility siting area. It is NSP's understanding that the State of South Dakota will conduct the survey for submission to the Public Utilities Commission as part of the Environmental Impact Statement process and that recommendations will be incorporated into the project plans. Based on an initial evaluation, the proposed CTG facility is not anticipated to have a significant impact on landmarks or cultural resources of historical, religious, archaeological, or natural significance.

The proposed CTG facility will have a visual impact in the immediate vicinity of the site, but the structures will be similar in appearance to other structures already existing at the site. Therefore, the visual impact is anticipated to be minor.

(7) Amelioration of Negative Social Impacts

Significant negative social impacts are not anticipated.

RULE 20:10:22:24 EMPLOYMENT ESTIMATES

The proposed CTG facility will require approximately 12 months to complete construction. The number of construction personnel required at the peak of construction is estimated to be about 60. It is anticipated that the majority of the construction labor will be drawn from the local labor force. Utilization and timing of the available labor will be the responsibility of the construction contractors. The proposed CTG facility will not require any additional permanent employment after construction. It is anticipated that NSP will spend approximately \$2,250,000 in employment expenditures during the construction of a two unit CTG facility.

Under peaking duty operation, the proposed CTG facility will be operated as an unmanned facility. The CTG unit(s) will be started and controlled remotely from NSP system operations in Minneapolis, Minnesota or may be started and controlled at the site central control room or the local unit control panel. Once operational, one operator will oversee the CTG facility, auxiliary system instrumentation, and control equipment. One operator/repairman will be required to conduct routine maintenance such as filter replacement, lubrication checks, demineralizer service, and periodic equipment inspections; and security guards will be required for site security coverage when operators are not typically present. Existing site personnel will be utilized to fulfill these requirements.

RULE 20:10:22:25 FUTURE ADDITIONS AND MODIFICATIONS

NSP has no current plans for future modifications or expansions of the proposed CTG facility.

RULE 20:10:22:26 NATURE OF PROPOSED ENERGY CONVERSION FACILITY

(1) Projected On-line Life and Operating Capacity

The economic book life of the proposed CTG facility is 25 years. However, the facility will continue to operate as long as it is economically viable to do so. The expected operating capacity will depend on the number of units installed and system

demands. Each unit has a 105 MW capacity at summer design conditions burning natural gas fuel.

(2) Major Components of Facility

The major components of the proposed CTG facility include:

- Up to four Westinghouse 501D5 CTG units;
- Oil storage equipment;
- Water treatment systems, and;
- Transformers/Interconnection to Transmission System.

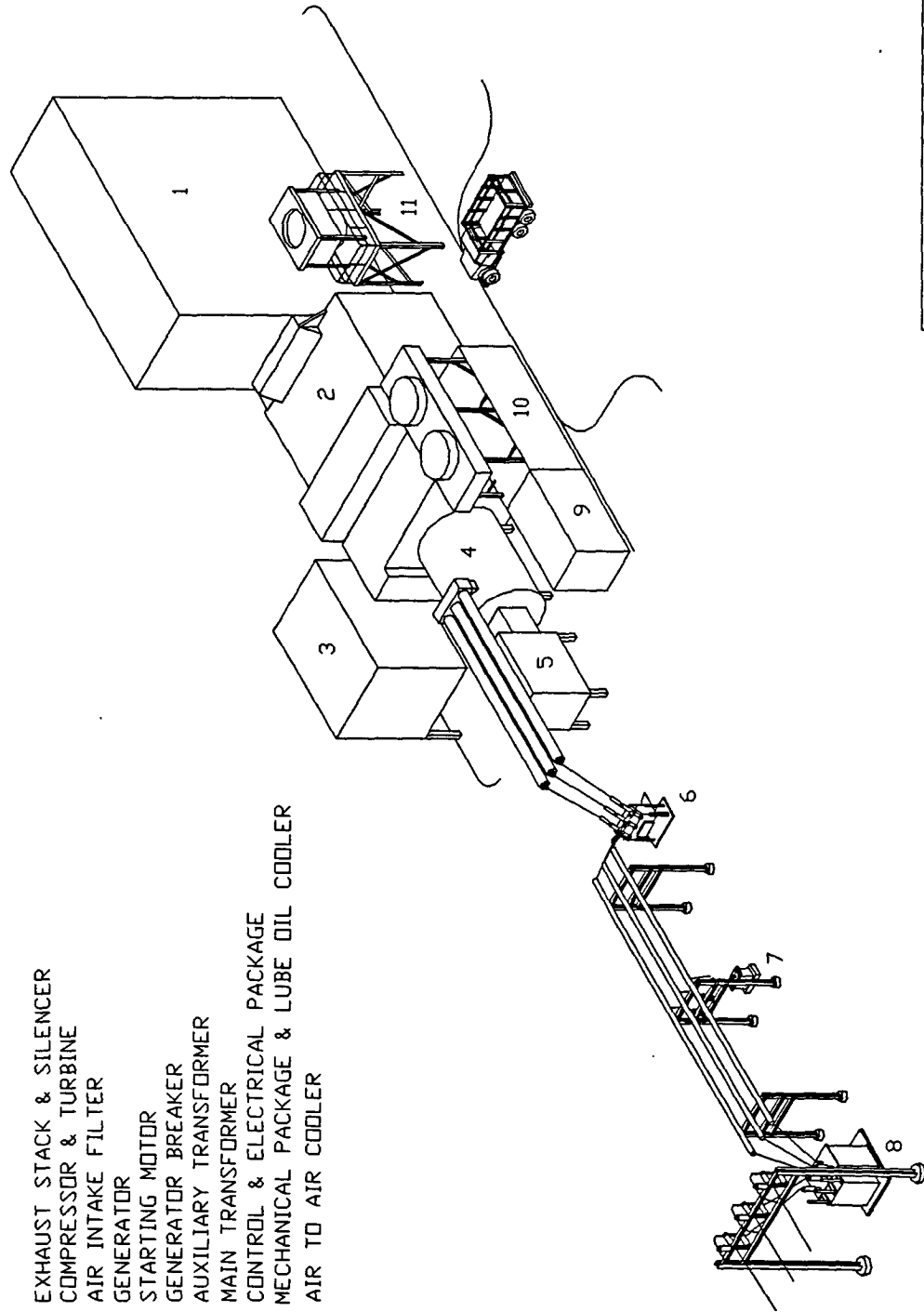
Combustion Turbine Generator Units

CTGs are compact, modular power plants that can be installed quickly and at a lower capital cost than other types of generating facilities such as coal, nuclear, or hydroelectric generating plants. The major components of each CTG are combustors, air intake filter, compressor, turbine, generator, 50-foot emission stack, starting motor, generator breaker, auxiliary and main transformers, and related controls and support equipment. Each combustion turbine unit is approximately 150 feet by 70 feet in dimension. Four units situated side-by-side will require approximately 2 acres of land which does not include buffer zones around the unit.

High pressure air (typically 10 to 15 atmospheres) is generated by the compressor and supplied to the combustor, where it is mixed with fuel. The air-fuel mixture is burned in the combustor, and the resultant gases are directed to the turbine. The expanding hot gas spins the turbine, which, in turn, drives the compressor and a generator to produce electric power. The combustion gas is exhausted to the atmosphere through a 50-foot high stack. Silencers will be installed in both the air intake and exhaust plenums to minimize sound emissions. The turbines will be equipped with a water injection system to control nitrogen oxide (NO_x) emissions.

The 105 MW CTGs selected for the Pathfinder site will be manufactured by Westinghouse. A typical general arrangement diagram of a simple cycle CTG is provided in Figure 7, Combustion Turbine Generator Diagram.

1. EXHAUST STACK & SILENCER
2. COMPRESSOR & TURBINE
3. AIR INTAKE FILTER
4. GENERATOR
5. STARTING MOTOR
6. GENERATOR BREAKER
7. AUXILIARY TRANSFORMER
8. MAIN TRANSFORMER
9. CONTROL & ELECTRICAL PACKAGE
10. MECHANICAL PACKAGE & LUBE OIL COOLER
11. AIR TO AIR COOLER



NORTHERN STATES POWER COMPANY
PATHFINDER SITE, SOUTH DAKOTA

FIGURE 7
COMBUSTION TURBINE GENERATOR
DIAGRAM

DWG NO.: N05644052.F109

DAMES & MOORE

Oil Storage Equipment

Oil storage equipment consists of two existing on-site fuel oil storage tanks with a combined capacity of 4 million gallons. An earthen basin lined with 5 inches of crushed rock on top of 9 inches of clay liner surrounds each fuel oil storage tank to contain oil spills. Each basin was designed to contain at least 110 percent of the total capacity of the oil storage tank located within the basin. The clay liner is designed to minimize ground water contamination.

Water Treatment System

Ground water will be pumped from existing on-site wells to two reverse osmosis/mixed bed demineralizer systems (of approximate 130 gallon per minute capacity) which will remove impurities from the water. Demineralized water will be stored in two new storage tanks, with a combined capacity of approximately 1,200,000 gallons. Demineralized water will be injected into the combustion chamber of the CTG during operation to reduce the emission of NO_x. The proposed system will provide enough capacity to meet the water injection requirements of the proposed CTG facility operating at 50 hours per week or less.

Transformers/Interconnection to Transmission System

The proposed CTGs will be connected to the Split Rock Substation by two new 115 to 13.8 kv main transformers. Other equipment necessary to connect the CTG to the Split Rock Substation includes motor operated and manual disconnects; breakers; 115 kv transmission lines; and transmission towers. Additional pieces of electrical equipment used to support the CTG includes 13.8 to 4.16 kv start-up transformers; fuel and water treatment area transformers; and 480 V switchgear.

Operation

Under normal conditions, the proposed CTG facility at the Pathfinder site will be operated remotely from the NSP system operations center in Minneapolis, Minnesota. An operator, and security personnel at the existing Pathfinder Power Plant will be responsible for the operation, maintenance, and site security coverage of the proposed CTG facility.

Combustion turbine start-up is accomplished by spinning the turbine with a motor. Once the speed of the turbine is sufficient to establish a proper flow of air through the combustors, fuel can be injected and ignited. The power generated from the combustion process is then used to bring the turbine speed up to 3600 revolutions per minute. After the unit is synchronized to the NSP transmission system, the load is increased, as required. The typical start-up time is 20 minutes from initial start to full load operation.

(3,4) Materials Flowing In and Out of Facility

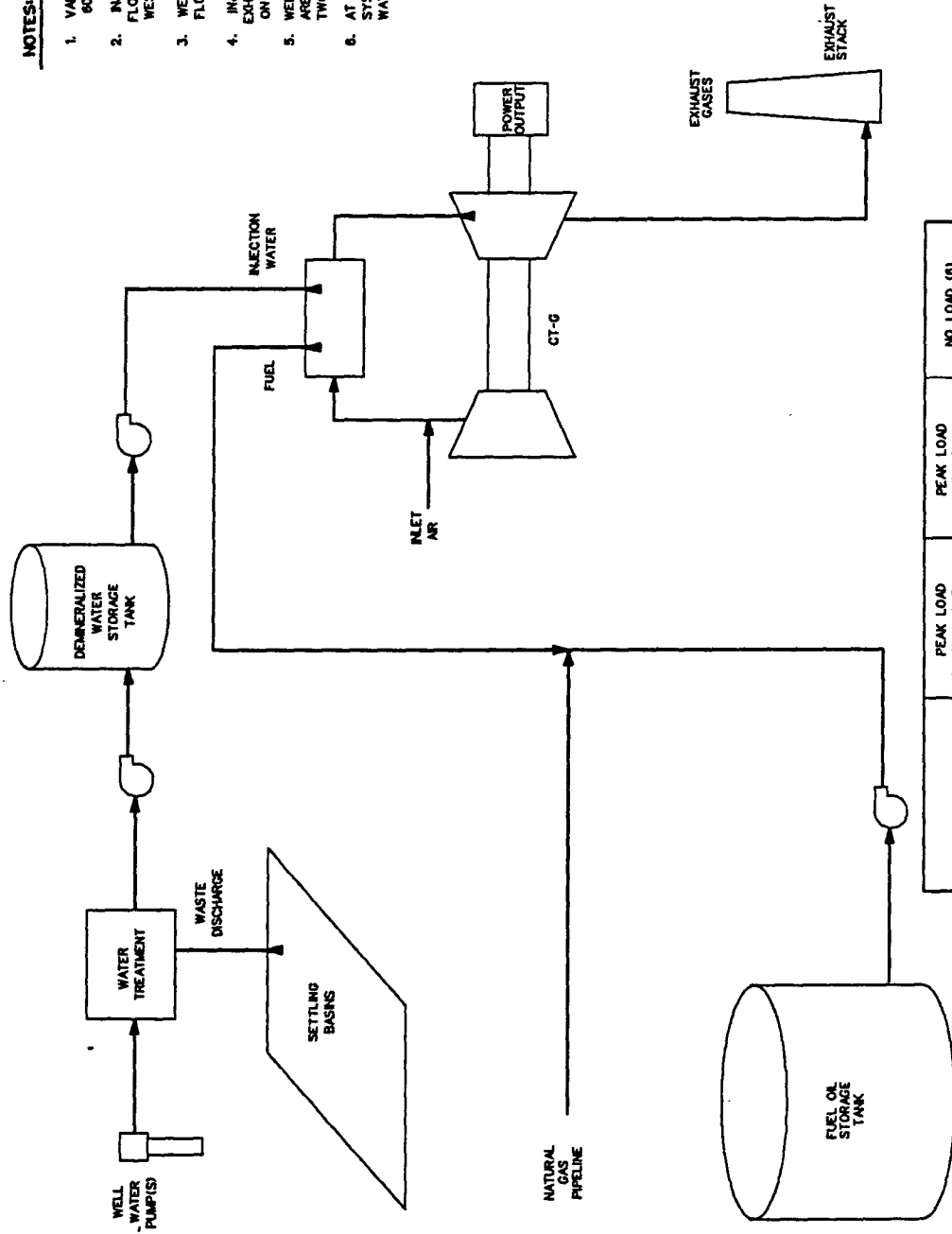
Figure 8, CTG Unit Mass Balance Diagram, depicts the anticipated flow rates of materials flowing in and out of the proposed CTG facility at (1) peak load using natural gas as a fuel source, (2) peak load using fuel oil as a fuel source, and (3) no load on the CTGs with the water treatment system in operation. The inputs to the facility consist of ground water obtained from on-site wells, natural gas as a primary fuel, and No. 2 distillate fuel oil as a back-up fuel. Outputs consist of exhaust gases and wastewater discharges. A description of the wastewater discharge and exhaust gas output is presented in Rule 20:10:22:20, Water Quality and Rule 20:10:22:21, Air Quality.

