



**Public Service
of New Hampshire**

The Northeast Utilities System

IDR 11-016

PSNH Energy Park
780 North Commercial Street, Manchester, NH 03101

Public Service Company of New Hampshire
P.O. Box 330
Manchester, NH 03105-0330
(603) 669-4000
www.psnh.com

The Northeast Utilities System

May 11, 2011

Mr. George Carlson, P.E.
Supervisor, Industrial Pretreatment Program
N.H. Department of Environmental Services
Water Division
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03301-0095

RECEIVED
MAY 12 2011
DES-WEB

Re: NHDES Industrial Wastewater Indirect Discharge Request Application
Public Service of New Hampshire (PSNH)

Dear Mr. Carlson:

Based on your recent meeting with Allan Palmer (PSNH) and Ron Breton (GZA GeoEnvironmental, Inc. [GZA]), our consulting engineer, PSNH is requesting that four separate municipalities (Allenstown, Concord, Hooksett, and Manchester) consider our request to accept treated wastewater from our wet flue gas desulfurization system that is scheduled to become operational in the fourth quarter of this year. With the State and local approvals and issuance of permits, it is our intention to transport treated wastewater by tanker truck from our power station in Bow to discharge points as designated by the individual municipalities.

As presented in our attached application, we are installing a technologically advanced wastewater treatment system. In addition, we are including post-treatment systems that can be used to reduce the volume of the treated wastestream from roughly 100,000 gallons per day (gpd) to as small a volume as 5,000 gpd. With these post-treatment systems, we will have the ability to reduce the volume of wastewater while maintaining concentrations of pollutants that are compatible with each treatment system. While our goal is to gain approval to discharge all the wastewater we generate at all four municipal facilities, we recognize that there may be restrictions at certain facilities and that only a portion of the total discharge may be accepted. This scenario has been considered in our overall wastewater management strategy.

This application has been provided to the Town of Hooksett and we have also prepared and submitted local permit applications directly to the wastewater treatment facilities of Allenstown, Concord, and Manchester. Please find attached GZA GeoEnvironmental Check No. 220959 in the amount of \$1,000.00 to cover the cost of design review.

During the course of performing your evaluation process, GZA and PSNH will be available to provide additional information and technical support.

We trust that this submittal adequately addresses your informational needs. Should you have any questions, please contact Ron Breton at 232-8744 or me at 224-4081.

Sincerely,

Harold Keyes, Station Manager
PUBLIC SERVICE OF NEW HAMPSHIRE

Attachment(s)



NH DES WATER DIVISION
 29 Hazen Drive - PO Box 95
 CONCORD, NEW HAMPSHIRE 03302-0095
 (603)271-3908 FAX (603)271-4128

IDR 11-016



INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPLICATION

PART I. MUNICIPAL

The Town/City of Manchester, Hooksett, Concord, and Allenstown proposes:

To discharge to its publicly owned treatment works the industrial flow from:

Applicant PSNH
 (Name of Indirect Discharger)

New Discharge or Modified Discharge

RECEIVED
 MAY 12 2011
 DES-WEB

Flow: Average Process Wastewater Volume (gallons/day):

Previous Permitted Total:	0
This Request:	100,000
TOTAL:	100,000

CERTIFICATION:

"This proposal meets with the approval of all local authorities having jurisdiction over the request."

Name _____ Title _____
 (Print or Type)

Signature: _____ Date _____
 (Authorized Municipal Official)

Notes:

- ✧ By signing this discharge request form, the municipal official certifies that the municipality has evaluated and approves the proposed discharge and the ability of the POTW to take the discharge based on the information submitted by the industrial user, and that the application is complete.
- ✧ The proposed discharge shall meet the requirements of state and federal pretreatment standards, and local pretreatment programs / sewer use ordinances.
- ✧ No treatment plant shall allocate or accept for treatment more than 90 percent of the headworks or loading limit

* This value is the average daily process flow requested by the Applicant on Page 2

NHDES INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST APPLICATION

PART II. APPLICANT

(a) DISCHARGER NAME & ADDRESS

Name:	PSNH
Street Address:	97 River Road, Bow, New Hampshire 03304
Mailing Address:	

(b) RESPONSIBLE OFFICIAL

Official - Name	Harold Keyes		
Position:	Station Manager		
Phone #:	603-224-4081		
Contact - Name:	Allan Palmer		
Position:	Senior Engineer		
Phone #:	(603) 634-2439		

