

AmerGen

An Exelon/British Energy Company

Clinton Power Station

R.R. 3 Box 228
Clinton, IL 61727-9351
Phone: 217 935-8881

RS-02-098

May 20, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Long Term Storage of High Pressure and Low Pressure Turbine Components
at Clinton Power Station, Unit 1

- References:
- (1) Letter from J. M. Heffley (AmerGen Energy Company, LLC) to U. S. NRC, "Request for License Amendment for Extended Power Uprate Operation," dated June 18, 2001
 - (2) Letter from K. A. Ainger (Exelon Generating Company, LLC) to U. S. NRC, "Additional Information Supporting the License Amendment Request to Permit Extended Power Uprate Operation at Clinton Power Station," dated September 7, 2001
 - (3) NUREG-0854, Final Environmental Statement related to the operation of Clinton Power Station, Unit No. 1, May 1982
 - (4) AmerGen Energy Company, LLC; Clinton Power Station, Unit 1 Environmental Assessment and Finding of No Significant Impact; Related to a Proposed License Amendment To Increase the Maximum Thermal Power Level; Federal Register, Vol. 67, No. 66, Friday, April 5, 2002, (16459-16467)

In Reference 1, Clinton Power Station (CPS) submitted a license amendment request for an Extended Power Uprate (EPU) which would allow CPS to operate at a power level of 3473 megawatts thermal (MWt). This represents an increase of approximately 20 percent rated core thermal power over the current 100 percent power level of 2894 MWt. In support of this amendment request, AmerGen Energy Company (AmerGen), LLC also submitted the CPS Environmental Report for Extended Power Uprate (Reference 2) which provided an environmental assessment of the impacts of EPU on the environment. The intent of this report was to provide the NRC with sufficient information to perform an environmental assessment in accordance with the requirements of 10 CFR 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

A-001

As part of the implementation of EPU at CPS, AmerGen has replaced the high-pressure and low-pressure turbine rotors and diaphragms. The disposition of these components was addressed in the CPS environmental report provided in Reference 2. At the time the report provided in Reference 2 was prepared, the assessment was based on the original plan for disposition of the replaced low and high-pressure turbine rotors. As discussed in the assessment, the plan was to decontaminate and recycle to the extent possible or transfer these components to an approved offsite disposal facility. This information was then subsequently used by the NRC in their review of the environmental impact of power uprate and supported the conclusion that the land use and solid radwaste generation were bounded by the conclusions in the Final Environmental Statement (Reference 3). The NRC issued the final Environmental Assessment and Finding of No Significant Impact on April 5, 2002 (Reference 4) which documented those conclusions.

During further development of the EPU implementation plans, the method for disposition of the replaced turbine components was changed. The current plan is to construct an interim onsite storage facility for the rotors on an existing concrete pad. In addition, the diaphragms and other parts will be stored in steel containers located inside an existing site building. Both the newly constructed facility and the existing facility are located outside of the Protected Area, and inside the Owner Controlled Area. These interim storage facilities will be used to store the replaced components for an indeterminate length of time, pending final disposition.

It was recognized that the changes to the plan for dispositioning the turbine components constituted a change that potentially could impact the environment. AmerGen has completed an evaluation to determine if the conclusions reached by the NRC regarding land use and solid radwaste generation, as documented in the final Environmental Assessment and Finding of No Significant Impact, are still valid with the change to the plan for interim disposition of the turbine components. In addition, the evaluation fulfills the requirements of Section 3.1 of the Environmental Protection Plan (EPP), Appendix B to the Operating License, and supports the determination as to whether the proposed changes to the plan for disposition of the turbine components involves an unreviewed environmental question or requires a change to the EPP. The results of this evaluation are provided in the attachment to this letter.

Should you have any questions or require additional information related to this letter, please contact Mr. Timothy A. Byam at (630) 657-2804.

Sincerely,



T. W. Simpkin
Manager – Licensing

Attachment: Environmental Evaluation of Onsite Storage of Replaced Turbine Components

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Clinton Power Station
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

ATTACHMENT
Environmental Evaluation of Onsite Storage
of Replaced Turbine Components

Background

In Reference 1, Clinton Power Station (CPS) submitted a license amendment request for an Extended Power Uprate (EPU) which would allow CPS to operate at a power level of 3473 megawatts thermal (MWt). This represents an increase of approximately 20 percent rated core thermal power over the current 100 percent power level of 2894 MWt. In support of this amendment request, AmerGen also submitted the CPS Environmental Report for Extended Power Uprate (Reference 2) which provided an environmental assessment of the impacts of EPU on the environment. The objective of this report was to provide the NRC with sufficient information to perform an environmental assessment in accordance with the requirements of 10 CFR 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

As part of the implementation of EPU at CPS, AmerGen intended to replace the high-pressure and low-pressure turbine rotors and diaphragms. The disposition of these components was addressed in the CPS environmental report provided in Reference 2. At the time the report provided in Reference 2 was prepared, the assessment was based on the original plan for disposition of the replaced low and high-pressure turbine rotors. As discussed in the assessment, the plan was to decontaminate and recycle to the extent possible or transfer these components to an approved offsite disposal facility. This information was then subsequently used by the NRC in their review of the environmental impact of power uprate and supported the conclusion that the land use and solid radwaste generation were bounded by the conclusions in the Final Environmental Statement (Reference 3). The NRC issued the final Environmental Assessment and Finding of No Significant Impact on April 5, 2002 (Reference 4) which documented those conclusions.