(5) Procedures to Avoid Discharges that Endanger the Public

Measures taken to avoid or minimize the possibility that the discharges, emissions, or solid wastes would constitute a public nuisance, endanger the public health and safety, endanger human, animal, or plant life, or endanger recreational facilities are included in Exhibit A, EIR, Chapter 5.0, Environmental Impacts.

NOTES:

1. VALUES ARE BASED ON SUMMER DESIGN CONDITIONS, 100° F., 80% RELATIVE HUMIDITY, 1000 FT ELEV.
2. INJECTION WATER, NATURAL GAS, FUEL OIL AND EXHAUST GAS FLOW RATES AND NET POWER OUTPUT VALUES ARE PROVIDED BY WESTINGHOUSE CONTRACT.
3. WELL WATER, WATER TREATMENT DISCHARGE AND INLET AIR FLOW RATES ARE ESTIMATED BY NSP.
4. INJECTION WATER, NATURAL GAS, FUEL OIL, INLET AIR AND EXHAUST GAS FLOW RATES AND NET POWER OUTPUT ARE ON A PER UNIT BASIS.
5. WELL WATER AND WATER TREATMENT DISCHARGE FLOW RATES ARE BASED ON ONE WATER TREATMENT SYSTEM WHICH FEEDS TWO CTG UNITS.
6. AT NO LOAD OPERATION THE WELL WATER AND WATER TREATMENT SYSTEM WILL OPERATE AS REQUIRED TO FILL DEMINERALIZED WATER STORAGE TANK.



	PEAK LOAD NATURAL GAS (1)	PEAK LOAD FUEL OIL (1)	NO LOAD (6)
WELL WATER (3,5)	87,540 b/hr	87,540 b/hr	87,540 b/hr
WATER TREATMENT DISCHARGE (3,6)	22,520 b/hr	22,520 b/hr	22,520 b/hr
INJECTION WATER (2,4)	82,821 b/hr	80,884 b/hr	0
NATURAL GAS (2,4)	59,158 b/hr	0	0
FUEL OIL (2,4)	0	80,894 b/hr	0
INLET AIR (3,4)	2,449,542 lb/hr	2,431,042 b/hr	0
EXHAUST GASES (2,4)	2,588,184 b/hr	2,568,836 b/hr	0
NET POWER OUTPUT (2,4)	104,975 kw	98,190 kw	0

NORTHERN STATES POWER COMPANY
PATHFINDER SITE, SOUTH DAKOTA

FIGURE 8
CTG UNIT MASS BALANCE
DIAGRAM

DWG NO.: N05644052.F120 DAMES & MOORE

RULE 20:10:22:27 PRODUCTS TO BE PRODUCED

Each CTG unit proposed for installation at the Pathfinder site will produce up to 105 MW under peak operation at summer design conditions with natural gas fuel and 128 MW at winter design conditions with natural gas fuel. The CTG units will be connected to the existing transmission system through the Split Rock Substation located on the Pathfinder plant site for transmission and distribution to NSP customers.

RULE 20:10:22:28 FUEL TYPE USED

(1) Proposed Fuel Types

The primary fuel utilized by the proposed CTG facility will be natural gas of pipeline quality. The Btu content of pipeline quality gas can be expected to range from 990 to 1020 Btu/ft³, with specific gravities ranging from 0.58 to 0.62, and a maximum water content of 7 lbs. per million cubic feet of gas.

Backup fuel for the proposed CTG facility will be No. 2 distillate fuel oil, which will be used during times when natural gas is unavailable. It is anticipated that a one week supply of fuel oil will be stored on site in the existing fuel oil storage tanks, based on the assumption that the proposed CTG facility would operate 50 hours per week at full capacity at winter design conditions.

(2) Anticipated Yield and Range

Natural gas BTU content is about 1,000,000 BTU per 1000 cubic feet plus or minus 10 percent. Fuel oil BTU content is expected to be about 19,000 BTU per pound plus or minus 10 percent.

(3) Chemical Analysis of the Proposed Design Fuel

Table 4, General Composition of Natural Gas Fuel, and Table 5, General Composition of No. 2 Distillate Fuel Oil, present the approximate chemical analysis of the natural gas and No. 2 distillate fuel oil, respectively.

TABLE 4

GENERAL COMPOSITION OF NATURAL GAS FUEL

Element	Pipeline Laboratory Standard (%)	Actual Recorded Composition ¹ (%)
N ₂ - Nitrogen	4.0	1.07
CO ₂ - Carbon Dioxide	1.0	0.42
C ₁ - Methane	86.0	95.05
C ₂ - Ethane	3.0	2.5
C ₃ - Propane	0.5	0.09
IC ₄ - Iso-Butane	0.5	0.0
NC ₄ - Normal Butane	0.5	0.01
IC ₅ - Iso-Pentane	0.5	0.0
NC ₅ - Normal Pentane	0.5	0.0
C ₆ - Hexanes	0.5	0.0
H ₆ - Helium	1.0	0.03
H ₂ - Hydrogen	2.0	0.03

Proximate Analysis % by volume.

¹ Taken from St. Paul area gas chromatograph

TABLE 5

GENERAL COMPOSITION OF NO. 2 DISTILLATE FUEL OIL

COMPOUND	WEIGHT PERCENT
Aliphatic Hydrocarbons	64 %
Aromatic Hydrocarbons	35 %
Xylene	1 %
Olefinic Hydrocarbons	1-2 %
Naphthalene	1 %
Sulfur	0 - 0.57 ppm
Arsenic	0.012 - 0.13 ppm
Cadmium	0.089 - 0.89 ppm
Chromium	0.055 - 2.8 ppm
Iron	3.8 - 71.0 ppm
Lead	<0.49 - 2.0 ppm
Manganese	0.29 - 6.2 ppm
Molybdenum	0.018 - 0.27 ppm
Nickel	<6.1 - 23.0 ppm
Vanadium	<0.06 - 0.16 ppm
Zinc	1.3 - 4.8 ppm

Sources: The Installation Restoration Program Toxicology Guide, Volume 4, Oak Ridge National Laboratory, 1989; MSDS for No.2 Distillate Fuel Oil

RULE 20:10:22:29 PROPOSED PRIMARY AND SECONDARY FUEL SOURCES AND TRANSPORTATION

The primary fuel, natural gas, will be delivered to the proposed CTGs at about 300 PSIG by Minnegasco. The secondary fuel, No. 2 distillate fuel oil, will be delivered to the site by rail or truck depending on market conditions.

RULE 20:10:22:30 ALTERNATE ENERGY RESOURCES

As discussed in Chapter 3.3, Alternative Energy Resources, Exhibit A, EIR, alternative energy resources to the proposed CTG project include combined cycle CTG units, conservation and load management programs, and purchased power alternatives. Based on a review of its projected forecasts and on a study of resource needs, NSP has concluded that the resource need in the 1990s will be primarily peaking capacity. NSP plans to meet this peaking capacity need through the installation of simple cycle CTGs.

RULE 20:10:22:31 SOLID OR RADIOACTIVE WASTE

There will be no radioactive wastes generated by the proposed CTG facility. Solid wastes are not anticipated to be generated by normal operation. Small amounts of solid waste will be generated by maintenance activities such as: demineralizer resin and reverse osmosis membrane replacement, which occurs once every 3-7 years; the use of normal cleaning supplies; the replacement of parts generally occurring through normal wear and tear; and the cleaning of bottom sludge from oil storage tanks. Unless recyclable, these wastes will be disposed of in a properly permitted landfill or treatment facility.

RULE 20:10:22:32 ESTIMATE OF EXPECTED EFFICIENCY

The expected efficiency of the proposed CTG units is based on performance data provided by Westinghouse, supplier of the CTG units. The expected efficiency of the units is 30.2 percent at a heat rate of 11,315 BTU per Kilowatt-Hour. The efficiency is based on summer design conditions which are: 100 degrees F, 60 percent relative humidity, and 1000 feet elevation using natural gas as a fuel source at base load.

RULE 20:10:22:33 DECOMMISSIONING

At the end of the on-line life of the CTG facility, the equipment will be sold as scrap metal to the extent possible and the remaining miscellaneous material will be landfilled. Upon removal of the concrete foundation, the land could be totally reclaimed. The estimated cost of decommissioning the CTG facility in 1994 dollars is about \$200,000.

RULE 20:10:22:34 and 35 TRANSMISSION FACILITY LAYOUT AND CONSTRUCTION

Approximately 2,500 feet of new 115 kv transmission line will be constructed to connect the proposed CTG facility with the existing Split Rock Substation located on the Pathfinder site. The new transmission facilities will be wholly contained on existing NSP property and will not require any clearing activities.

(1) Configuration of Towers and Poles

The poles for the transmission facility are expected to consist of eight single wooden structures with heights of 80, 85, 90, and 95 feet (two poles at each height). The poles are expected to be spaced at approximately 350 feet. Each pole will contain three arms and three conductors, two on one side and one on the other. In the worst case scenario, each pole would contain six arms and six conductors, three on each side.

The exact transmission line layout, configuration, number of poles, heights, and spans will not be known until detailed engineering has been performed.

(2) Conductor Configuration

The new transmission facility is expected to be a single-pole, three-arm, three-conductor, single-circuit configuration with one shield wire on top. In the worst case scenario, the transmission facility would be a single-pole, six-arm, three conductor, double-circuit configuration with one shield wire on top. The exact conductor configuration will not be known until detailed engineering has been performed.

(3) Proposed Transmission Site and Major Alternatives

The expected transmission line route is shown on Figure 9, Transmission Line Arrangement.

(4) Reliability and Safety

The new transmission facility will be built to NSP standards and comply with all applicable Federal, State and local codes and regulations.

(5) Right-of-way or Condemnation Requirements

Since the new transmission facilities will be wholly contained on NSP property, no right-of-way or condemnation requirements are required.

(6) Necessary Clearing Activities

The new transmission facilities will not require any clearing activities.

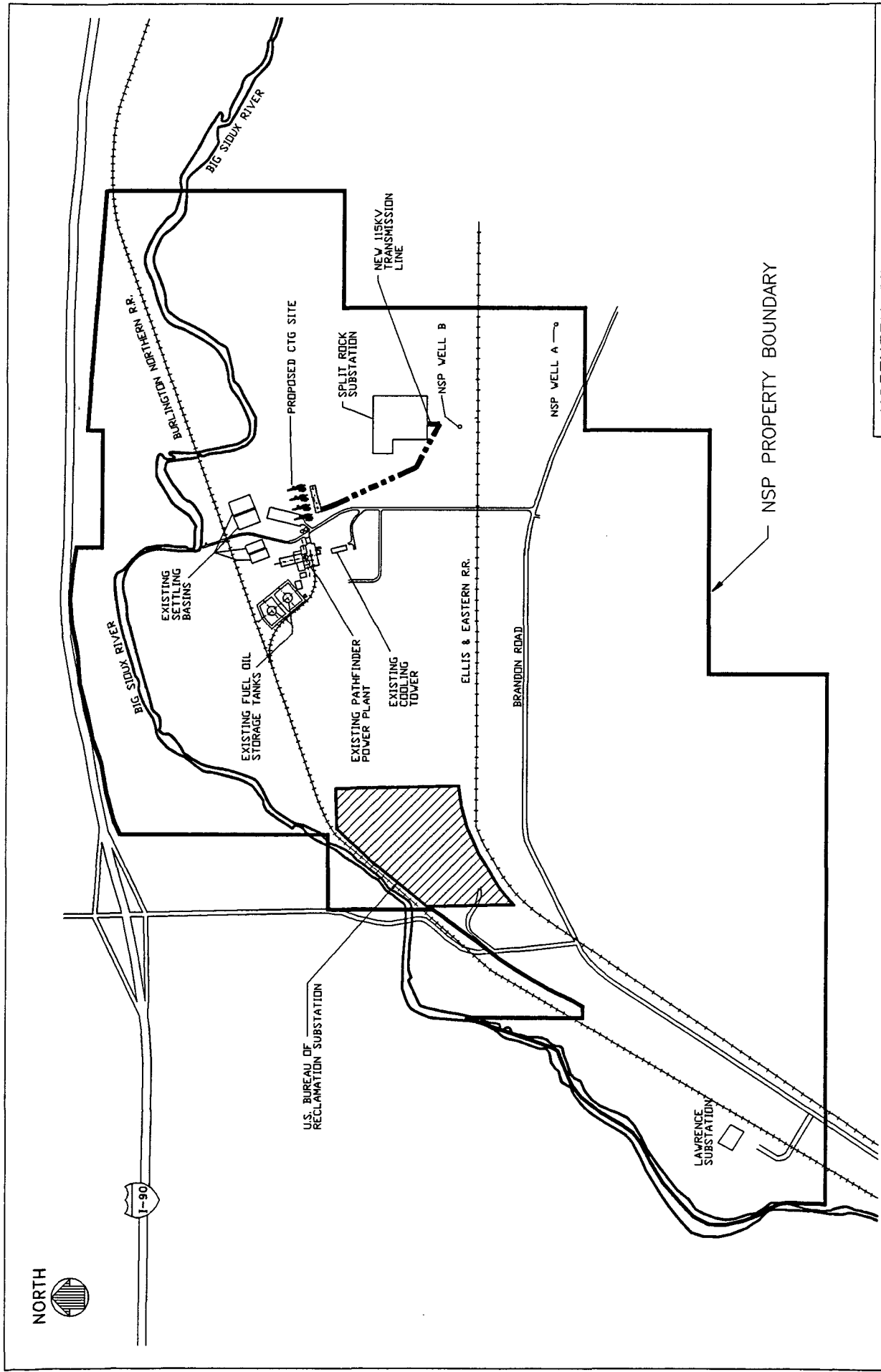
RULE 20:10:22:36 ADDITIONAL INFORMATION IN APPLICATION

The following exhibits are submitted in support of this Application unless otherwise noted:

- Exhibit A - Environmental Impact Report (EIR)
- Exhibit B - Site Screening Study
- Exhibit C - NPDES Permit Application (to be submitted later)
- Exhibit D - Ground Water Discharge Permit Application (to be submitted later)
- Exhibit E - PSD Permit Application
- Exhibit F - Water Appropriation Permit Application

RULE 20:10:32:39 TESTIMONY AND EXHIBITS

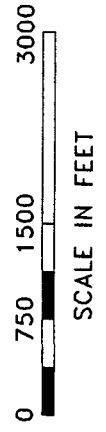
Testimony in support of this Application will be submitted shortly.