(c) INDUSTRY TYPE

Product(s) / Description:	Electricity Generation		
NAICS Code # (s):	221112	SIC Code # (s):	4911

(d) SIU or CATEGORICAL STANDARDS Yes No

CIU-Category(s) Name:	40CFR Part:	Subpart:
Steam Electric Power Generating Category	423.16	
SIU Description:		

(e) FLOW INFORMATION:

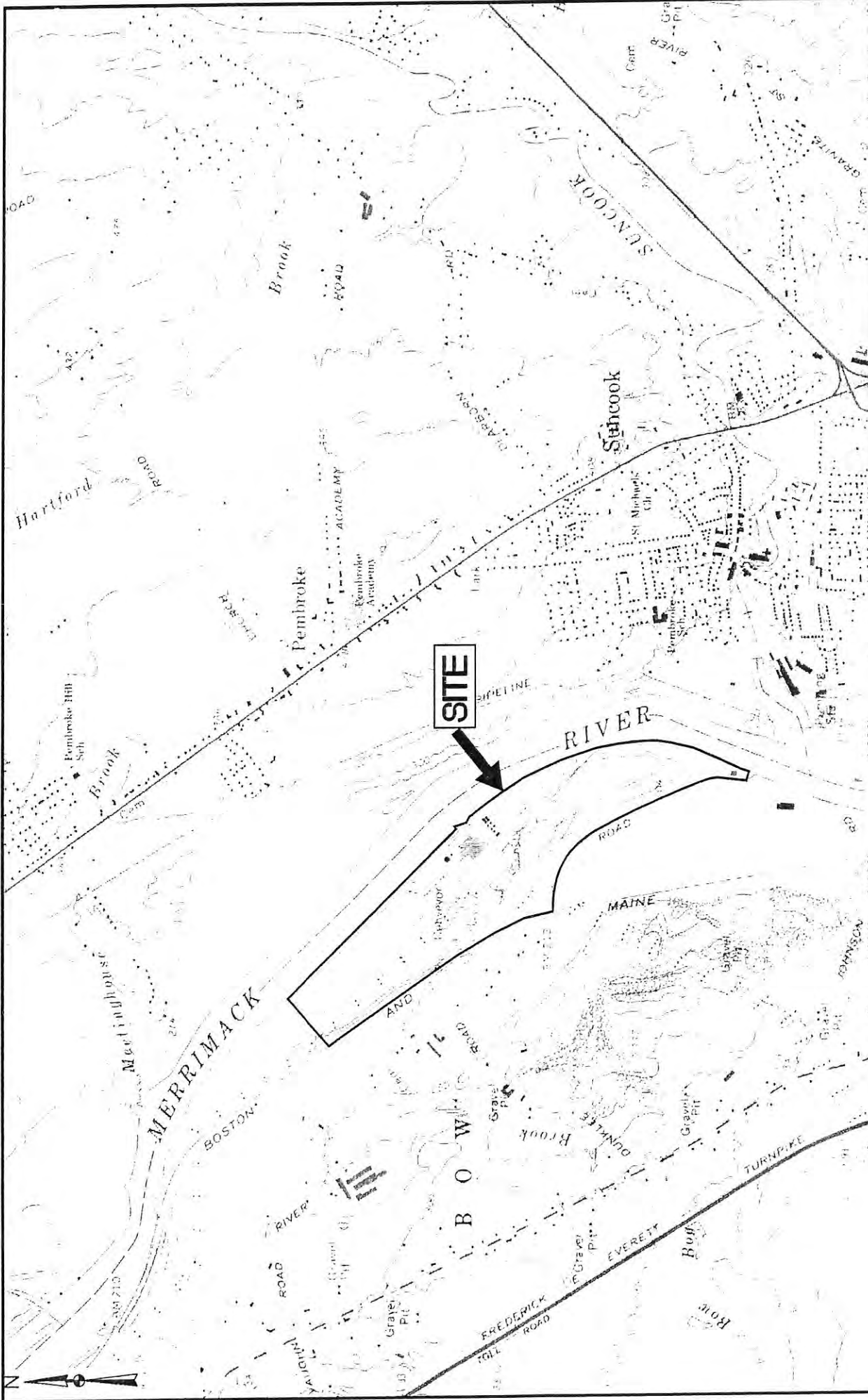
This IDR- Ave. Process (gpd):	# of Connections to sewer:	# of Employees:	# of Shifts:
** 100,000	N/A	115	2 per day