During further development of the EPU implementation plans, the method for disposition of the replaced turbine components was changed. The current plan is to construct an interim onsite storage facility for the rotors on an existing concrete pad. In addition, the diaphragms and other parts will be stored in steel containers located inside an existing site building. Both the newly constructed facility and the existing facility are located outside of the Protected Area, and inside the Owner Controlled Area. These interim storage facilities will be used to store the replaced components for an indeterminate length of time, pending final disposition.

It was recognized that the changes to the plan for dispositioning the turbine components constituted a change that potentially could impact the environment. As stated in Section 3.1 of the Environmental Protection Plan, Appendix B to the CPS Operating License, the "licensee may make changes in plant design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the EPP." The Environmental Protection Plan (EPP) goes on to state that "[b]efore engaging in additional construction or operational activities which may affect the environment, the licensee shall prepare and record an environmental evaluation of such activity if the activity has measurable environmental effects which are not confined to onsite areas previously disturbed during site preparation and plant construction."

ATTACHMENT
Environmental Evaluation of Onsite Storage
of Replaced Turbine Components

The purpose of the following evaluation is to determine if the conclusions reached by the NRC regarding land use and solid radwaste generation, as documented in the final Environmental Assessment and Finding of No Significant Impact, are still valid with the change to the plan for interim disposition of the turbine components. In addition, this evaluation is being performed to fulfill the requirements of Section 3.1 of the EPP, and support the determination as to whether the proposed changes to the plan for disposition of the turbine components involves an unreviewed environmental question or requires a change to the EPP.

Non-Radiological Impacts

Land Use

The final Environmental Assessment and Finding of No Significant Impact states that the EPU will require no changes to the current use of land as proposed. It further states that as submitted there were no plans to construct any new structures or materially alter any existing structures to implement EPU. In addition, with the exception of transportation of equipment and materials, and routine waste disposal, EPU activities will be confined to the area within the plant security fence. The Environmental Assessment specifically addresses the replacement of the turbine components and the plan for dispositioning these components. As stated above, the "proposed maintenance plan includes decontamination and recycling of replaced turbine parts, or transfer to an approved offsite disposal facility." AmerGen has subsequently decided to store the components on site for an interim period.

The interim storage of the turbine rotors and components will be in two separate facilities. All components other than the rotors (i.e., diaphragms and tools) will be placed in 'Sea-Land' containers and stored in the existing Large Fabrication Shop. The turbine rotors will be sealed in a shipping bag, placed on a storage skid and stored in a new building constructed on an existing concrete pad formerly used as an electrical laydown area during construction of the station. The Large Fabrication Shop and the electrical laydown area are both located outside the protected area fence in the site Owner Controlled Area. As stated in the Final Environmental Statement – Operating License Stage (FES-OL), the site includes the total station site area of 14,092 acres, including the Owner Controlled Area which is being utilized for this activity.

In accordance with Appendix B of the Operating License, an evaluation of environmental impact is required "if the activity has measurable effects which are not confined to onsite areas previously disturbed during site preparation and plant construction". As stated above, the Large Fabrication Shop is an existing facility and therefore the storage of the 'Sea-Land' containers in this facility does not change the land use and as a result no further evaluation is required. In addition, the storage of the turbine rotors on the existing concrete pad in the Owner Controlled Area does not involve land previously undisturbed. This land has been previously disturbed during site preparation and therefore requires no further evaluation. Based on these conditions, the land use evaluated in the FES-OL remains bounding and the conclusions regarding land use as evaluated for Extended Power Uprate are still valid.

ATTACHMENT
Environmental Evaluation of Onsite Storage
of Replaced Turbine Components

Radiological Impacts

Solid Waste

The final Environmental Assessment and Finding of No Significant Impact defines solid radioactive waste as including solids recovered from the reactor process system, solids in contact with the reactor process system liquids or gasses, and solids used in reactor process system operation. The largest volume of solid radioactive waste at CPS is low-level radioactive waste. The conclusion of the final Environmental Assessment for EPU is based on normal solid waste generation during plant operation. It is recognized that there will be a small increase in the total volume of waste generated after implementation of the uprate due to increased frequency of backwashes, spent fuel, spent control blades, and in-core ion chambers. However, the NRC staff does not expect this increase to be significant and believes that it can be accommodated within the existing onsite storage facilities. Therefore, the NRC staff concluded that there would not be a significant increase in the amounts, or change in the types, of solid wastes produced by the plant as a result of EPU. This conclusion is still valid for normal operation at CPS. The turbine rotors and other components are considered low level radioactive waste, however, as they are not a part of the waste generated during normal plant operation, the significant volume they represent should not be considered as input to the long term plant operation evaluation. Replacement of the turbine components will not impact the waste generated during normal plant operation. An evaluation of the impact to site storage capability as well as onsite and offsite dose impacts is included below.