NORTHERN STATES POWER COMPANY
MINNEHAHA COUNTY, SOUTH DAKOTA

FIGURE 9
TRANSMISSION LINE ARRANGEMENT

DWG NO.: N05644052.F116 DAMES & MOORE





Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500

October 1, 1991



Water Rights Division
South Dakota Department of
Environment & Natural Resources
Joe Foss Building
Pierre, South Dakota 57501

RE: PATHFINDER COMBUSTION TURBINES
WATER RIGHT APPLICATION

Northern States Power hereby applies for a permit to appropriate water within the State of South Dakota. Enclosed are completed application forms and a check made out to the Water Rights Division DENR for \$675.00.

Currently NSP owns and operates a 60mw gas fired power plant at the Pathfinder site near Sioux Falls. Water is supplied from two existing wells. On September 24, 1991 NSP made application to the South Dakota Public Utilities Commission for a facility permit for up to four 100mw combustion turbines at the Pathfinder site. The turbines are designed to be air cooled, however, water is injected into the combustion chamber during operation to minimize the emission of oxides of nitrogen into the air. NSP proposes to supply water to the combustion turbines from the existing wells at the site.

A copy of the Facility Permit Application and the Environmental Impact Report are enclosed. These reports provide additional information and, hopefully, will assist you in evaluating this appropriation request.

Please feel free to call me if you have any questions or need additional information.

Thank you,

A handwritten signature in black ink that reads "Jim Alders". The signature is written in a cursive, flowing style.

James R. Alders
Manager
New Facility Permitting
(612) 330-6732

Enclosures

cc: Martin Bettmann, South Dakota PUC
Angus Anson, NSP South Dakota

Water Rights Division - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Northern States Power Company Permit Applications

ADDRESS: _____ COUNTY: Minnehaha

DATE: 10/8/91 TELEPHONE: 612 330-6732

RE: Converation with Jim Alders, Manager, New Facility Permitting

COMMENTS:

I called Mr. Alders regarding the two water permit applications from existing permitted wells submitted by Northern States Power Company. The two applications, as submitted, were to amend Water Right Nos. 561-3 and 742-3 with the old priority date retained and change use. Both of these water rights were issued for industrial purposes and the new applications stated use of water was for industrial purposes.

I recalled a meeting we had last spring with Northern States Power Company and their consultants at which time they stated the WR Nos. 561-3 and 742-3 were still be used but to a lesser extent that stated on the water license. At that time we told them that these water rights could be reissued for the actual water used and that additional water needed to operate the new plant would require a new application that would have a new priority date.

I explained the basis for water rights priority date, "first in time, first in right" and explained that it would be advantageous for the Company to retain WR Nos. 561-3 and 742-3 for that portion of water not subject to cancellation and that the additional water would need to be applied for as a new application. Mr. Alders stated that part of the problem was that he does not know the diversion rate of water that was used during periods that the plant was inactive. He did state that water was used from each of wells each year.

Mr. Alders was going to talk to some people at the plant and try to give us a reasonable diversion rate that the two water rights can be issued for. Then we will amend the applications to reflect the new appropriation of water that will take a new diversion rate. I told him I would await a call from him to clear up this issue. I also stated during that phone call I could tell him what the correct application filing fee would be.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: Eric Lundberg



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

GREAT FACES. GREAT PLACES.

November 13, 1991

James Alders, Manager
Northern States Power Company
414 Nicollet Mall
Minneapolis MN 55401

Dear Mr. Alders:

In regard to the water permit applications received on October 3, 1991, the following information needs to be clarified in order to process the applications for Northern States Power Company.

As explained in your phone conversation with Eric Gronlund, it would be advantageous for your company to retain the priority dates of Water Rights Nos. 561-3 and 742-3. The priority dates can only be retained for the amount of water that has been used on a continuous basis. This would include the time period when the plant was inactive. When this amount of water is determined, the applications can be amended to reflect the new amount of water that will have a new priority date.

When the amount of water is determined, the filing fee for these applications can be calculated. The \$675 fee is on file with the pending applications. If you have any questions, please contact Eric Gronlund of this office.

Sincerely,

Karen Schlaak
Natural Resources Analyst
605 773-3352

Water Rights Division - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Northern States Power Company

ADDRESS: 414 Nicollet Mall

COUNTY: MH

DATE: 11/18/91

TELEPHONE: 612 639-1234

RE: Conversation with Jim Alders

COMMENTS:

Mr. Alders called this office to give us a reasonable diversion rate for use of the two wells permitted by Water Right Nos. 561-3 and 742-3 since the plant has been shutdown. This information was needed in order to determine what amount of water these rights would be reissued for with priority date maintained. Also, the diversion rate and applicable filing fee for the new applications would be dependent on these amount of water that would remain on 561-3 and 742-3. This additional diversion rate would take a new priority.

1. The well permitted by WR No. 742-3 located in the NE1/4 NE1/4 Section 31, T102N, R48W has continued to be used at a rate of 50 gpm.
2. The well permitted by WR No. 561-3 located SW1/4 NW1/4 Section 32, T102N, R48W has continued to be used for drinking and sanitary use at the plant building. Mr. Alders did not have a firm diversion rate number to use for this well. I suggested and he agreed to what constitutes reasonable domestic use of water which is 18 gpm.

I told Mr. Alders that with these diversion rates, I would try to determine what the diversion rates on the new applications should be in order that are properly permitted. I said I would send him a letter reflecting how I felt the new applications should read and the appropriate application fee.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: Eric Lundberg



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

GREAT FACES. GREAT PLACES.

November 20, 1991

James Alders, Manager
Northern States Power Company
414 Nicollet Mall
Minneapolis MN 55401

Dear Mr. Alders:

Regarding the water permit applications submitted to amend the two existing water rights held by Northern States Power Company and your phone conversation with Eric Gronlund of this office, the following changes have been made on the applications:

The application to amend Water Right No. 742-3 will be reduced by 50 gpm leaving 100 gpm (0.22 cfs). The filing fee will be \$225.00.

The application to amend Water Right No. 561-3 will be reduced by 18 gpm leaving 532 gpm (1.18 cfs). The filing fee will be \$350.00.

Enclosed is the check originally submitted for \$675.00. The filing fee for the two amended applications will be \$575.00. Upon receipt of the fee further processing of the application will continue.

If you have any questions, please contact this office.

Sincerely,

A handwritten signature in cursive script that reads "Karen Schlaak".

Karen Schlaak
Natural Resources Analyst
605 773-3352



Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500



November 25, 1991

Karen Schlaak
Natural Resources Analyst
South Dakota Department of
Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

RE: NOVEMBER 20, 1991 CORRESPONDENCE

Enclosed is a check made out to the Water Rights Division DENR for \$575.00. This check has been reissued in accordance with your letter of November 20, 1991 regarding the filing fees for the two amended applications:

Water Right No. 742-3
Water Right No. 561-3

If you have any questions or need additional information, please call me at (612) 330-6732.

Thank you,

James R. Alders
Manager New Facility Permitting
Northern States Power Company

Enclosure

cc: Martin Bettmann, South Dakota PUC
Angus Anson, NSP South Dakota

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

412939

Pierre, November 27, 1991

RECEIVED OF Northern States Power Co., 414 Nicollet Mall, Minneapolis, MN 55401

the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>5-96-3</u> to Appropriate Water, to construct works and to put water to beneficial use _____	350	00
Fee for Application for Permit No. _____ to Appropriate Water for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for Certified Copy of _____		
Fee for Print Copy of Map _____		
Fee for Certifying _____		
Fee for _____		
(Any Other Work Provided by Law)	Total	350 00

By John Hatch
Chief Engineer

REPORT ON APPLICATION NOS. 5596-3 AND 5597-3
for Northern States Power Company
January 14, 1992

Application No. 5596-3 proposes to appropriate an additional 1.18 cfs from one well authorized by Water Right No. 561-3. Water Right No. 561-3 diverts 0.04 cfs from the same well which is approximately 222 feet deep located in the SW 1/4 NW 1/4 of section 32, T102N R48W in Minnehaha County. The water is for industrial use at the power plant.

Application No. 5597-3 proposes to appropriate an additional 0.22 cfs from one well authorized by Water Right No. 742-3. Water Right No. 742-3 diverts 0.11 cfs from the same well approximately 170 feet deep located in the NE 1/4 NE 1/4 of section 31, T103N R48W in Minnehaha County. The water is for industrial use at the power plant.

AQUIFER - SPLIT ROCK CREEK (SRKC)

The Split Rock aquifer consists of a basal fine to medium grained sandstone overlain by organic claystones, opaline sediments and massive cherts with a total known thickness of 300 feet (Hedges, 1982). The aquifer underlies 69 square miles and contains an estimated 99,400 acre feet of recoverable water in Minnehaha County (Hedges, 1982). A project is currently underway by the South Dakota Geological Survey to evaluate the feasibility of the Split Rock Creek aquifer as a supplemental water supply for the City of Sioux Falls. The intent of this study is to quantify the effects of withdrawals from the Split Rock aquifer by closely monitoring pumping from 2 production wells and closely monitoring the observation wells in the area (Pence, oral comm., 1992). Results from this testing will be available later this year. Additional information obtained since the Hedges report indicates the aquifer underlies about 100 square miles of Minnehaha County with no further refinement of the total amount of water in storage (Barari, 1989). The original estimates are undoubtedly very conservative.

The Split Rock Creek aquifer is under confined (artesian) conditions. The Division of Water Rights monitors 11 observation wells completed into the Split Rock Creek in Minnehaha County. Water levels for these wells fluctuate in response to climatic conditions, that is, rising during wet years do to recharge and gradually declining during dry years do to discharge. In general the water level record indicates that the aquifer is capable of sustaining additional withdrawals (Water Rights, 1992).

Recharge to the Split Rock Creek aquifer has not been quantified. Since this is a buried aquifer it is likely that recharge to the aquifer is accomplished by leakage from other aquifers or formations. These include buried outwash (sand and gravel) aquifers lying above the Split Rock aquifer, the Sioux Quartzite and Quartzite wash, the Big Sioux South aquifer and leakage from the overlying till.

REVIEW OF EXISTING WATER PERMITS/RIGHTS

There are no active water permits from the Split Rock Creek aquifer within 2 miles of this proposed diversion. There are four cancelled permits that were issued to NSP at the Lawrence site for Split Rock Creek wells. One of these wells (deep well No. 4) is presently being tested by the City of Sioux Falls and reportedly has produced 167 million gallons of water since September of 1990 (Pence, oral comm., 1992). This averages about 248 gpm. These wells were reportedly plugged when the Water Rights were cancelled, but apparently this was not done properly. Because the aquifer is under artesian conditions drawdown will occur as a result of pumping. A measured cumulative affect of drawdown and natural fluctuation at observation well MA-87D (which is located in the immediate vicinity of this proposed diversion) has shown a decline of 5 to 6 feet since September of 1990. This observation well is located approximately 2 miles east of well being tested by the City of Sioux Falls. This would indicate that drawdown created by pumping will occur over a relatively large area but that interference should not be adverse to properly constructed wells.

Information included with these applications indicate the two existing wells were capable of supplying the amount of water requested and had been licensed under Water Right Nos. 561-3 (1.77 cfs) and 742-3 (.33 cfs). No recent production testing is available for these two wells and both have been used at a lesser rate for many years.

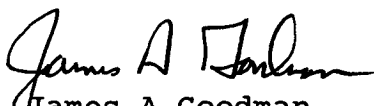
One Water Permit application No. 5084-3 which requested 1500 acre feet of water annually was denied by the Water Management Board because the applicant did not show a need for the water. Also the City of Sioux Falls has a deferred application No. 5213-3 which requested 6.7 cfs from 3 wells completed into the Split Rock Creek aquifer. The nearest proposed diversion for the Sioux Falls application is more than 4 miles to the southeast of the wells for this application. Interference should not be a problem.