FLOW SUMMARY	Source	Average (gpd)	Maximum (gpd)	Time/Duration
Previous	Sanitary	0	0	
	Process	0	0	
	TOTAL	0	0	
<u>Change - This IDR:</u>	Sanitary	0	0	
	Process	* 100,000	100,000	Batch
	TOTAL	100,000	100,000	Batch
TOTAL :	Sanitary	0	0	0
	Process	100,000	100,000	Batch
	TOTAL	100,000	100,000	Batch

* This value to match the value of "This Request" on Page 1

- * No pretreatment standards listed for this particular process wastestream.

NOTE: The proposed FGD system will run continuously 24 hours per day, 7 days per week, 365 days per year and generate up to 100,000 gpd on a continuous basis. However, volume reduction steps can reduce the volume as necessary and actual discharge to the POTW is expected to be much less than the volume generated by the FGD system. The wastewater will be transported to the POTW in tanker trucks on a daily basis and discharged intermittently.



NO.	ISSUE/DESCRIPTION	BY	DATE
	PROJ MGR: RAB		MARCH 2011
	DESIGNED BY: FTP		
	REVIEWED BY: KOB		PROJECT NO. 04.0029307.00
	DRAWN BY: JPN		REVISION NO.
	CHECKED BY: RAB		1
	SCALE: 1" = 2,000'		SHEET NO.

LOCUS PLAN

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST APPLICATION

97 RIVER ROAD
MERRIMACK STATION
BOW, NEW HAMPSHIRE

PREPARED BY:  GZA GeoEnvironmental, Inc.
Engineers and Scientists
380 HARVEY ROAD
MANCHESTER NEW HAMPSHIRE 03103
(603) 621-3000

PREPARED FOR:
PUBLIC SERVICE OF NEW HAMPSHIRE

NHDES INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST APPLICATION

(g) ENGINEER FOR TREATMENT SYSTEM PLANS & SPECS [\$ 1,000 Review Fee]

Engineer:	Ronald A. Breton, P.E.
Company:	GZA GeoEnvironmental, Inc.
NH P.E. #	5956

ATTACHMENTS Check List

	Attached	Remarks/Explanation
(f) TREATMENT PROCESS SCHEMATIC	<input checked="" type="checkbox"/>	See Figure 2
(g) PLANS, SPECS, O&M PROCEDURES	<input checked="" type="checkbox"/>	See Attachment 1
(h) PRODUCTION PROCESS DIAGRAM	<input checked="" type="checkbox"/>	See Drawing Number 3977-3-001-B
(i) WASTE STREAM POLLUTANTS LIST	<input checked="" type="checkbox"/>	See Table 1
(j) TOXICITY/TREATABILITY INFO.	<input checked="" type="checkbox"/>	See Attachment 2
(k) LOCATION MAP	<input checked="" type="checkbox"/>	See Figure 1
(l) CHEMICAL LIST	<input checked="" type="checkbox"/>	See Table 2
(m) SAMPLING LOCATION	<input checked="" type="checkbox"/>	See Figure 2
(n) H ₂ O REDUCTION / P2 NARRATIVE	<input checked="" type="checkbox"/>	See Attachment 3
(o) ENVIRONMENTAL PERMITS LIST	<input checked="" type="checkbox"/>	See Attachment 4

CERTIFICATION : (b)

"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 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."

Name Harold Keyes Title Station Manager
 (Print or Type)

Signature: *Harold Keyes* Date 5/11/2011
 (Indirect Discharger Official)

Notes:
 ♦ Please attach additional pages as needed.
 ♦ Information not designated with shading is requested but optional.

