AmerGen
A PECO Energy/British Energy Company

Clinton Power Station
P.O. Box 678
Clinton, IL 61727
Phone: 217 935-8881

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1A.120

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Docket No. 50-461

Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station
Annual Environmental Operating Report

Dear Madam or Sir:

In accordance with Appendix B to the Clinton Power Station (CPS) Technical Specifications, Clinton Power Station's Environmental Protection Plan (EPP), AmerGen Energy Company, LLC (AmerGen) is submitting the attached Annual Environmental Operating Report. This report covers the period of January 1, 1999, through December 31, 1999.

Sincerely yours,

MA Reandeau

Michael A. Reandeau
Director - Licensing

GBS/blf

Attachment

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC

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Annual Environmental Operating Report

The Environmental Protection Plan (EPP) for Clinton Power Station (CPS) requires that the Annual Environmental Operating Report include:

(A) A list of EPP non-compliances and the corrective actions taken to remedy them.

(B) A list of all changes in station design or operation, tests, and experiments made in accordance with subsection 3.1 of the EPP which involved a potentially significant unreviewed environmental issue.

(C) A list of non-routine reports submitted in accordance with subsection 5.4.2 of the EPP.

(D) Any results and/or assessments for the environmental monitoring programs described in subsection 2.0 of the EPP which were submitted to the respective regulatory agencies during the annual reporting period.

The following provides AmerGen's response to each listed item for Clinton Power Station:

A. A list of EPP non-compliances and the corrective actions taken to remedy them:

1. Non-compliance:

The January, 1999, Discharge Monitoring Report documented non-compliances associated with the station's sewage treatment plant. The Biological Oxygen Demand (BOD_5) concentration daily maximum limit was exceeded four times during the month, which drove the associated BOD_5 mass loading daily maximum values to exceed the limit twice during the month. The non-compliances were all attributed to the process problems described below.

The station population during the month of January was approximately two thousand five hundred (2500) people, far above the normal site population. The increased loading on the sewage treatment system necessitated placing a second equalization tank and treatment plant in service. Placing the second tank in service resulted in decreased airflow to the Extended Aeration sewage treatment plant, and subsequently, a decreased population of microorganisms was available to process the waste. A second contributor was the increased volume of water to process from snowmelt and significant rainfall during the winter month of January. Condition Report 1-99-01-186 was written to document the problem.

During the month of February, 1999, the station documented two more non-compliances with BOD_5 in the sewage treatment effluent, which were attributed to continuation of the problem that started in January. Site population in February was estimated to be approximately two thousand two hundred (2200) people.

During the month of March, 1999, the station documented four more sewage treatment effluent BOD_5 non-compliances which were attributed to continuation of the problems with the sewage treatment system. Site population in March was estimated to be approximately two thousand two hundred (2200) people per the Discharge Monitoring Report, and was later estimated to be one thousand eight hundred (1800) to one thousand nine hundred people (1900).

Subsequent to the reporting of the non-compliances in station monthly Discharge Monitoring Reports, the Illinois Environmental Protection Agency issued Violation Notice W-1999-00093 to Illinois Power concerning the Clinton Power Station's non-compliances with permit number IL0036919. Condition Report 1-99-05-126 was written to track the violation and corrective actions. The station responded within forty-five days to the notice of violation with corrective action plans.

Corrective Action:

Condition Report 1-99-01-186 was written to document the condition and develop corrective actions. The operations staff placed the second sewage treatment plant in service on January 29, 1999.

In February, the station identified several activities which would help reduce the BOD_5 effluent problem. These included repairing the underground air system, repairing a gap around the pipe carrying influent wastewater which was allowing infiltration of groundwater, and reduction in site population to reduce influent flow rates to the system.

In March, the sewage treatment system was temporarily modified to operate in series. The effluent of the Contact Stabilization plant was directed to the influent of the Extended Aeration plant. Reduced rainfall during the month of March enabled some reduction in system flow.

Significant reduction in site personnel occurred from March through May. In April, 1999, and for the rest of the year, BOD_5 concentrations remained within limits.

Additional corrective action currently authorized includes construction of a new facility to treat sewage at Clinton Power Station. The new facility will be a lagoon type, and replace the existing treatment plants. Activities to award construction contracts are underway, with construction projected to start in May, 2000. Details regarding the description, analyses, interpretations, and evaluations of this project will be provided in the year 2000 annual Environmental Operating Report, as required by the CPS Environmental Protection Plan.

2. Non-compliance:

In December, 1999, a non-compliance occurred as a result of cleaning oil-water separator units. Condition Report 1-99-12-087 was written to document the problem. The Transformer Area oil-water separator (OS-1), discharges to outfall 004. That separator had been cleaned, and a water seal established, allowing it to be returned to service in November. Site personnel then began cleaning oil-water separator #2 (OS-2), which is located south of the diesel generator building. The liquid phase from OS-2 was drained into OS-1. During that transfer of liquid phase from OS-2 to OS-1, personnel noticed some oil in the liquid. Transfer was stopped, and the remaining liquid phase from OS-2 was transported to an oil recovery facility. Some liquid was drained into OS-1 before the transfer was halted. Workers felt that since OS-1 was in service with a water seal established, and the liquid was drained into the inlet, the normal operation of OS-1 would prevent the oily water from reaching the effluent.