Currently there are 13 active water permit/rights for ground water from the Split Rock Creek aquifer in Minnehaha County. The total diversion authorized is 2.39 cfs and a Future Use reservation of 188 acre feet per year. Of this authorized diversion, the largest is for the City of Brandon which is for 1.32 cfs from one well.

CONCLUSIONS

1. Water is available from the Split Rock Creek aquifer.
2. The Split Rock Creek aquifer is under artesian conditions and fluctuation due to pumping can be expected. Interference is not expected to be adverse. Recharge to the Split Rock Creek aquifer has not been quantified. The observation well record indicates that recharge does occur. Present diversions do cause water level declines in the aquifer.

3. The City of Sioux Falls is currently testing two wells completed into the Split Rock Creek aquifer to evaluate the potential of the formation.
4. These are existing wells which are being reactivated. The wells have been in continuous use and this request is to add additional water to the present diversion rate. These wells had been licensed for 2.10 cfs but were used at a rate of 0.15 cfs so the original use was considered abandoned and a new permit required to put additional water to use.
5. The City of Sioux Falls has a deferred permit No. 5213-3 for water from the Split Rock Creek aquifer.
6. The Water Management Board denied a permit application No. 5084-3 (future use for East Dakota Water Development District) for water from the Split Rock aquifer in this area. The reason for denial was based upon an insufficient documentation of the need for the water.
7. Northern States Power is aware of the need for and is pursuing additional environmental permits required for this facility.



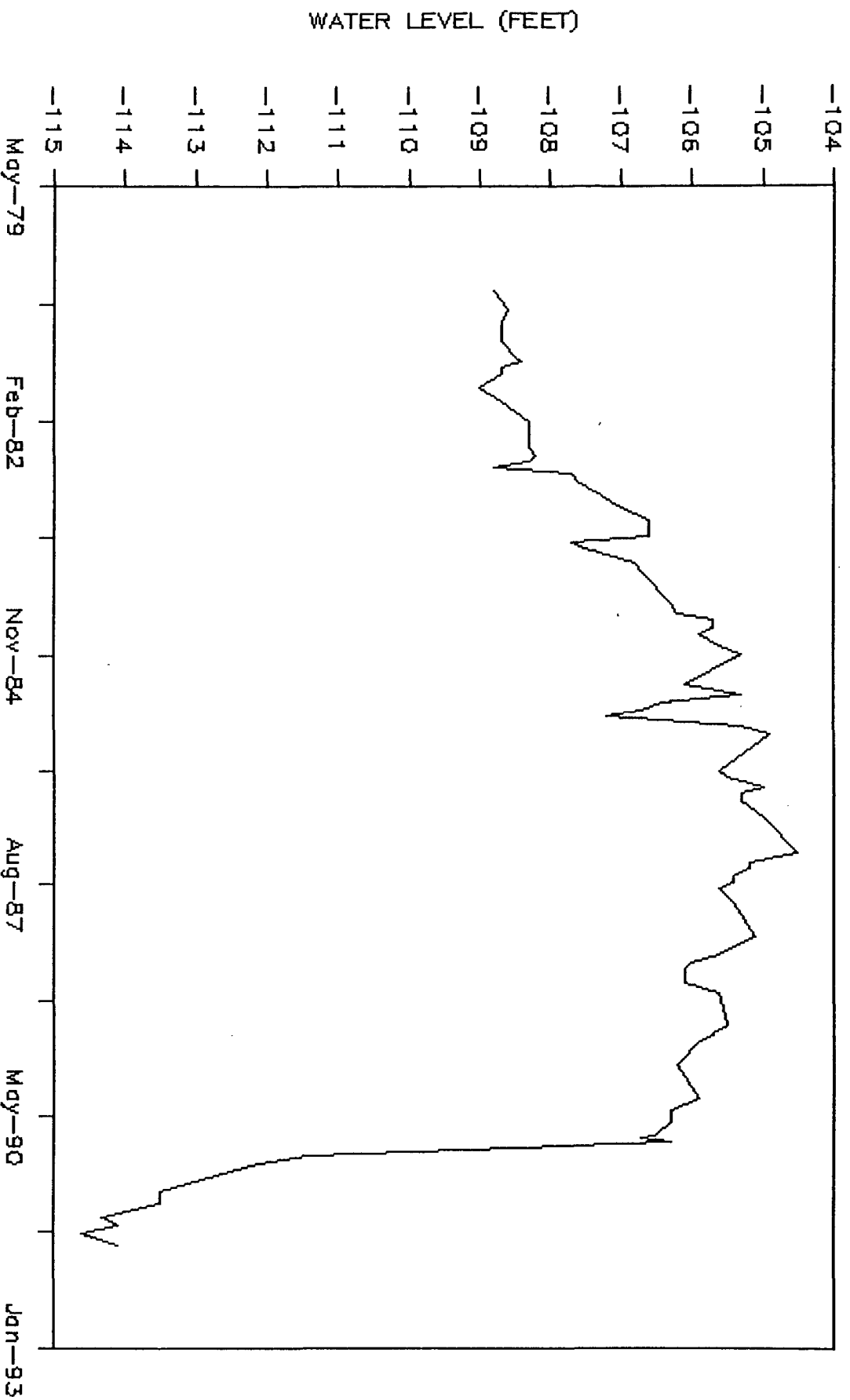
James A Goodman
Natural Resources Engineer

BIBLIOGRAPHY

- Barari, A, D.L. Illes, T.C. Cowman, 1989, Assessment of Water Resources and Conceptual Evaluation of a Regional Water Supply for Southeastern South Dakota, Open-File Report 60-UR, SD DENR, SDGS, Vermillion, SD, 57069.
- Hedges, L.S., et al, 1982, Evaluation of Ground-Water Resources Eastern SD and Upper Big Sioux River, SD and Iowa, for US Army Corps of Engineers, SD DENR, SDGS, Vermillion, SD, 57069.
- Pence, S., oral comm., 1992, "Split Rock Study", SD DENR, SDGS, Vermillion, SD, 57069.
- Water Rights, 1992, Observation Well Records for the Split Rock Creek Aquifer in Minnehaha County, SD DENR, Division of Water Rights, Pierre, SD, 57501.

