

Northeast  
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company  
P.O. Box 270  
Hartford, CT 06141-0270  
(203) 665-5000

May 27, 1997

SES-97-GN-092

D11155

Mr. James Grier  
Supervising Sanitary Engineer  
Water Management Bureau  
Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Re: Millstone Station NPDES No. CT 0003263--- DSN 001C-6 Supplemental Information

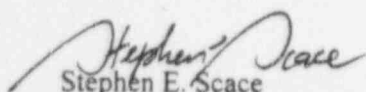
Dear Mr. Grier:

On March 20, 1997, representatives of Northeast Nuclear Energy Company ("NNECO") met with you and Mr. David Cherico to discuss various matters relative to NNECO's NPDES Permit (the "Permit") for Millstone Station. During that meeting, we agreed to provide you with a written summary of our position regarding the discharge of hydrazine from DSN 001C-6 ("C-6"). As you may be aware, Millstone Unit 3 is expected to be ready for restart in September and back on line some time before the end of 1997 (pending NRC review). Obviously, the C-6 issue as well as other pending Unit 3 issues before the Department (steam generator blowdown and the measurement and discharge of de minimus levels of hydrazine at Millstone Station) need to be resolved so that Unit 3 can restart.

Thank you for your attention to this matter. Should you have any questions, please feel free to contact Mr. Paul Jacobson, Environmental Services - Nuclear at (860) 447-1791, Ext. 2335.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
Stephen E. Scace

Director - Nuclear Engineering Programs

cc: Michael Harder  
NRC  
NRC Resident Inspector

9706110102 970527  
PDR ADDCK 05000423  
P PDR

110064



COO111

## **I. SUMMARY OF NNECO'S POSITION**

NNECO's Permit, its 1989 NPDES permit renewal application (the "Application"), historic correspondence and plant records establish that:

- 1) The plain language of the Permit authorizes the discharge of wastewater containing hydrazine, including wastewater from the Unit 3 Condensate Polishing Facility (CPF), through C-6 at up to 75 parts per million (ppm).
- 2) Wastewater containing hydrazine from the CPF is part of the processes and activities identified in the 1989 NPDES permit renewal application and, therefore, is authorized for discharge via C-6.

We believe that the information provided in this letter as well as in previous correspondence with the Connecticut Department of Environmental Protection ("DEP" or the "Department") (References 1 through 3) fully supports our position because:

1. CPF wastewater as a source of hydrazine is included in the description of processes and activities at C-6 in both the Application and Permit;
2. The Permit contains a 75 ppm limit on discharge of hydrazine for all C-6 sources;
3. At the time the Permit was renewed, DEP was aware that there were multiple sources of hydrazine contributing to the C-6 discharge and that, of these sources, the highest levels of hydrazine were from the hot water heating system drainage. As a result, the only sampling requirement placed on hydrazine at C-6 is daily sampling when the Unit 3 hot water heating system is discharging;
4. C-6 sampling data from January 1993 to the present show that wastewater from all sources containing hydrazine, including discharges from the CPF, is well within the 75 ppm limit;

5. Toxicity data from 1981 to the present repeatedly show no aquatic toxicity in the effluent entering Long Island Sound during routine hydrazine discharges; and
6. The Department has expressed in writing its view that the Permit "clearly authorizes" the discharge of hydrazine at C-6 from various sources, including the CPF.

Nevertheless, in the event the Department remains concerned about this matter and consistent with our discussions with you and Mr. Cherico on March 20, 1997, we are proposing to the Department an alternative approach to the discharge of wastewater containing hydrazine from the CPF through C-6. Specifically, the Department, under its regulations, may issue a minor permit modification to address any concerns it may continue to have regarding hydrazine discharges from the CPF by imposing additional monitoring and/or effluent limits on the existing C-6 discharges. It is our belief that the addition of a weekly hydrazine monitoring requirement in addition to the current hydrazine monitoring and effluent limits at C-6 will more than adequately address any outstanding DEP concerns.