**TABLE 1
REPRESENTATIVE WASTEWATER CHARACTERISTICS**

PSNH

FLOW: 4,000 - 100,000 gpd

METAL	MASS LOADING (lb/day)
Aluminum	0.83
Antimony	0.40
Arsenic	0.02
Barium	4.01
Beryllium	0.08
Cadmium	0.04
Chromium	0.13
Copper	0.04
Iron	0.17
Lead	0.08
Manganese	0.83
Mercury	0.000012
Nickel	0.83
Silver	0.04
Zinc	0.04
Selenium	2.50
Thallium	0.48
<i>Molybdenum</i>	<i>No Data</i>
<i>Cyanide</i>	<i>BDL</i>
<i>Phenols</i>	<i>BDL</i>

POLLUTANT	CONCENTRATION (mg/L)
Nitrogen	<i>No Data</i>
Fluoride	118
<i>BOD</i>	<i>BDL</i>
<i>COD</i>	<i>No Data</i>
<i>TTO</i>	<i>BDL</i>
<i>O&G</i>	<i>BDL</i>
TEMPERATURE	< 104° F

NOTE:

1. lb/day means pounds per day, gpd means gallons per day, BDL means below detection limit.
2. Please note, steps in volume reduction can concentrate the waste stream as necessary. The concentration of metals will change based on the degree of volume reduction. However, the mass loading of metals will not change.
3. It should be noted that the anticipated selenium mass value of the treated physical-chemical WWTS effluent is expected to be considerably less than the contracted guarantee concentration of 9 mg/L. The value presented in the table represents best professional engineering judgment at this time.
4. The values above represent an estimation of the absolute worst case waste water characteristics. All mass loadings are expected to be lower. Since the proposed system is not yet operational, data has been provided by the treatment system design team with the exception of the italicized values, which were provided by the station operator.

Handwritten notes:
 $\frac{0.83}{8.34 \times 34.0 \text{ min}}$
 1003 mg/d
 3 mg/l

**TABLE 2
CHEMICAL INVENTORY**

PSNH Merrimack Station
Bow, New Hampshire

REFERENCE #	RAW MATERIALS	AMOUNT USED PER YEAR
1	Ferric chloride	7614 lbs
2	Hydrochloric acid (32%)	282,800 lbs
3	Sodium Hydroxide (50%)	683,282 lbs
4	Antifoam 1430	7,008 lbs
5	Antiscalant	2,628 lbs
6	Organosulfide	1522 lbs
7	Polymer	761 lbs
8	TMT 15	219 tons
9	Limestone	152,000 tons

Note:

1. Values have been estimated by PSNH's treatment system design team.
2. It is not expected that significant amounts of chemicals will discharge to the sewer.

ATTACHMENT 1
PLANS, SPECS, O&M PROCEDURES

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST
PROPOSED WASTEWATER TREATMENT SYSTEM DISCHARGE

PSNH
97 RIVER ROAD
BOW, NEW HAMPSHIRE

PLANS, SPECS, O&M PROCEDURES

ATTACHMENT 1

PROPRIETARY

George Carls
NHDES

ATTACHMENT 2

TOXICITY AND TREATABILITY INFORMATION

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST
PROPOSED WASTEWATER TREATMENT SYSTEM DISCHARGE

PSNH
97 RIVER ROAD
BOW, NEW HAMPSHIRE

TOXICITY AND TREATABILITY INFORMATION

ATTACHMENT 2

Federal standards applicable to all industrial wastewater discharges include a prohibition against discharges that cause or contribute to pass-through or interference. These limitations are related to the biodegradability of wastewater pollutants and toxicity to wastewater treatment system activated sludge microorganisms. Based on a review of the estimated wastewater treatment system effluent water quality and the MSDSs of materials used in the process, there is no evidence to suggest that the treated wastewater will adversely impact the performance of Municipality's POTW.

ATTACHMENT 3

WATER CONSERVATION / POLLUTION PREVENTION NARRATIVE

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST
PROPOSED WASTEWATER TREATMENT SYSTEM DISCHARGE

PSNH
97 RIVER ROAD
BOW, NEW HAMPSHIRE

WATER CONSERVATION / POLLUTION PREVENTION NARRATIVE

ATTACHMENT 3

PSNH will continue to evaluate opportunities for implementing conservation/pollution prevention measures. The project currently proposed was designed for the purpose of pollution prevention. Makeup water for the scrubber is recycled wastewater from an on-site pond where nearly 1 million gallons are recycled daily. Treated wastewater from the proposed treatment system will be recycled and used as makeup water for the scrubber. PSNH will continue to evaluate options for on-site reuse of this treated waste stream.