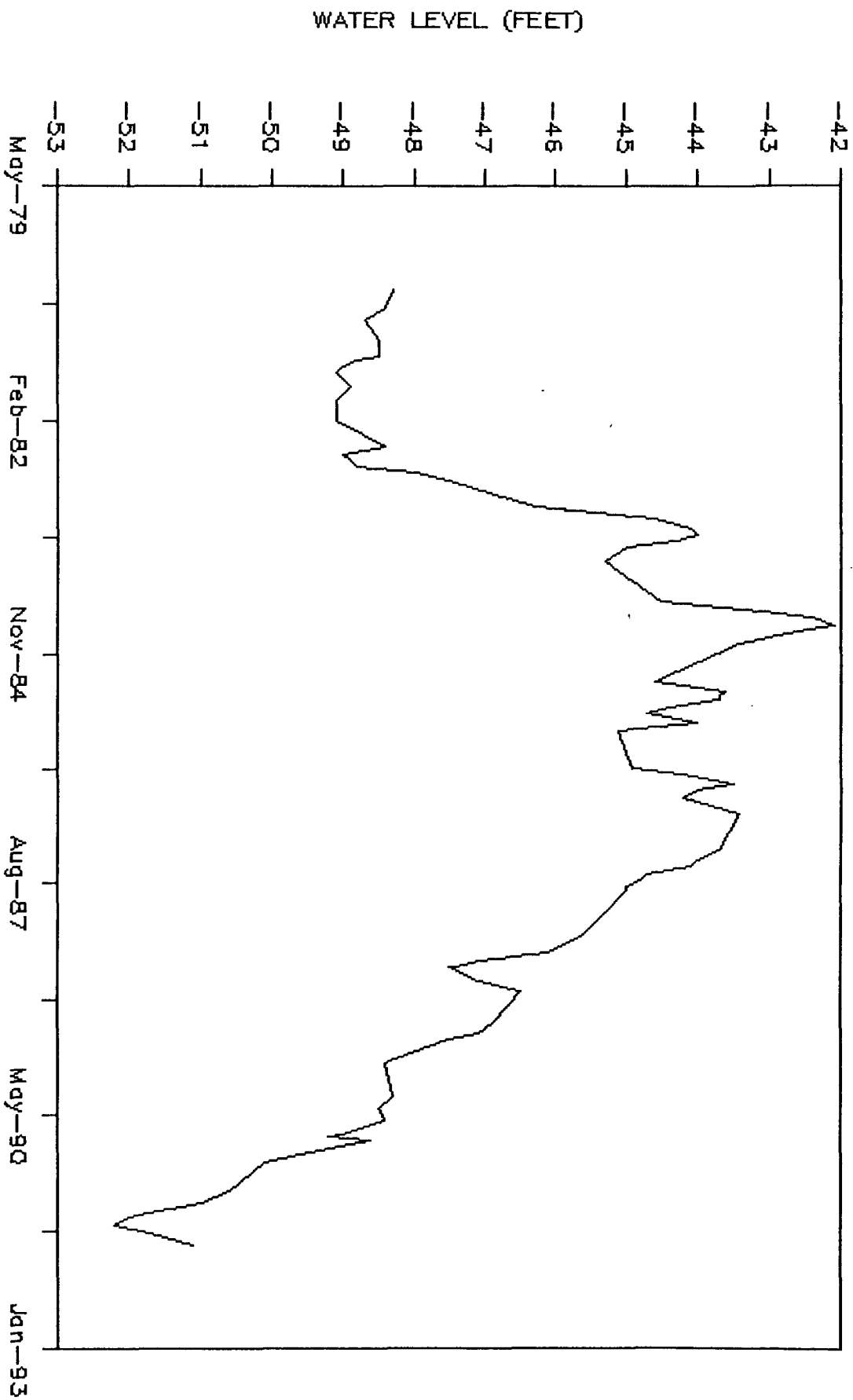
WATER RIGHTS OBSERVATION WELL

MA-80P



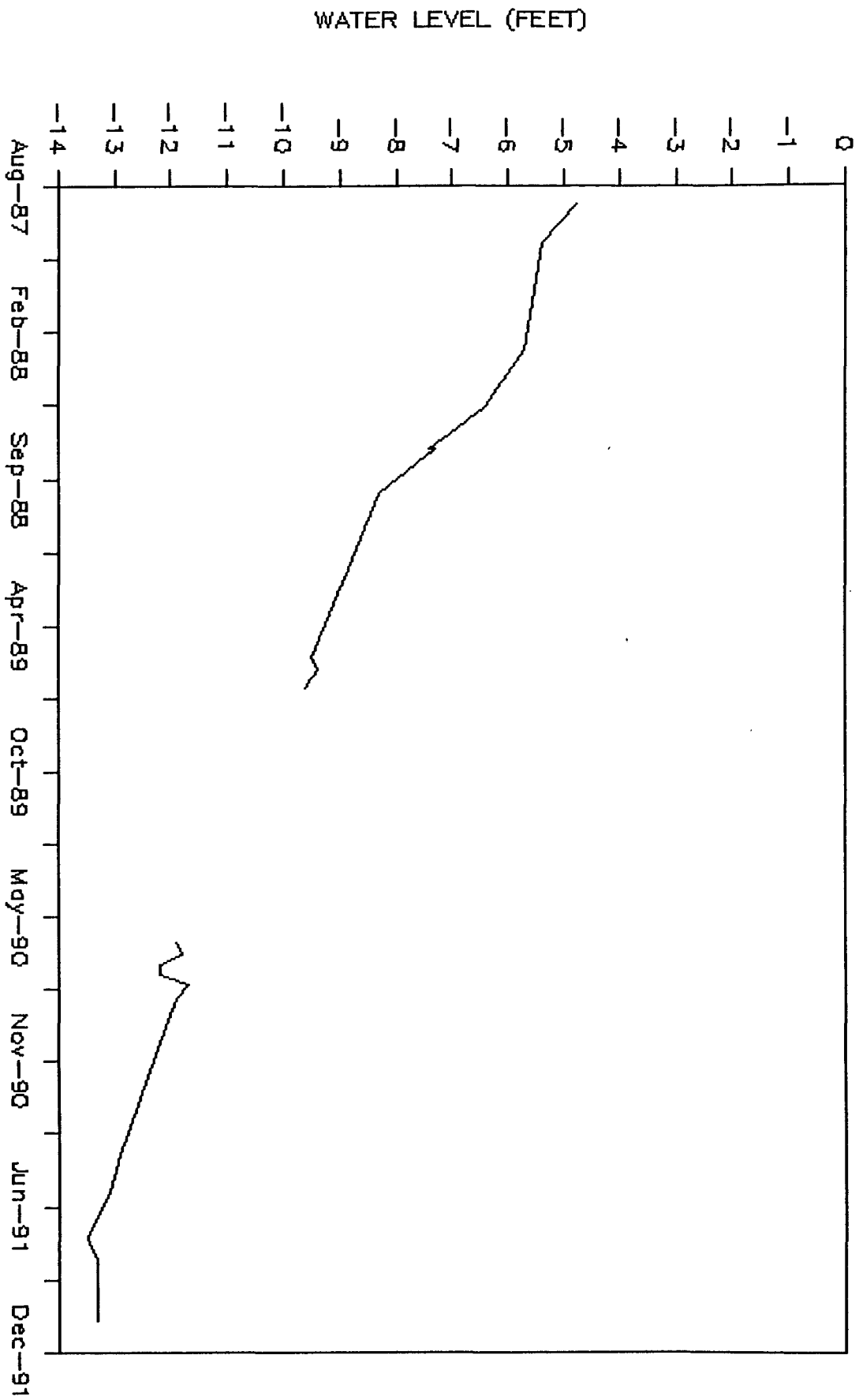
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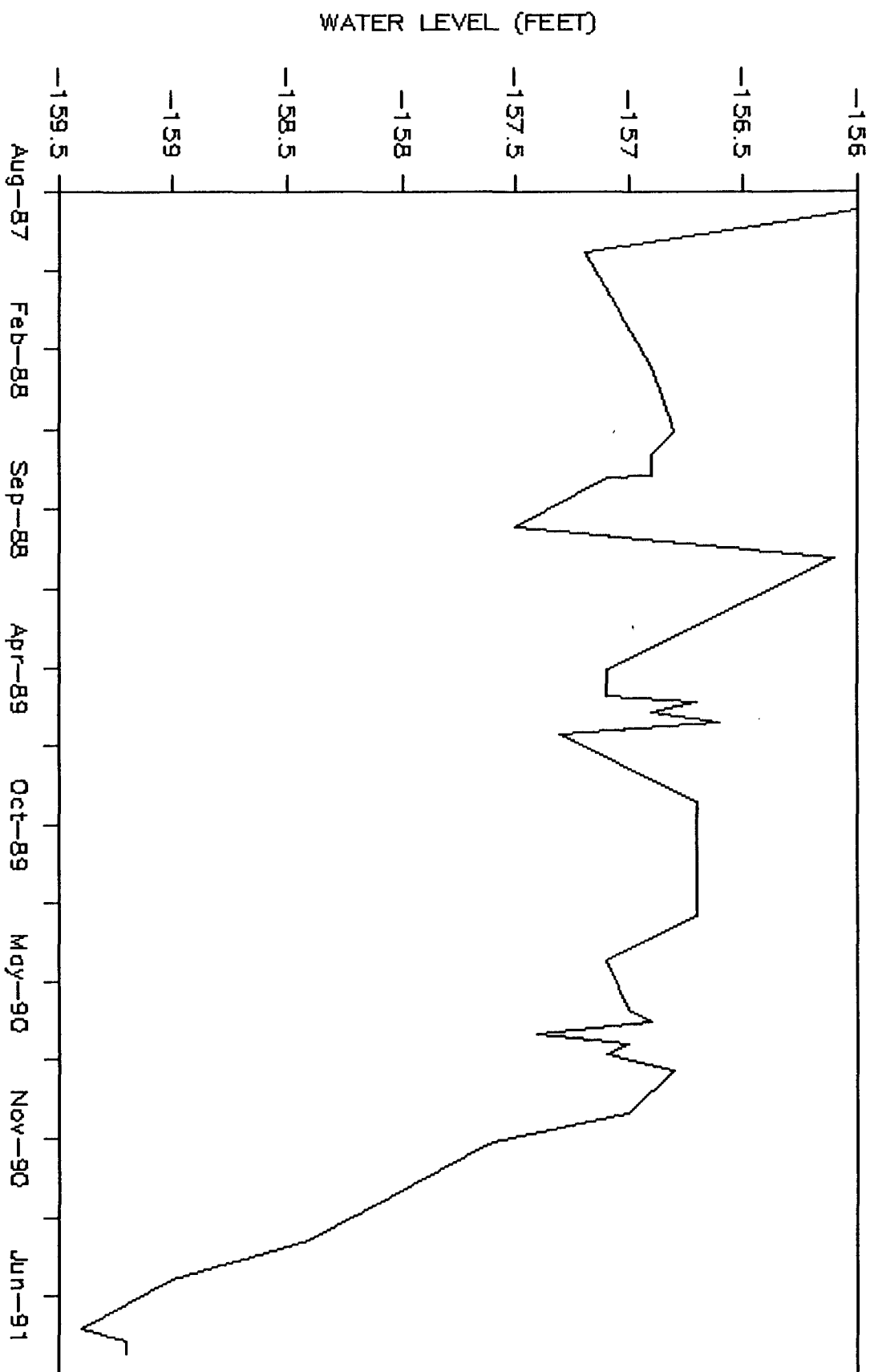
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MA-87A



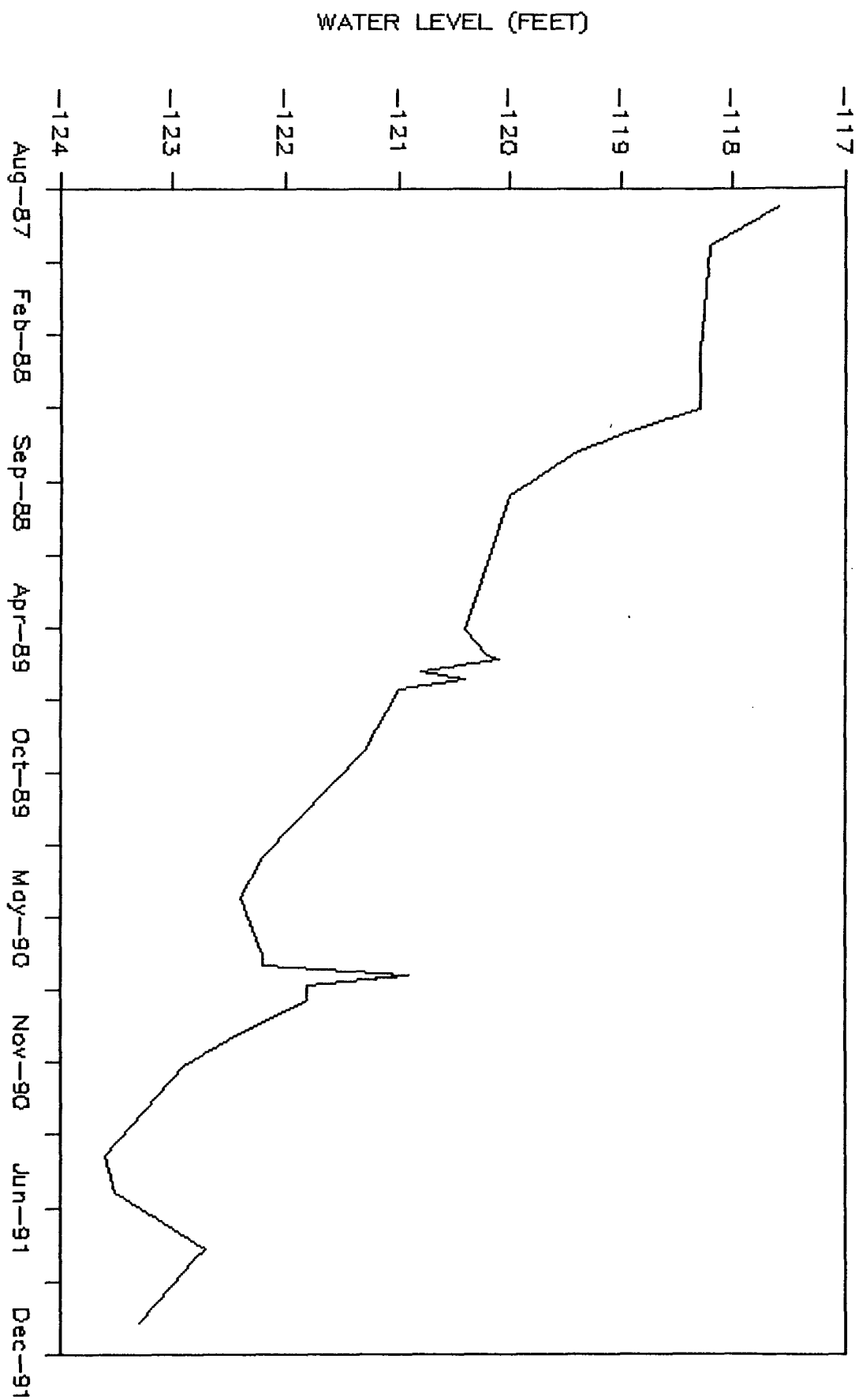
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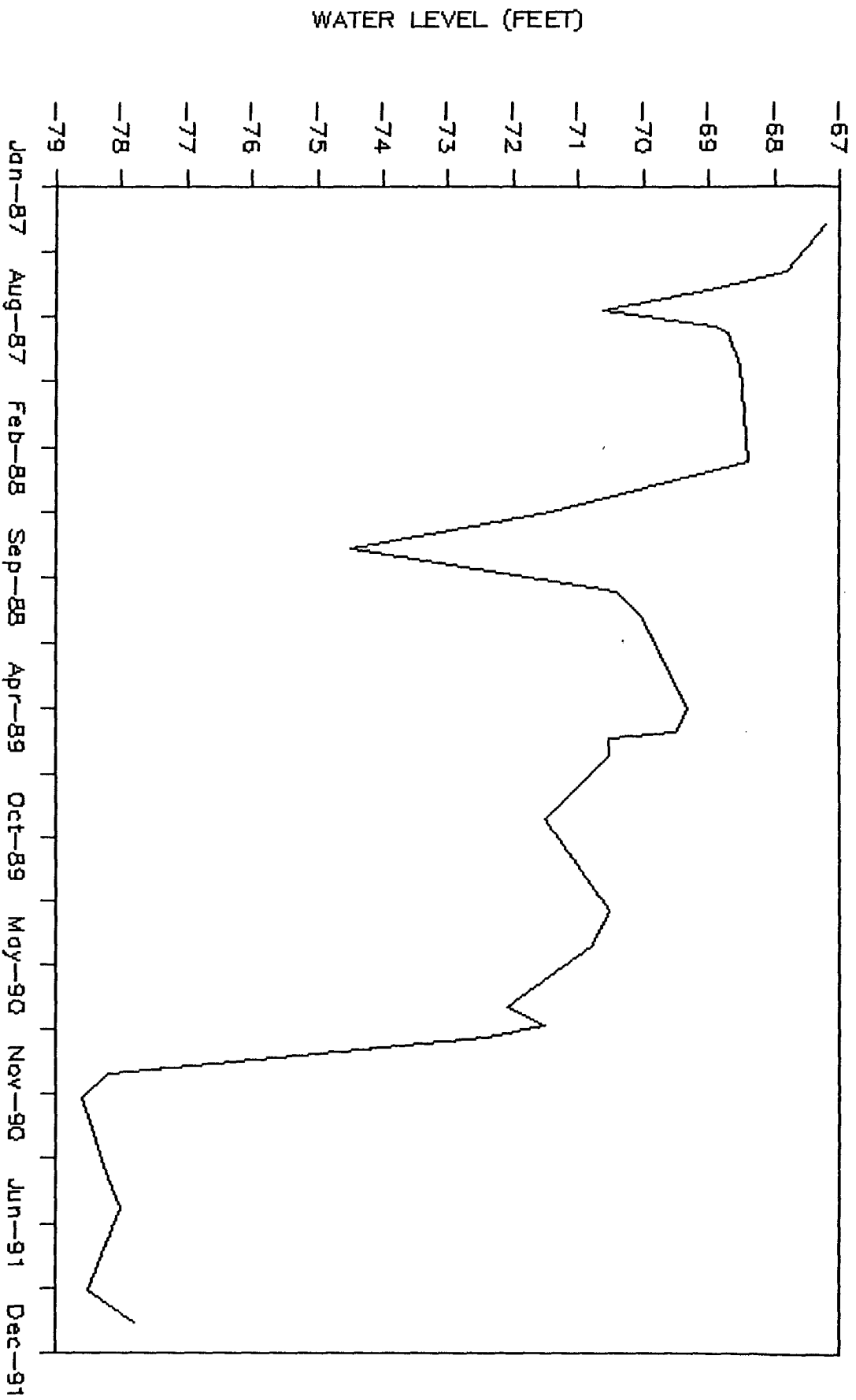
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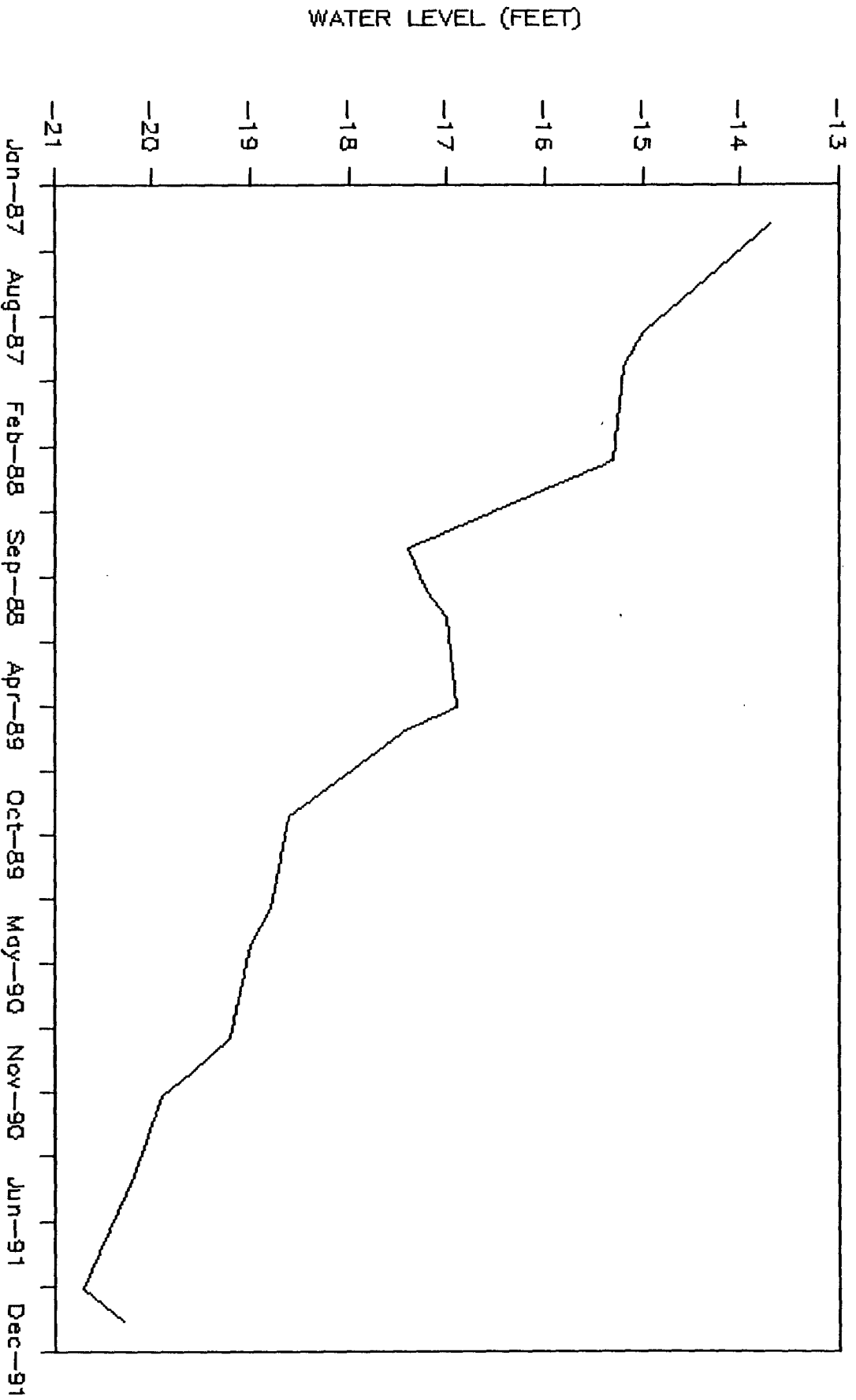
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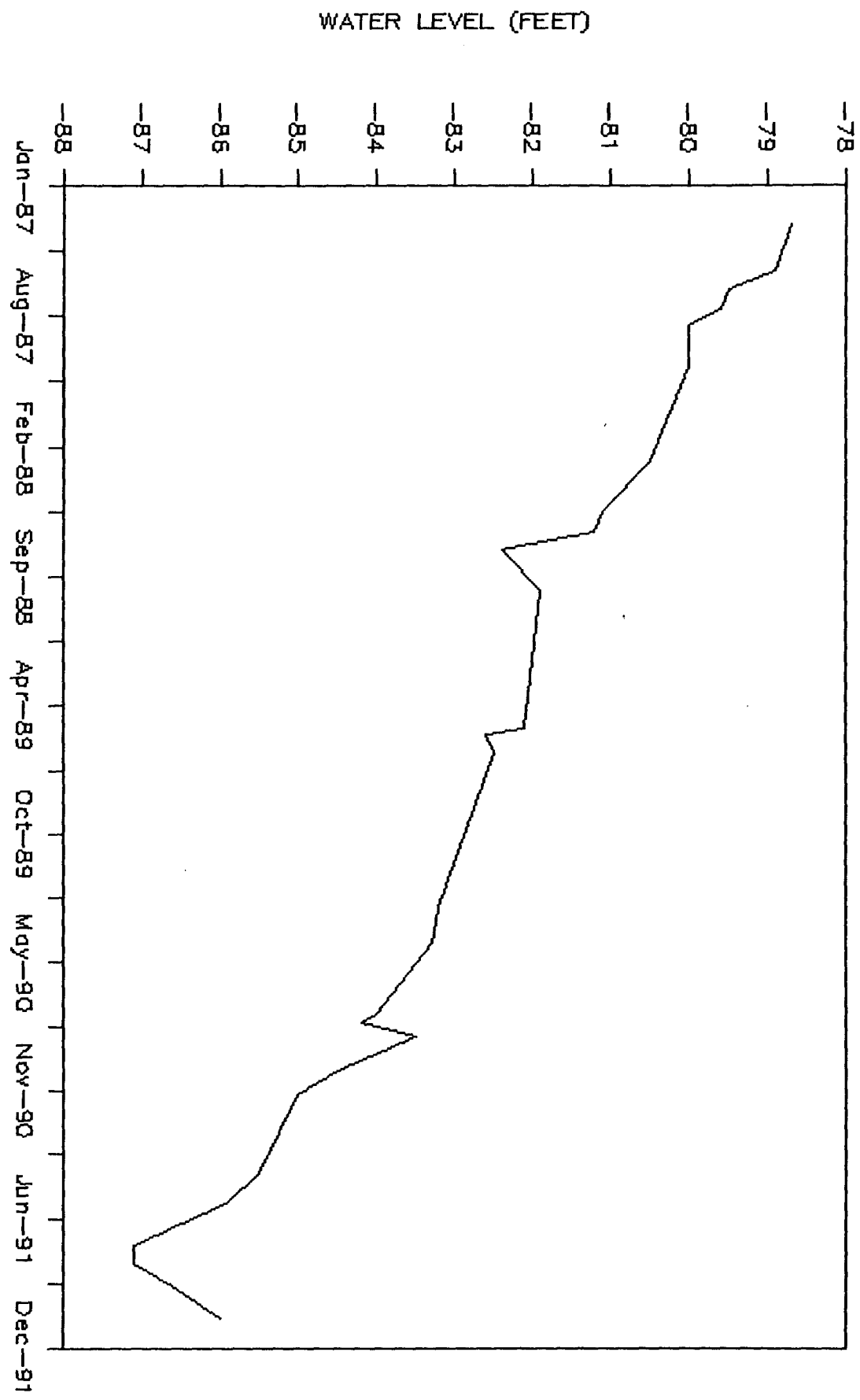
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MA-87E