## **II. DISCUSSION**

We recently provided the Department with several submittals concerning the discharge of wastewater containing hydrazine from C-6. These are incorporated herein by specific reference. Since our March 20, 1997 meeting, we have further reviewed documents relating to the discharge of hydrazine at C-6. We reviewed, among other documents, 1) submittals associated with the hydrazine minimization studies performed at Millstone Station in the late 1980s; 2) NNECO's 1989 Application and associated correspondence; 3) NNECO's revised Form 2<sup>s</sup> submitted on August 8, 1991; 4) NNECO's NPDES permit as issued by the Department on December 14, 1992; and 5) plant records associated with the CPF.

As discussed below, these documents establish that Millstone Station is authorized to discharge hydrazine at no more than 75 ppm from the Unit 3 CPF wastewater through C-6 for the following reasons:

- A. **THE PLAIN LANGUAGE OF MILLSTONE STATION'S NPDES PERMIT AUTHORIZES THE DISCHARGE OF HYDRAZINE FROM THE CPF THROUGH DSN 001C-6**

Paragraph CC. of NNECO's current NPDES permit, issued by the DEP on December 14, 1992, sets out the following conditions and limitations with respect to the discharge of wastewater containing hydrazine through C-6:

Discharge Serial No. 001C-6

Monitoring Location: 1

Description: Unit No. 3 Condensate Polisher Regeneration Wastewater Neutralization Tank Discharge Including Plant Equipment Washwaters and Unit No. 3 Hot Water Heating System Drainage (Discharge Code 1060000)

Maximum Flow per Batch: 25,000 gallons

Maximum Frequency of Discharge: Two per day

Expected Frequency: Two per day

... (4) The maximum concentrations specified below shall not be exceeded at any time.

Parameter	Code	Maximum Quantity Per Day	Maximum Concentration Per Batch	Minimum Frequency of Sampling	Sample Type
Hydrazine	81313-019	*	75.0 mg/l	Daily (c)	Grab

... (c) Sampling daily for boric acid and hydrazine is required only when Unit No. 3 Hot Water Heating System is being discharged...

The plain language of the Permit authorizes the discharge via C-6 of "Unit No. 3

Condensate Polisher Regeneration Wastewater Neutralization Tank Discharge Including Plant Equipment Washwaters and Unit No. 3 Hot Water Heating System Drainage" (emphasis added).

The description itself states that one source into the neutralization tank is CPF wastewater. Under the Permit's provisions, wastewater containing hydrazine is allowed to be discharged from C-6 twice daily in batches of no more than 25,000 gallons with a maximum concentration per batch of 75 ppm.

In correspondence dated January 7, 1997, (Reference 1) the Department expressed in writing the same interpretation. The Department stated that "[t]he NPDES permit issued for Millstone on

December 14, 1992, in the description for DSN 001C-6, clearly authorizes the discharge of hydrazine (at 75 mg/l) from various wastewaters including the Unit 3 condensate polisher."

The Permit does not contain any condition restricting the discharge of hydrazine to those specific instances when the hot water system is draining. Indeed, aside from a general description of the discharge, Section CC. of the Permit does not contain any express restriction on the process or activities authorized to discharge hydrazine at C-6. The "Maximum Quantity Per Day" and "Maximum Concentration Per Batch" parameters in Section CC. of the Permit are set out without any qualification that hydrazine is only to be discharged when certain processes or activities occur, such as when the hot water system is draining.

While the permit does contain a condition requiring sampling of hydrazine at DSN 001C-6 when the "Unit No. 3 Hot Water Heating System is being discharged", this condition pertains to when sampling for hydrazine is to be performed; C-6 sampling for hydrazine is required only when the hot water heating system is draining. This provision is not an overall restriction on the sources of hydrazine allowed to be discharged at C-6. If that were the intent, Section CC. would state, as it does, for example, in Section H (DSN 001A-4), that sampling for a specific pollutant (such as hydrazine) is required whenever that pollutant is being discharged. At DSN 001A-4, the Permit expressly states that weekly sampling for boric acid "is required only when boric acid is being used." That type of language is not employed in Section CC.