ATTACHMENT 4
ENVIRONMENTAL PERMITS LIST

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST
PROPOSED WASTEWATER TREATMENT SYSTEM DISCHARGE

PSNH
97 RIVER ROAD
BOW, NEW HAMPSHIRE

ENVIRONMENTAL PERMITS LIST

ATTACHMENT 4

- TP-008: Flue Gas Desulfurization Unit
- FP-T-0054: Electric Generating Unit #1
- TP-B-0462: Electric Generating Unit #2
- TP-B-0490: Emergency Boiler
- PO-B-1788: Emergency Generator #1
- PO-BP-2416: Primary Coal Crusher
- PO-BP-2417: Secondary Coal Crusher
- PO-B-0034: Combustion Turbine #1
- PO-B-0035: Combustion Turbine #2
- TV-AR-01: Title V Operating Permit
- TV-AR-0055: Proposed Title V Operating Permit
- TP-0068: Emergency Cooling Water Pump Engine
- DPHS-SW-85-012: Solid Waste Facility
- GWP-19840065-B-004: Ground Water Permit
- 11-026610: Permit to Operate Public Water System
- DES-HW-LP-06-22: Hazardous Waste Limited Permit
- NH0001465: National Pollutant Discharge Elimination System



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPROVAL

APPLICANT

Indirect Discharger **PSNH**
 Address **97 River Rd., Bow, NH**
 Authorized Signature **Harold Keyes** **Station Manager**
 Engineer **Ronald Breton, GZA GeoEnvironmental**

MUNICIPALITY

Municipality/POTW **Allenstown WWTF**
 Approval Signature **Dana L Clement** **Superintendent**
 Date of IDR **July 25, 2011**

APPROVAL

PERMIT/REQUEST NUMBER **IDR 11-016 A**
 FLOW **100000** gallons/day DATE: **August 12, 2011**

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

CONDITIONS:

Approval is for acceptance of highly treated wastewater from the wet flue gas desulfurization system. The wastewater will be hauled by tanker truck to the WWTF.

 George F. Carlson, Jr., P.E.

Telephone (603) 271-2052



NH DES WATER DIVISION
 29 Hazen Drive - PO Box 95
 CONCORD, NEW HAMPSHIRE 03302-0095
 (603)271-3908 FAX (603)271-4128



INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPLICATION

PART I. MUNICIPAL

The Town/City of Allenstown proposes:

To discharge to its publicly owned treatment works the industrial flow from:

Applicant PSNH
 (Name of Indirect Discharger)

New Discharge or Modified Discharge

Flow: Average Process Wastewater Volume (gallons/day):

Previous Permitted Total:	0
This Request:	100,000
TOTAL:	100,000

CERTIFICATION:

"This proposal meets with the approval of all local authorities having jurisdiction over the request."

Name Dan G. Clement Title Superintendent
 (Print or Type)

Signature: [Signature] Date 7/25/11
 (Authorized Municipal Official)

Notes:

- ❖ By signing this discharge request form, the municipal official certifies that the municipality has evaluated and approves the proposed discharge and the ability of the POTW to take the discharge based on the information submitted by the industrial user, and that the application is complete.
- ❖ The proposed discharge shall meet the requirements of state and federal pretreatment standards, and local pretreatment programs / sewer use ordinances.
- ❖ No treatment plant shall allocate or accept for treatment more than 90 percent of the headworks or loading limit

* This value is the average daily process flow requested by the Applicant on Page 2



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPROVAL

APPLICANT

Indirect Discharger **PSNH**
Address **97 River Rd., Bow, NH**
Authorized Signature **Harold Keyes** **Station Manager**
Engineer **Ronald Breton, GZA GeoEnvironmental**

MUNICIPALITY

Municipality/POTW **Hooksett Wastewater Treatment Plant**
Approval Signature **Sidney Baines** **Chairman**
Date of IDR **August 16, 2011**

APPROVAL

PERMIT/REQUEST NUMBER **IDR 11-016 H**
FLOW **100000** gallons/day DATE: **August 19, 2011**

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

CONDITIONS:

Approval is for acceptance of highly treated wastewater from the wet flue gas desulfurization system. The wastewater will be hauled by tanker truck to the POTW.

George F. Carlson, Jr., P.E.