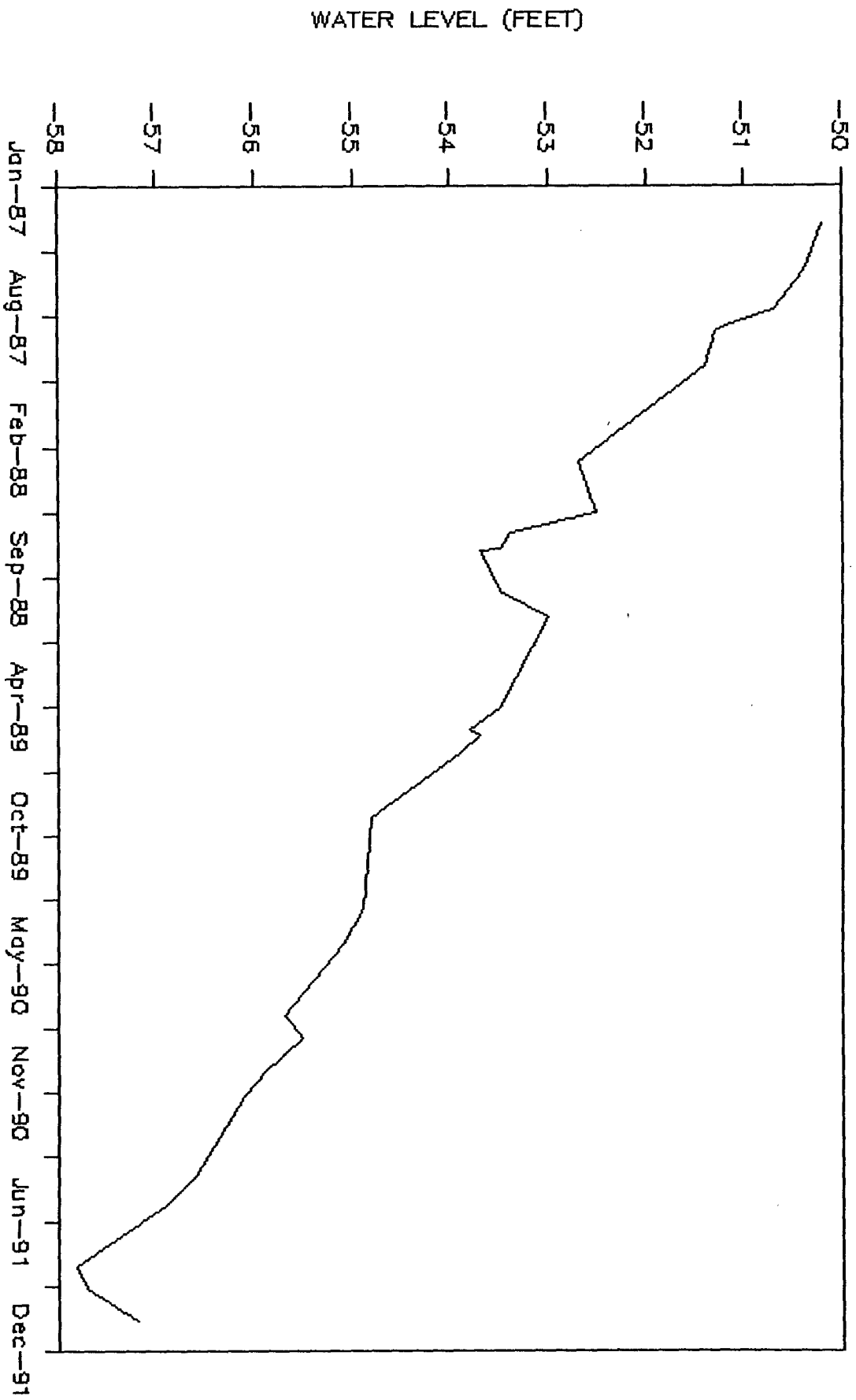
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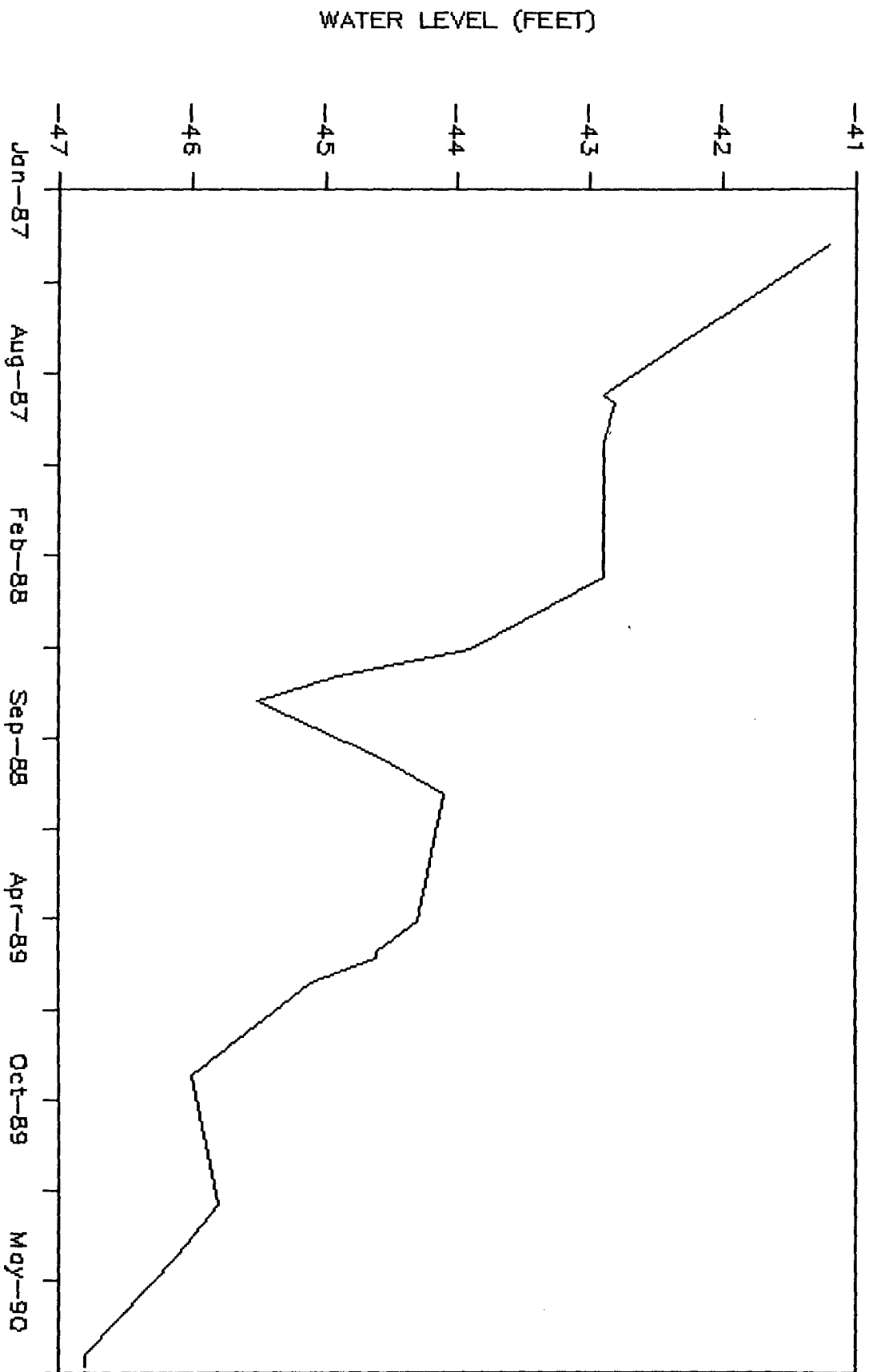
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MA-876