Information available to the Department in 1989 explains why drainage from the hot water heating system was singled out for hydrazine monitoring at C-6. At the time of the Application in 1989, the Department was aware that there were multiple sources of wastewater containing hydrazine at C-6. The Department was also aware that the highest levels of hydrazine at C-6 were from the hot water heating system.

Specifically, on April 17, 1986 (Reference 2, Attachment 2, Tab 6), NNECO had requested an NPDES permit modification, in part, for the discharge of hydrazine from the Unit No. 3 hot water heating system through DSN 001C-6. In support of that request, NNECO stated:

Unit No. 3 Hot Water Heating System

This system has a total volume of 10,000 gallons, of which only a small fraction would be drained for any given maintenance operation. There is no routine maintenance schedule. It contains 25-75 mg/L hydrazine, similar to the large closed cooling water systems described in Reference 1. This system would be drained to the condensate polishing building sump and be discharged via Discharge Serial No. 001C-6 to the condenser cooling water system and thence the quarry.

On September 19, 1986 (Reference 2, Attachment 2, Tab 9), DEP modified Millstone Station's NPDES permit. As part of that modification, DEP added the Unit 3 hot water heating system drainage as a source of wastewater to C-6. The modification provided that hydrazine could be discharged from C-6 at an average concentration per batch of 30 ppm with a maximum concentration per batch of 75 ppm.

Subsequent to the identification of the Unit 3 hot water heating system as a source for hydrazine, NNECO submitted a final report on hydrazine minimization to the DEP on November 17, 1989. As part of that study, NNECO performed further testing for hydrazine at DSN 001C-6 (Reference 2, Attachment 2, Tab 20). These results showed hydrazine at low levels, ranging from 1.3 ppm to 9.0 ppm, over three sampling dates in March 1987. According to plant records, CPF regenerations were being performed immediately following a Unit 3 shut down. This information, as discussed in Section B below, led NNECO, at the start of the permit renewal process in 1989, to include the hot water heating system drainage and the CPF among the sources of hydrazine listed in the Application at C-6. At the conclusion of the permit review process, since the hot water heating system had been previously identified as the most significant source of hydrazine at C-6 (i.e. from 25 to 75 ppm), the NPDES permit issued by the Department on December 14, 1992 required monitoring only when the hot water heating system was discharging. As discussed in Section C, wastewater discharge data at C-6 from 1993 to the present is



consistent with the information available at the time the Permit was renewed (e.g. 1985 permit modification request, 1989 hydrazine minimization final report).

Under DEP regulations, a substance such as hydrazine can be discharged "in quantities and concentrations specified in the permit." Regulations of Connecticut State Agencies ("RCSA") Section 22a-430-3(d)(2)(A). Hydrazine may be discharged at DSN 001C-6 in concentrations of no more than 75 ppm per batch. The C-6 permit description includes CPF regeneration wastewater, plant equipment washwaters and hot water heating system drainage. Accordingly, discharge of wastewater from the CPF via C-6 is authorized under RCSA §22a-430-3(d).

**B. WASTEWATER FROM THE CPF IS PART OF THE PROCESSES AND ACTIVITIES IDENTIFIED IN THE 1989 PERMIT RENEWAL APPLICATION**

Both NNECO's December 1, 1989 NPDES permit renewal Application and NNECO's Form 2 revisions submitted on August 8, 1991 in support of the Application described the processes and activities contributing to the wastewater streams at C-6 as follows:

Unit 3 condenser [condensate] polisher regeneration wastewater neutralization tank discharge including hydrazine from feedwater system treatment, plant equipment washwater that may be corrosive but is not hazardous by any other characteristic, Unit No. 3 hot water heating system drainage and system floor drains (emphasis added).

This description clearly identifies condensate polisher regeneration wastewater and feedwater as sources of hydrazine within the condensate polisher regeneration wastewater neutralization tank. Feedwater is the designation for secondary system water returning to the steam generators after having been processed through the CPF. Hydrazine is then introduced into the secondary system by adding it to the feedwater. When the cation resin, which acts as a filter for all positively charged ions and hydrazine is regenerated, the captured hydrazine is released with the regenerated wastewater.