Telephone (603) 271-2052



INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPLICATION **RECEIVED**

AUG 18 2011

DES-WEB
proposes

PART I. MUNICIPAL

The Town/City of Hooksett

To discharge to its publicly owned treatment works the industrial flow from:

Applicant PSNH
 (Name of Indirect Discharger)

New Discharge or Modified Discharge

Flow: Average Process Wastewater Volume (gallons/day):

Previous Permitted Total:	0
This Request:	100,000
TOTAL:	100,000

No check
modified
PD. by PSC. JH

CERTIFICATION:

"This proposal meets with the approval of all local authorities having jurisdiction over the request."

Name SIDNEY BAINES Title CHAIRMAN
 (Print or Type)

Signature: *Sidney Baines* Date 8-16-11
 (Authorized Municipal Official)

Notes:

- ✧ By signing this discharge request form, the municipal official certifies that the municipality has evaluated and approves the proposed discharge and the ability of the POTW to take the discharge based on the information submitted by the industrial user, and that the application is complete.
- ✧ The proposed discharge shall meet the requirements of state and federal pretreatment standards, and local pretreatment programs / sewer use ordinances.
- ✧ No treatment plant shall allocate or accept for treatment more than 90 percent of the headworks or loading limit

* This value is the average daily process flow requested by the Applicant on Page 2



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPROVAL

APPLICANT

Indirect Discharger	PSNH	
Address	97 River Rd., Bow, NH	
Authorized Signature	Harold Keyes	Station Manager
Engineer	Ronald Breton, GZA GeoEnvironmental	

MUNICIPALITY

Municipality/POTW	Concord Wastewater Treatment Facility	
Approval Signature	Thomas Neforas	Laboratory Manager
Date of IDR	August 25, 2011	

APPROVAL

PERMIT/REQUEST NUMBER	IDR 11-016 C
FLOW	25000 gallons/day
DATE:	August 29, 2011

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

CONDITIONS:

Approval is for acceptance of highly treated wastewater from the wet flue gas desulfurization system. The wastewater will be hauled by tanker truck to the WWTF.

George F. Carlson, Jr., P.E.

Telephone (603) 271-2052



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPROVAL

APPLICANT

Indirect Discharger	PSNH	
Address	97 River Rd., Bow, NH	
Authorized Signature	Harold Keys	Station Manager
Engineer	Ronald Breton, GZA GeoEnvironmental	

MUNICIPALITY

Municipality/POTW	Concord Wastewater Treatment Facility	
Approval Signature	Thomas Neforas	Laboratory Manager
Date of IDR	August 25, 2011	

APPROVAL

PERMIT/REQUEST NUMBER	IDR 11-016 C	
FLOW	25000 gallons/day	DATE: August 29, 2011

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

CONDITIONS:

Approval is for acceptance of highly treated wastewater from the wet flue gas desulfurization system. The wastewater will be hauled by tanker truck to the WWTF.

George F. Carlson, Jr., P.E.

Telephone (603) 271-2052



INDUSTRIAL WASTEWATER INDIRECT DISCHARGE REQUEST (IDR) APPLICATION

PART I. MUNICIPAL

The Town/City of CITY OF CONCORD

To discharge to its publicly owned treatment works the industrial flow from:

Applicant PSNH MERRIMACK STATION
(Name of Indirect Discharger)

RECEIVED
 proposes:
 AUG 26 2011
 DES-WEB

New Discharge ~ or Modified Discharge ~

Flow: Average Process Wastewater Volume (gallons/day):

Previous Permitted Total:	<u>0</u>
This Request:	* <u>25,000</u>
TOTAL:	<u>25,000</u>

CERTIFICATION:

"This proposal meets with the approval of all local authorities having jurisdiction over the request."

Name THOMAS NEFORAS Title LABORATORY MANAGER
(Print or Type)

Signature: [Signature] Date 8-25-2011
(Authorized Municipal Official)

Notes:

- ◇ By signing this discharge request form, the municipal official certifies that the municipality has evaluated and approves the proposed discharge and the ability of the POTW to take the discharge based on the information submitted by the industrial user, and that the application is complete.
- ◇ The proposed discharge shall meet the requirements of state and federal pretreatment standards, and local pretreatment programs / sewer use ordinances.
- ◇ No treatment plant shall allocate or accept for treatment more than 90 percent of the headworks or loading limit

* This value is the average daily process flow requested by the Applicant on Page 2