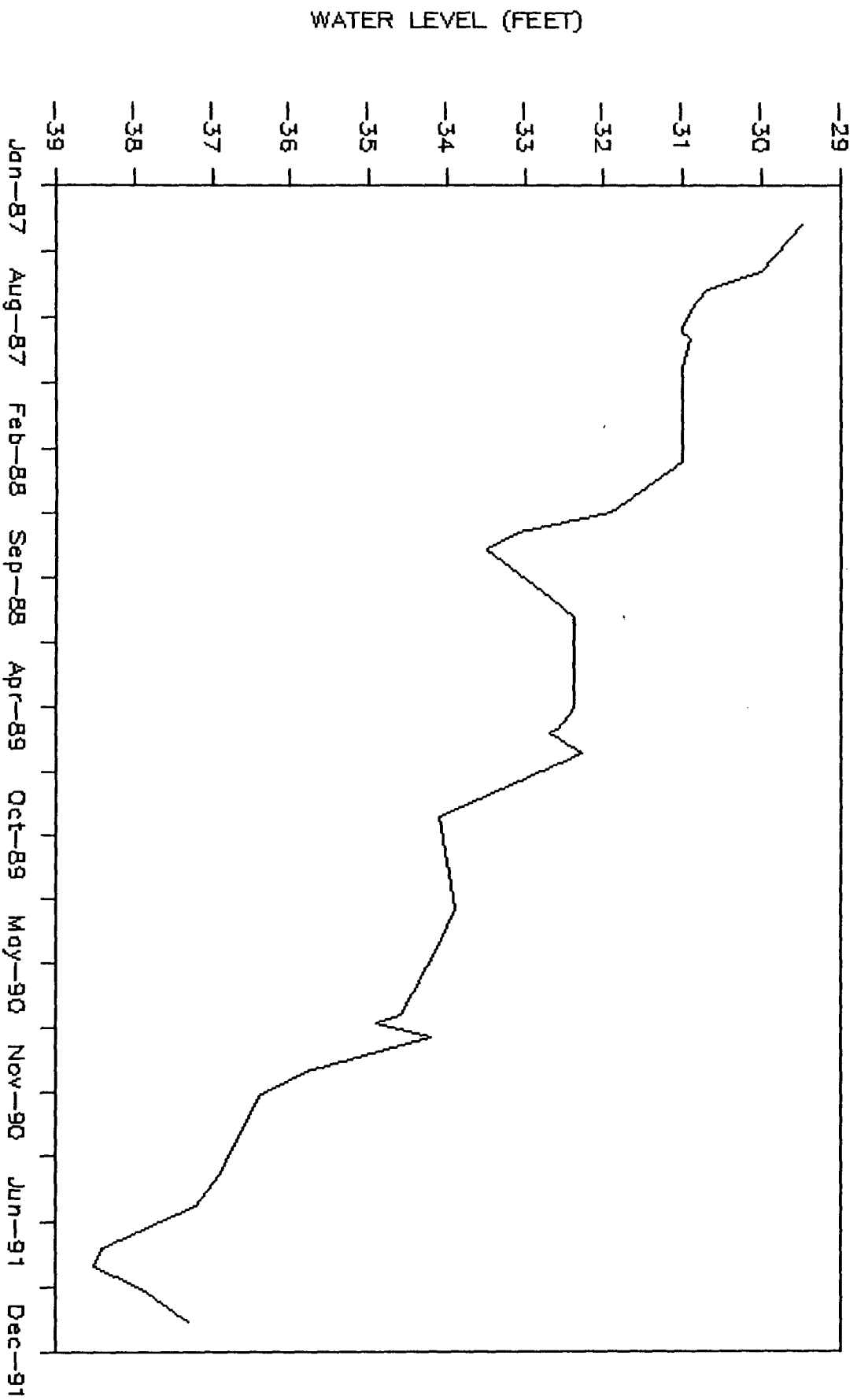
WATER RIGHTS OBSERVATION WELL

MA-87H



WATER RIGHTS OBSERVATION WELL

MA-871



RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5596-3, Northern States Power Company

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5596-3, Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401.

The Chief Engineer is recommending APPROVAL of Application No. 5596-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualification:

The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

See report on application for additional information.


JOHN HATCH, Chief Engineer
January 17, 1992



GREAT FACES. GREAT PLACES.

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

January 30, 1992

James Alders
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Dear Mr. Alders:

Water Permit Application Nos. 5596-3 and 5597-3 for industrial use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Argus Leader printed at Sioux Falls, SD. For your information, a copy of the notice is enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspaper has been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendations, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the applications.



GREAT FACES. GREAT PLACES.

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

January 30, 1992

Argus Leader
PO Box 5034
Sioux Falls, SD 57117-5034

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application Nos. 5596-3 and 5597-3 to be published twice. Please publish the first notice on February 6, 1992, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401.

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,

Eric Gronlund

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

FIRST TRANSMITTAL NOTICE

TO: Eric Gronlund
Water Rights Division
Joe Foss Building
Pierre SD 57501-3181

No. _____

Date _____

We are in receipt of your letter of _____ enclosing Notice of Hearing to
Appropriate Water by Application No. _____ which was first published in our issue
of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

GREAT FACES. GREAT PLACES.

January 31, 1992

James Alders
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

RE: Water Permit Application No. 5596-3 and 5597-3

Dear Mr. Alders:

Enclosed please find a copy of the report and recommendations in regard to the above-referenced matter.

Sincerely,

A handwritten signature in cursive script, reading "Eric Gronlund".

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

cc: Lyle Johnson, Utility Mgr, City of Sioux Falls, 224 W 9th Street,
Sioux Falls, SD 57102

NOTE: If you plan to contest any part of the Chief Engineer's recommendations, you must file a petition pursuant to the procedures outline in the notice of hearing you received with a letter dated January 30, 1992. The Water Management Board will then consider your concerns during a hearing on the application.

Instruction to Newspaper - Publish first Notice on February 6, 1992, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application Nos. 5596-3 and 5597-3 to Appropriate Water

Notice is given that Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401 has filed applications for water permits.

Water Permit Application No. 5596-3 appropriates an additional 1.18 cubic feet of water per second (cfs) from one well authorized by Water Right No. 561-3. Water Right No. 561-3 diverts 0.04 cfs from one well (Split Rock Creek Aquifer) 222 feet deep located in the SW 1/4 NW 1/4 Section 32-T102N-R48W. The water is for industrial use at the power plant.

Water Permit Application No. 5597-3 appropriates an additional 0.22 cfs from one well authorized by Water Right No. 742-3. Water Right No. 742-3 diverts 0.11 cfs from one well (Split Rock Creek Aquifer) 170 feet deep located in the NE 1/4 NE 1/4 Section 31-T102N-R48W. The water is for industrial use at the power plant.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 5596-3 and 5597-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. Unless a petition is filed opposing the applications or the applicant files a petition contesting the chief engineer's recommendations, the Water Management Board will NOT CONDUCT a HEARING to consider the applications and the chief engineer will issue the permits as recommended. Petitions filed in support of the applications will NOT require the Board to hear the applications.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 24, 1992. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

If a petition is filed opposing the applications or the applicant files a petition contesting the chief engineer's recommendations, the Board will consider the applications on March 4, 1992, at 10:00 am, Floyd Matthew Training Center, Joe Foss Building, 523 East Capitol, Pierre, SD 57501. If a hearing is held, the Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The March 4, 1992, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by February 24, 1992.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact the Water Rights Division to request copies of information pertaining to the applications or to assure access to the hearing by the handicapped.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
 County _____)

I, M. DEVISH

certify that the attached printed Notice was taken
 from the Argus Leader

A newspaper which during the whole time of publication of
 said notice herein after stated, has been and is printed and
 published in the _____

_____ city _____ of Sioux Falls

County of Minnehaha and State of South Dakota;
 that the said notice was published in said newspaper on the
 following two dates:

Thursday, February 6, 1992

Thursday, February 13, 1992

Mary Devish
 (Signature) *JD*

Controller
 (Title)

2/13/92
 (Date Signed)

Cost of Printing: \$119.61



These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.
 915 Feb. 6, 13, 1992

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Notice is given that Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401 has filed applications for water permits.

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Water Permit Application No. 5597-3 appropriates an additional 0.22 cfs from one well authorized by Water Right No. 742-3. Water Right No. 742-3 diverts 0.11 cfs from one well (Split Rock Creek Aquifer) 170 feet deep located in the NE 1/4 NE 1/4 Section 31-T102N-R48W. The water is for industrial use at the power plant.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 5596-3 and 5597-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. Unless a petition is filed opposing the applications or the applicant files a petition contesting the chief engineer's recommendations, the Water Management Board will NOT CONDUCT a HEARING to consider the applications and the chief engineer will issue the permits as recommended. Petitions filed in support of the applications will NOT require the Board to hear the applications.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E. Capitol, Pierre, SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 24, 1992. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

If a petition is filed opposing the applications or the applicant files a petition contesting the chief engineer's recommendations, the Board will consider the applications on March 4, 1992, at 10:00 am, Floyd Matthew Training Center, Joe Foss Building, 523 East Capitol, Pierre, SD 57501. If a hearing is held, the Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The March 4, 1992, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by February 24, 1992.

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MAY 1 1992

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

James Alders
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Dear Mr. Alders:

Enclosed are Water Permit Nos. 5596-3 and 5597-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the systems and/or have put the water to beneficial use. An inspection can then be scheduled so that the Water Licenses may be issued, thus completing your acquisition of a Water Right.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

enclosures

PLEASE NOTE: Certain changes can be made in your permits within the five year construction period, usually without affecting the priority date provided an application to amend your permits are made within the five year period - i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.

Permit No. 5596-3
Sioux River - Water District

Report Of Examination Of Works And/Or Application of Water To Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, July 21, 1997 made a thorough examination of the water use system constructed by Northern State Power of 414 Nicolett Mall, Minneapolis, MN 55401-1927 holder of Permit No. 5596-3, bearing the priority of October 3, 1991 authorizing the diversion of 1.18 cu. ft. per second of the waters of Split Rock Creek Aquifer for industrial purposes, in Minnehaha County.

I have to report on the conditions of the same as follows:

A. Works used to divert the water:

One well 222' feet deep with 180 feet of 12 inch steel casing and 40 feet of stainless steel screen. Layne Bowler pump model no. 40991-A with a 500 gpm capacity and an Allis Chalmers Electric motor model no. 404 UP with a 60 hp rating.

B. Works used to transport water to place of use:

3976 feet of 6 inch iron pipe.

C. Works used to apply water to beneficial use:

Water supply for a power plant.

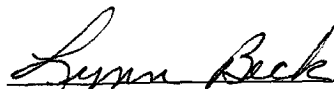
The system is in the following condition good. The point of diversion is located 1130' E and 185' N of the W¹/₄ corner of Section 32, T102N, R48W. The works are capable of diverting and conveying to the place of use 1.11 cu. ft. per second of water which is to be used for industrial purposes. Water has been put to beneficial use to the maximum extent as follows:

Supply water to the power plant.

The license should be issued for 1.11 cfs.

Applicable permit qualifications have been complied with: yes

Exceptions to compliance are: none



Lynn Beck

Natural Resources Engineer

DENR, Water Rights Program

7-25-97

Date

Comments: The combined diversion from 561-3 and 5596-3 is 1.22 cfs, however the capacity of the pump is 500 gpm or 1.11 cfs. Priority date for 0.04 cfs under Water Right 561-3 is December 18, 1958 and for 1.18 under Permit No. 5596-3, October 3, 1991.

REPORT ON INSPECTION OF PERMIT NO. 5596-3

DATE OF INSPECTION: 7-21-97

Other permit(s) associated with the project: Water Right 561-3

NAME & ADDRESS OF INSPECTION CONTACT: Kevin Korn, Pathfinder Plant, Sioux Falls, SD

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: NSP employee

NAME & ADDRESS OF PERMIT HOLDER: Northern States Power, 414 Nicolett Mall, Minneapolis
MN 55401-1927

**DIVERSION POINT LEGAL LOCATION: 1130' E and 185' N of the W $\frac{1}{4}$ corner Section 32, T102N,
R48W.**

WELL INFORMATION:

- 1) Well Drilling Firm: Layne - Minnesota Company
- 2) No. of Wells 1
- 3) Depth(s) 222 feet
- 4) Well log is available yes

Casing:

- 1) Diameter 12 inches
- 2) Length 180 feet
- 3) Type steel

Screen:

- 1) Type stainless steel
- 2) Length 40 feet
- 3) Static water level 60 feet

Pump:

- 1) Make Layne Bowler Turbine
- 2) Model 40991-A
- 3) Size 10 inch
- 4) Capacity 500 GPM

Motor:

- 1) Make Allis Chalmer Electric
- 2) Model No. 404 UP
- 3) Horsepower rating 60 hp

DISTRIBUTION LINES OR CANALS:

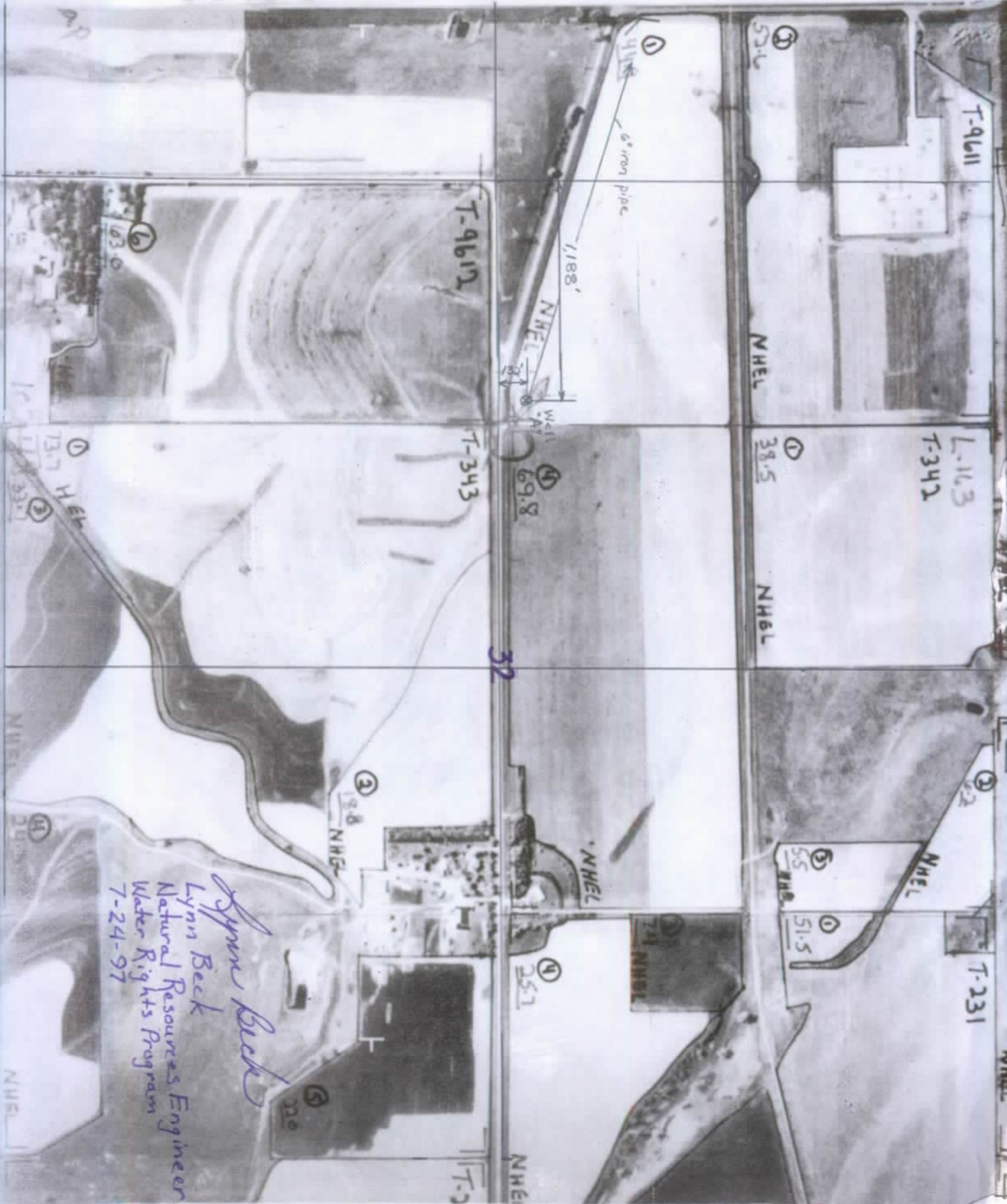
- 1) Type iron
- 2) Size 6 inches
- 3) Length 3976 feet

PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Special qualifications to permit being abided by yes
- 2) All structures, wells and lands on map yes

NOT TO SCALE

5596



5596-3

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5596-3

(1) Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401-1927 made Application No. 5596-3, October 3, 1991 for a water permit to divert 1.18 cubic feet of water per second (cfs) from ground water (one existing well), Minnehaha County, South Dakota for industrial purposes. Permit No. 5596-3, with a priority date of October 3, 1991 was approved March 4, 1992 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before March 4, 1997 and for the application to beneficial use of said water on or before March 4, 2001.

Water Permit No. 5596-3 appropriated an additional 1.18 cfs of water from an existing well authorized by Water Right No. 561-3. The applicable portions of Water Right No. 561-3 have been incorporated into this Water License No. 5596-3. A priority date of December 18, 1958, established under No. 561-3, is retained for 0.04 cfs and a priority date of October 3, 1991 is retained for 1.07 cfs.

(2) It is certified that the applicant has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 1.11 cubic feet of water per second for beneficial use. The location of the diversion point is 1,130'E and 185'N of the W $\frac{1}{4}$ corner of Section 32, T102N, R48W (SW $\frac{1}{4}$ NW $\frac{1}{4}$).

(3) The applicant has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use for industrial purposes at the power plant.

(4) Pursuant to South Dakota Water Law 46-5-30.1 Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401-1927 the holder and/or owner of Incorporated Water Permit No. 5596-3 is issued a license to appropriate water, the right to use 1.11 cubic feet of water per second from ground water (one well - Split Rock Creek aquifer) with priority dates of December 18, 1958 (0.04 cfs) and October 3, 1991 (1.07 cfs) from the location specified in (2) of this license. The water is utilized for industrial purposes. This license is subject to any limitations or qualifications listed in Incorporated Water Permit No. 5596-3 and subject to South Dakota State Law.



JOHN HATCH, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

NOV 12 1997

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

August 5, 1997

5596-3

James Alders
Northern States Power
414 Nicollet Mall
Minneapolis, MN 55401-1927

Dear Mr. Alders:

The investigation of your water use system, including the extent of application of water to beneficial use, as developed under Water Permit No. 5596-3, has been completed. Your final water right document, the Water License, can now be issued.

Statutes require that we charge a \$50.00 fee for the investigation and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

**Please remit fee to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181**

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.

RECEIPT

415440

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, August 18 19 97

RECEIVED OF Northern States Power Company, 414 Nicollet Mall, Minneapolis, MN 55401
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use _____		
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>5596-3</u>	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	50 00

By John Hatch 
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

NOV 12 1997

5596-3

James Alders
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401-1927

Dear Mr. Alders:

Enclosed is Water License No. 5596-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 415440 in the amount of \$50.00 which you paid for the investigation and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 5596-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Very truly yours,

A handwritten signature in black ink, appearing to read "John Hatch".

JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

gm
enclosures

NOTE: The applicable portions of Water Right No. 561-3 have been incorporated into this Water License No. 5596-3.



Northern States Power Company

414 Nicollet Mall
Minneapolis, MN 55401
Telephone (612) 330-6625



February 23, 2000

Mr. John Hatch, Chief Engineer
Water Rights Program
South Dakota Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol Avenue
Pierre, South Dakota 57501-3181

Angus Anson Site and Pathfinder Generating Plant
Water Rights #561-3 and #742-3
Water Permits/Licenses #5596-3, 5597-3 and 5861-3
Reverse Osmosis (RO) System Flow Update

For your information and review, Northern States Power Company is planning to install and operate a second RO (reverse osmosis) system at the Angus Anson Site and Pathfinder Generating Plant. As with the existing RO system, the water supply to the second system will be provided by the existing two well system under water right #561-3/water license #5596-3 (well A) and water right #742-3/water permits #5597-3 & #5861-3 (well B). Flows are anticipated to be on the same order as those for the existing RO system. The purified water from the RO system will be used for air inlet fogging on the existing combustion turbines (units 4 and 5) to improve generating efficiency during summer months. Please note that flows for a second RO system have been accounted for during previous water rights permitting and licensing in anticipation of air quality control supply needs for possible future units 6 and 7. However, new air quality control technology for any future combustion turbine units will likely not require water injection for NOx control, but rather will require some other best available control technology. Therefore no substantial increases beyond the presently planned two RO systems and their associated water flows are anticipated.

Thanks for your review of this information. If there are any questions or concerns, please call me at 612-330-6625. Once you have reviewed the information, a letter of confirmation would be appreciated for our files. Thanks again.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Bodensteiner". The signature is fluid and cursive, with a large initial "J" and a long horizontal stroke at the end.

Jim Bodensteiner
Sr. Environmental Scientist

encl:

c: ERAD Records Center
Marv VanKekerix
Chuck Donkers
John Chelstrom
Terry Coss



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

March 7, 2000

Jim Bodensteiner
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Dear Mr. Bodensteiner:

I am writing in response to your February 23rd letter to John Hatch regarding water use at the Angus Anson Site and Pathfinder Generating Plant. Northern States Power (NSP) intends to install and operate a second reverse osmosis system. We have reviewed NSP's water rights to determine whether any water right permitting may be necessary.

Northern States Power holds a number of water rights from ground water for industrial uses at the plant. All these water rights are associated with two wells developed into the Split Rock Creek Aquifer. The following table provides a summary of these water rights.

Water Right (Permits)	Total Appropriation	Well Location
561-3 5596-3	1.11 cfs (498 gpm)	SW¼ NW¼ Sect. 32, T102N, R48W
742-3 5597-3 5861-3	1.77 cfs (794 gpm)	NW¼ Sect. 32, T102N, R48W

The submitted information indicates the peak diversion rates will not exceed the combined authorized quantities of 1,292 gpm listed in the table. If this is indeed true, no additional water right permit will be necessary. However, if peak diversion rates exceed the amounts shown in the table, a new water right permit will need to be obtained for the additional quantity of water being diverted.

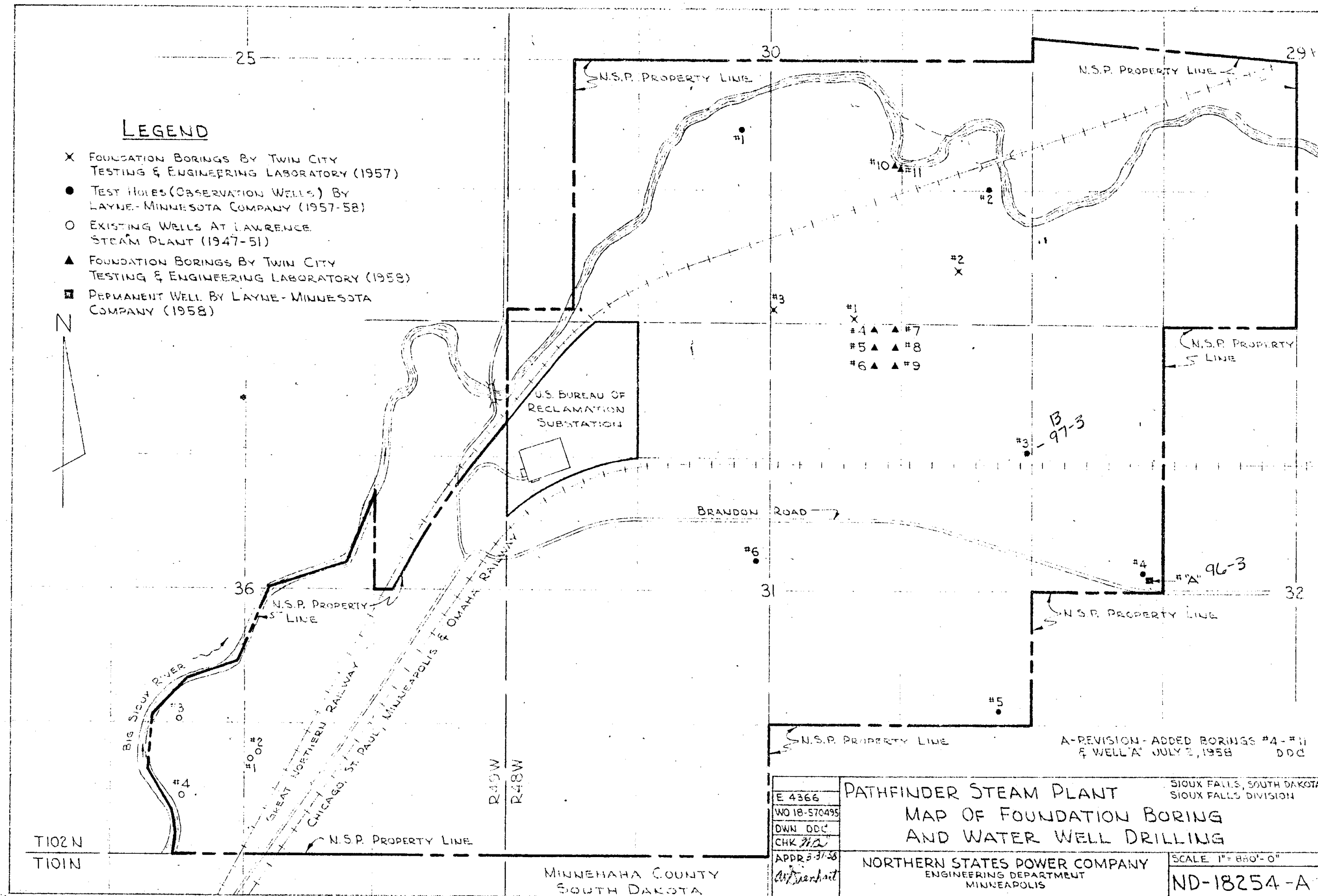
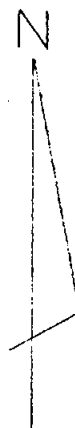
If you have any questions, please contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program

LEGEND

- X FOUNDATION BORINGS BY TWIN CITY TESTING & ENGINEERING LABORATORY (1957)
- TEST HOLES (OBSERVATION WELLS) BY LAYNE-MINNESOTA COMPANY (1957-58)
- EXISTING WELLS AT LAWRENCE STEAM PLANT (1947-51)
- ▲ FOUNDATION BORINGS BY TWIN CITY TESTING & ENGINEERING LABORATORY (1958)
- PERMANENT WELL BY LAYNE-MINNESOTA COMPANY (1958)



E 4366 WO 18-570495 DWN DDC CHK 7/12 APPR 5/1/58 <i>W. J. J. J.</i>	PATHFINDER STEAM PLANT MAP OF FOUNDATION BORING AND WATER WELL DRILLING	SIOUX FALLS, SOUTH DAKOTA SIOUX FALLS DIVISION
NORTHEN STATES POWER COMPANY ENGINEERING DEPARTMENT MINNEAPOLIS	SCALE 1"= 850'-0" ND-18254-A	

Appl. 5596-3