Moreover, the use of the word "and" instead of the word "or" is further proof that the Application identified a number of processes and activities that are sources of hydrazine at C-6. The above description simply can not reasonably be interpreted to mean that only the Unit 3 hot water heating system was identified as a source of wastewater containing hydrazine.

Pursuant to DEP regulations, hydrazine can be discharged if it "results from processes or activities described in the permit application" or the discharge is "in quantities and concentrations which the Commissioner [has] determine[d] cannot reasonably be expected to cause pollution (RCSA Section 22a-430-3(d)(2))<sup>1</sup>. Hydrazine in the discharge at C-6 has not only been historically identified in correspondence to DEP but also is specifically described in NNECO's Application. Processes and activities specifically included in the Application are 1) CPF regeneration; 2) feedwater system treatment, 3) plant equipment washwater; 4) hot water heating system drainage and 5) system floor drains. The Application can not reasonably be interpreted to exclude four of the five processes and activities identified as sources of hydrazine.

Further, as previously stated in Reference 2 (including Attachment 1), NNECO conducted repeated chronic toxicity testing of combined discharges to the Millstone Quarry from 1981 to 1988 and routine acute whole effluent toxicity testing for DSN 001C since 1988. The results of these tests have shown that the effluent entering Long Island Sound during the time period of routine hydrazine discharges is not toxic to aquatic organisms.

---

<sup>1</sup>RCSA Section 22a-430-3(d)(2) states more fully as follows: The permittee is authorized to discharge (A) pollutants in quantities and concentrations as specified in the permit; and (B) those listed substances [in a permit application] resulting from the processes or activities described in the permit application which are specified in said application, and any other substances or materials from such processes or activities, in quantities and concentrations which the commissioner determines cannot reasonably be expected to cause pollution and will not adversely affect the operation of any POTWs. Discharge of a listed substance in excess of the level specified in an application, or discharge of any substance which is not listed on the permit or in Appendix B or D of section 22a-430-4 of the Regulations of Connecticut State Agencies but results from processes or activities described in the permit application, shall not be deemed to be a permit violation or result in a forfeiture pursuant to section 22a-438(a) of the Connecticut General Statutes if such newly determined substance or increase resulted from a process or activity described in the permit application...



Thus, even if the Department concludes that the Permit language is in some way ambiguous, which we do not believe it is, hydrazine from the CPF is nonetheless authorized under RCSA Section 22a-430-3(d) because (1) the occurrence of hydrazine in CPF wastewaters results from processes and activities "described in the permit application" as well as historically discussed with the Department and (2) based on the toxicity test results to date, hydrazine discharged from C-6 "cannot reasonably be expected to cause pollution."

**C. HYDRAZINE IN THE WASTEWATER AT DSN 001C-6 IS AT LOW LEVELS AND CONSISTENT WITH PRIOR FINDINGS**

Since our March 20, 1997 meeting, we have reviewed C-6 wastewater discharge data which includes the discharge of wastewater from the CPF. These data, which are provided in the attached table shows that hydrazine has been found in the C-6 wastewater from 0.01 ppm to 42.8 ppm since January of 1993<sup>2</sup>. The average hydrazine concentration based on all of the data we have reviewed is 4.11 ppm. Overall, this data is consistent with the data reported to the Department as part of the final report on hydrazine minimization in 1987, which showed hydrazine at 1.3, 1.4, 2.5 and 9.0 ppm respectively in the discharge at 001C-6.

Since October 1996, Unit 3 has not been in normal operation due to plant shutdown<sup>3</sup>. As a result, the hydrazine concentrations are significantly less than would occur either during Plant start-up or plant operation. Further, Unit 3 is presently operating the hot water heating system without the benefit of hydrazine or other similar additives. Without these factors, the concentrations of hydrazine would be higher.

---

<sup>2</sup> These data are derived from the following two logs: 1) "Millstones Nuclear Generating Station Monitoring Environmental Samples" and 2) "Millstone NPDES Miscellaneous Environmental Sampling Log". The Millstone NPDES Miscellaneous Environmental Sampling Log contains in process data as well as discharge data. NNECO has included all of these data in the attached table. Sampling from the NPDES Miscellaneous Environmental Sampling Log is noted by an asterisk (\*).