Radiation Levels and Dose Impacts

The NRC staff evaluated the CPS projected in-plant and offsite radiation doses as a part of the review of the proposed EPU. As documented in the final Environmental Assessment and Finding of No Significant Impact, the NRC concluded that the expected in-plant radiation doses at CPS following the proposed EPU would be well below regulatory criteria and will not have a significant impact. In addition, it was concluded that the offsite doses would remain well within regulatory limits under operating conditions associated with the EPU.

The FES-OL concludes that the offsite dose will not exceed limits established by 10CFR100, "Reactor Site Criteria," 40CFR190, "Environmental Radiation Protection Standards for Nuclear Power Operations," and 10CFR20, "Standards for Protection Against Radiation." Establishment of the interim storage facility outside of the protected area, but within the Owner Controlled Area boundary, will not impact those conclusions. The actual contamination levels of the turbine rotors and components were measured prior to removal from the turbine assemblies. On the high pressure (HP) rotor, the maximum contamination recorded was 100,000 disintegrations per minute (dpm)/100cm² with the majority of areas at 25,000 dpm/100cm² or less. The low-pressure (LP) rotors had a maximum contamination level of 8000 dpm/100cm² with the majority of readings at 1000 dpm/100cm² or less. This results in measured gamma dose rates of 4 millirem (mr)/hr on contact at the highest point on the HP rotor with most other readings, including all of the readings on the LP rotors, less than 0.2 mr/hr gamma. This results in an extremely small change to the actual dose rates measured at the site boundary, which are well within the regulatory limits (Reference 5). Therefore, the conclusions of the FES-OL remain valid following the establishment of the interim storage facility. In addition, the turbine rotors will be wrapped in a durable plastic that has been specially

ATTACHMENT
Environmental Evaluation of Onsite Storage
of Replaced Turbine Components

developed for the proposed application and the diaphragms and other components will be stored in 'Sea-Land' containers. This greatly reduces the potential of any radioactive release.

The turbine rotor and component storage facilities will not be located in areas that are normally accessed by plant personnel, nor will there be a routine reason to enter these facilities. The storage areas will be locked and will have appropriate Radiation Protection postings. Programmatic controls will be in place to periodically survey the area. Based on the limited access, low levels of contamination, and resultant low radiation dose rates, no impact to the occupational dose to plant personnel is expected, nor will there be any impact to the dose received by members of the public that access the Owner Controlled Area. As a result, the conclusions of the final Environmental Assessment are not impacted by the interim storage of the turbine components in the Owner Controlled Area.

Transportation

The turbine rotors and components are not being transported outside of the Owner Controlled Area boundary, therefore there is no impact on the FES-OL conclusions regarding transportation of radioactive material associated with plant operation.

Conclusion

Appendix B to the CPS Operating License states that a "proposed change, test, or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FES-OL as modified by staff's testimony to the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact." As documented above, the change involving the interim storage of the turbine components replaced as part of the EPU implementation has been evaluated and it has been determined that this change does not constitute an unreviewed environmental question. In addition, a change to the EPP is not required as a result of the storage of turbine components in the Owner Controlled Area.

ATTACHMENT
Environmental Evaluation of Onsite Storage
of Replaced Turbine Components

References

1. Letter from J. M. Heffley (AmerGen Energy Company, LLC) to U.S. NRC, "Request for License Amendment for Extended Power Uprate Operation," dated June 18, 2001
2. Letter from K.A. Ainger (Exelon Generating Company, LLC) to U. S. NRC, "Additional Information Supporting the License Amendment Request to Permit Extended Power Uprate Operation at Clinton Power Station," dated September 7, 2001
3. NUREG-0854, Final Environmental Statement related to the operation of Clinton Power Station, Unit No. 1, May 1982
4. AmerGen Energy Company, LLC; Clinton Power Station, Unit 1 Environmental Assessment and Finding of No Significant Impact; Related to a Proposed License Amendment To Increase the Maximum Thermal Power Level; Federal Register, Vol. 67, No. 66, Friday, April 5, 2002, (16459-16467)
5. Radiological Technical Evaluation; "Radiological Consequences of Turbine Rotor and Diaphragm Storage," RTE 02-016-ED Rev. 0, April 3, 2002