The Outfall 004 Oil and Grease (O & G) sample was in compliance on 12-06-99, at 1.6 mg/l. However, the next Outfall 004 O & G sample, collected on 12-14-99, had a concentration of 310 mg/l, which is not in compliance with the CPS NPDES permit limit. A followup sample collected on 12-16-99 contained an O & G concentration of 15 mg/l, which is under the concentration limit of 20 mg/l. Those results are consistent with oil that was at least partially emulsified being drained to OS-1 during the cleaning evolution in November 1999.

Apparently, rainfalls moved the emulsified oil through the oil/water separator from the inlet to the outlet. Since it was emulsified, the oil did not separate from the water and moved through the oil/water separator with the water. The first sample was low in O&G concentration because the oily water had not yet appeared at the effluent of the oil/water separator. The third sample was relatively low in O&G concentration because, by that time, the oily water had apparently been largely flushed through the oil/water separator.

Corrective Action:

Immediate corrective actions were to place absorbent pads at the Oil Water Separator discharge and in the effluent chamber of the Oil Water Separator. A boom was already in place in the channel below the Oil Water Separator discharge.

Preventive Maintenance activities were generated for oil-water separator cleaning. Restrictions were added to the Preventive Maintenance tasks to prevent recurrence of this event. These restrictions include, following cleaning, establishing a water seal using water that is not contaminated with oil, and preventing the addition of water that is or could be contaminated with oil (e. g. from the other oil/water separator) to the oil/water separator following cleaning.

3. Non-compliance:

On December 30, 1999, a chlorine curve was developed, in accordance with Special Condition 3 of the station's NPDES permit, at the end of the Discharge Flume (Outfall 002). The highest individual analysis result was 0.33 mg/l Total Residual Chlorine (TRC). The permit limit for this parameter is 0.2 mg/l. Condition Report CR 1-99-12-125 was written to document the non-compliance.

On October 7, 1999, the station shut down one of the three operating Circulating Water (CW) pumps which pump water through the station's Main Condenser. At approximately the same time, the change in the number of CW pumps running (3 to 2) was input into the Mistic system (the system which controls CW chlorination and dechlorination). As the system is designed, when three CW pumps are operating, both of the sodium bisulfite injection pumps in the dechlorination facility at the head of the Discharge Flume operate during CW chlorination. When two CW pumps are operating, only one of the sodium bisulfite injection pumps operates during CW chlorination.

Since both sodium bisulfite pumps were set at the same speed and stroke, when the change was made to two CW pumps, the rate of sodium bisulfite injection dropped to ~50% of the rate with three CW pumps running. However, the flow rate in the CW system with two CW pumps running is approximately 70% of the flow rate with three CW pumps running. This was noticed when peaks started appearing on the Discharge Flume (Outfall 002) continuous Total Residual Chlorine (TRC) analyzer recorder trace. These peaks reached a maximum of 0.12 mg/l TRC in early December. (The continuous TRC analyzer became inoperable on December 16, 1999 and was restored to operability on January 5, 2000.)

Typically, the CW chlorine injection rate is adjusted to maintain a small [0.2 - 0.3 mg/l Free Available Chlorine (FAC)] chlorine concentration at the Seal Well (just after the Main Condenser in the CW system flow path). Late on December 22, 1999 (after the chlorine curve of the same date was developed), the CW chlorine injection rate was increased due to Seal Well sample results which indicated less-than-detectable FAC for two consecutive days. The combination of the CW chlorine injection rate increase and the lower sodium bisulfite to CW system flow rate ratio led to the high TRC result on December 30.

Corrective Action:

The Mistic system was adjusted so that two sodium bisulfite injection pumps run during CW chlorination when two CW pumps are running.

B. A list of all changes in station design or operation, tests, and experiments made in accordance with subsection 3.1 of the EPP which involved a potentially significant unreviewed environmental issue:

There were no changes in station design or operation, tests, and experiments made in accordance with subsection 3.1 of the EPP which involved a potentially significant unreviewed environmental issue.

C. A list of non-routine reports to be submitted in accordance with subsection 5.4.2 of the EPP:

There were no non-routine reports submitted in accordance with subsection 5.4.2 of the EPP.

D. Any results and/or assessments for the environmental monitoring programs described in subsection 2.0 of the EPP which were submitted to the respective regulatory agencies during the annual reporting period:

There were no results and/or assessments submitted to regulatory agencies with respect to environmental monitoring programs described in subsection 2.0.