<sup>3</sup> There is little or no flow through the condensate demineralizers associated with the CPF when the plant is shut down. Occasionally, to maintain the properties of the CPF resin, the condensate demineralizers are regenerated.

Based on the above data, the discharge of wastewater containing hydrazine at C-6 is well within the 75 ppm limit established by the Permit. This limit currently accommodates plant start-up activities, drainage of the hot water heating system (when utilizing hydrazine), as well as normal operating conditions at the CPF. Accordingly, NNECO does not believe any change in the hydrazine limit at C-6 is warranted at this time.

**D. THE DEPARTMENT HAS THE AUTHORITY TO IMPOSE ADDITIONAL REQUIREMENTS AT C-6 THROUGH A MINOR PERMIT MODIFICATION**

Pursuant to RCSA 22a-430-4(p) (5) (ii) and (vii), the Commissioner may treat as a minor modification requests seeking additional or new monitoring provided that the new monitoring "does not authorize the discharge of a substance not authorized by the previous permit". Pursuant to RCSA 22a-420-4 (p) (5) (B) (vii), the Commissioner may also treat as a minor modification the addition of limitations on existing pollutants. Both these provisions require the consent of the permittee. Here, since hydrazine results from processes or activities described in Millstone Station's Permit and Application and does not cause a hazard to the environment, we believe the Department can address any concerns not resolved in this letter through a minor modification.

Specifically, the Department could add a weekly monitoring requirement for hydrazine at C-6 at all times rather than just daily sampling when the hot water heating system is discharging. At present, Millstone Station is already voluntarily sampling C-6 weekly for hydrazine regardless of whether the hot water heating system is discharging and including this data on its monthly Discharge Monitoring Report. The Department could also impose further effluent limits at C-6. Since we believe the current hydrazine limit adequately reflects the processes and activities at C-6, it may be more appropriate to address this issue as part of the Department's consideration of Millstone Station's forthcoming NPDES permit renewal application. In any event, any consideration of additional limits on hydrazine must recognize that there are higher concentrations of hydrazine in the discharge during plant start-ups than during normal operations. In our letter of November 26, 1996, we informed the Department that a limit of 75

ppm for hydrazine at C-6 sufficiently covers both unit start-up and normal operation. If the Department believes that further limits are appropriate, we would suggest a limit of 75 ppm during plant start-up, a limit of 75 ppm for hot water heating system drainage and a limit of 50 ppm during normal plant operation.

### III. CONCLUSION

The plain language of NNECO's current Permit plainly authorizes the discharge of wastewater containing hydrazine from the CPF via DSN 001C-6 at levels of no more than 75 ppm. Condensate polisher regeneration wastewater is not only listed in the Permit but is also part of the processes and activities identified in NNECO's 1989 Permit renewal application. Further, there is no toxic effect on Long Island Sound from the routine discharge of wastewater containing hydrazine. Thus, the CPF is an authorized source of wastewater containing hydrazine to be discharged via DSN 001C-6.

Under current Permit terms and conditions, the only monitoring requirement on the discharge at C-6 is when the hot water heating system is draining, which is infrequent. However, NNECO recognizes that the Department has the authority to impose additional monitoring requirements or permit limitations at C-6 through a minor permit modification. Should the Department determine that further sampling at C-6 is needed, we would suggest that the Department add a weekly sampling requirement at C-6 in addition to the daily sampling already required when the hot water heating systems is discharging. The Department could also impose limits that distinguish between system start-up, hot water heating system drainage and normal plant operations. However, based on the plain language of the Permit as well as the data provided in Section C and the aquatic toxicity data previously provided the Department, we believe that the current limit of 75 ppm adequately addresses any concerns the Department has.

### REFERENCES:

- 1) Letter from J. Grier to S. Scace dated January 7, 1997
- 2) Letter SES-96-6N-047 from J. Grier to M. Harder dated November 26, 1996 (including Attachments 1 through 4)
- 3) Letter SES-97-6N-027 from S. Scace to J. Grier dated March 11, 1997.

# Wastewater Sampling at 001C-6

Date	Hydrazine Concentration (ppm)	Date	Hydrazine Concentration (ppm)	Date	Hydrazine Concentration (ppm)
9/4/93	0.1	7/26/94	0.12 *	10/24/94	2.00 *
10/16/93	0.1	7/27/94	4.20 *	10/30/94	11.30 *
10/23/93	0.1	7/28/94	<1.0 *	11/7/94	3.80 *
1/3/94	18.40 *	7/29/94	3.80 *	11/16/94	3.00 *
1/3/94	20.40 *	7/30/94	5.60 *	11/20/94	4.20 *
4/9/94	9.80 *	7/31/94	9.80 *	11/30/94	4.20 *
4/18/94	2.00 *	8/1/94	6.40 *	12/4/94	4.80 *
4/23/94	<0.1 *	8/2/94	3.80 *	12/5/94	2.00 *
5/2/94	<0.2 *	8/3/94	<0.02 *	12/12/94	4.10 *
6/14/94	7.00 *	8/4/94	2.60 *	12/18/94	3.00 *
6/15/94	<1.0 *	8/5/94	8.20 *	12/26/94	4.10 *
6/16/94	<1.0 *	8/6/94	5.47 *	1/22/95	4.60 *
6/17/94	<1.0 *	8/7/94	<0.2 *	2/4/95	2.60
6/25/94	6.20 *	8/8/94	<0.2 *	2/11/95	3.20
6/26/94	<1.0 *	8/8/94	<0.2 *	2/18/95	7.30
6/26/94	2.00 *	8/8/94	1.20 *	2/20/95	12.00 *
6/28/94	<1.0 *	8/9/94	7.10 *	2/25/95	4.50
6/28/94	7.90 *	8/10/94	<0.2 *	2/27/95	4.00 *
6/29/94	<1.0 *	8/11/94	<0.2 *	3/6/95	8.00 *
6/29/94	<1.0 *	8/12/94	5.80 *	4/2/95	3.36 *
6/30/94	<1.0 *	8/13/94	6.30 *	5/6/95	10.80
6/30/94	1.80 *	8/15/94	<0.2 *	5/9/95	8.60
7/1/94	<1.0 *	8/15/94	7.60 *	5/13/95	42.80
7/1/94	2.82 *	8/16/94	1.80 *	5/20/95	2.10
7/3/94	<1.0 *	8/17/94	<0.2 *	5/28/95	12.50 *
7/3/94	<1.0 *	8/18/94	6.40 *	6/4/95	0.20 *
7/4/94	<1.0 *	8/19/94	3.20 *	6/10/95	0.20
7/4/94	7.80 *	8/22/94	4.80 *	6/17/95	0.20
7/5/94	<1.0 *	8/23/94	6.00 *	6/24/95	2.40
7/6/94	5.05 *	8/23/94	4.80 *	7/1/95	7.90
7/6/94	<1.0 *	8/29/94	14.00 *	7/8/95**	9.90
7/7/94	<1.0 *	8/29/94	4.40 *	7/15/95**	22.80
7/7/94	<1.0 *	9/1/94	<0.2 *	7/22/95**	2.60
7/8/94	4.84 *	9/4/94	4.00 *	7/29/95	15.50
7/11/94	<1.0 *	9/11/94	0.40 *	8/5/95	3.00
7/11/94	8.00 *	9/11/94	11.10 *	8/12/95	2.10
7/18/94	7.55 *	9/18/94	11.20 *	8/19/95	1.80
7/19/94	7.87 *	9/26/94	1.00 *	8/26/95	2.00
7/20/94	8.28 *	10/2/94	4.00 *	9/2/95	1.90
7/21/94	7.87 *	10/2/94	1.00 *	9/9/95	4.00
7/24/94	<1.0 *	10/10/94	8.00 *	9/16/95	3.90
7/25/94	4.00 *	10/16/94	8.00 *	9/23/95	4.00
9/30/95	10.00	10/26/96	<350		
10/7/95	3.80	10/30/96	0.29		
10/14/95	2.70	10/31/96	20.00		