

September 30, 2004

Mr. Joseph E. Venable  
Vice President Operations  
Entergy Operations, Inc.  
17265 River Road  
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 (WATERFORD 3) -  
DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF NO  
SIGNIFICANT IMPACT RELATED TO A PROPOSED LICENSE AMENDMENT  
TO INCREASE THE LICENSED POWER LEVEL (TAC NO. MC1355)

Dear Mr. Venable:

Enclosed is a copy of the Draft Environmental Assessment and Finding of No Significant Impact related to your application for amendment dated November 13, 2003 (ADAMS Accession Number ML040260321), as supplemented by letters dated January 29 (ML040340728), March 4 (ML040690028), April 15 (ML041110527), May 7 (ML041330175), May 12 (ML041380147), May 13 (ML041380145), May 21 (ML041460407), May 26 (ML041490335), July 14 (ML042010150), July 28 (ML042120475), and August 10 (ML042250177), 2004.

The proposed amendment would increase the maximum steady-state reactor core power level from 3441 megawatts thermal (MWt) to 3716 MWt, which is an increase of approximately 8 percent. The proposed increase in power level is considered an extended power uprate.

In accordance with the Nuclear Regulatory Commission staff's position paper dated February 8, 1996, the draft environmental assessment is being forwarded to the Office of the Federal Register for publication to provide a 30-day public comment period.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION  
ENTERGY OPERATIONS, INC.  
DOCKET NO. 50-382  
WATERFORD STEAM ELECTRIC STATION, UNIT 3  
DRAFT ENVIRONMENTAL ASSESSMENT  
AND FINDING OF NO SIGNIFICANT IMPACT  
RELATED TO THE PROPOSED LICENSE AMENDMENT TO INCREASE THE  
MAXIMUM REACTOR POWER LEVEL

AGENCY: U.S. Nuclear Regulatory Commission (NRC)

ACTION: Notice of Opportunity for public comment

SUMMARY: The NRC has prepared a draft environmental assessment as its evaluation of a request by Entergy Operations, Inc. (Entergy, the licensee) for a license amendment to increase the maximum thermal power at the Waterford Steam Electric Station 3 (Waterford 3) from 3441 megawatts thermal (MWt) to 3716 MWt. This represents a power increase of approximately 8 percent for Waterford 3. The NRC staff has the option of preparing an environmental impact statement if it believes a power uprate will have a significant impact on the human environment. The NRC staff did not identify any significant impact from the information provided in the licensee's extended power uprate (EPU) application for Waterford 3 or the NRC staff's independent review; therefore, the NRC staff is documenting its environmental assessment. The draft environmental assessment and finding of no significant impact is being published in the Federal Register with a 30-day public comment period.

## ENVIRONMENTAL ASSESSMENT

### BACKGROUND

#### Plant Site and Environs:

The NRC is considering issuance of an amendment to Facility Operating License No. NPF-38, issued to Entergy for Waterford 3 which has been in operation since March 4, 1985. The facility is located on the west (right descending) bank of the Mississippi River, approximately 40 kilometers (25 miles) west of New Orleans on Louisiana Highway 18 (River Road) in St. Charles Parish, in the city of Killona, Louisiana. The plant's topography, except for the levee along the Mississippi River, is generally flat with an elevation of 8 to 16 feet above mean sea level. Electricity is generated using a pressurized water reactor and steam turbine with a maximum generating capacity of 1,104 Megawatts electric. The fuel source for the unit is enriched Uranium-235. The exhaust steam is condensed using a once-through circulating water system with the Mississippi River as a heat sink. Additionally, the component cooling water system serves as the station's ultimate heat sink and is designed to remove heat from the plant during normal operation, shutdown, or emergency shutdown.

Three-quarters of a mile downstream from the Waterford 3 site is the Bonnet Carre' Spillway. The Bonnet Carre' Spillway is a vital element of the comprehensive plan for flood control in the Lower Mississippi Valley. It is located on the east bank of the Mississippi River, approximately 25 miles above New Orleans and was constructed to divert approximately 250,000 cubic feet per second of floodwaters from the Mississippi River to Lake Pontchartrain to prevent overtopping of levees at and below New Orleans, assuring the safety of New Orleans and the downstream delta area during major floods on the Lower Mississippi.

#### Identification of the Proposed Action:

By letter dated November 13, 2003, Entergy proposed to increase the maximum thermal power level of Waterford 3 by approximately 8 percent, from 3441 MWt to 3716 MWt.

The change is considered an EPU because it would raise the reactor core power level more than 7 percent above the originally licensed maximum power level. The NRC originally licensed Waterford 3 on March 16, 1985, for operation at a reactor core power not to exceed 3390 MWt. On March 29, 2002, the NRC staff approved a power increase of approximately 1.5 percent allowing Waterford 3 to operate at a core power level not to exceed 3441 MWt. Therefore, this proposed action would result in a total increase of approximately 9.6 percent over the originally licensed maximum power level. The amendment would allow the heat output of the reactor to increase, which would increase the flow of steam to the turbine. This would allow the turbine generator to increase the production of power as well as increase the amount of heat dissipated by the condenser. Moreover, this would result in an increase in temperature of the water being released into the Mississippi River.

Need for the Proposed Action:

Entergy is requesting an amendment to the operating license for Waterford 3 to increase the maximum thermal power level, thereby increasing the electric power generation. The increase in electric power generation provides Entergy with lower cost power than can be obtained in the current and anticipated energy market.

Environmental Impacts of the Proposed Action:

This assessment summarizes the non-radiological and radiological impacts on the environment that may result from the licensee's amendment request application dated November 13, 2003.

NON-RADIOLOGICAL IMPACTS

Land Use Impacts:

The potential impacts associated with land use for the proposed action include impacts from construction and plant modifications. The Waterford 3 property is made up of 52 percent wetlands and 22 percent of the land is used for agriculture. There is no residential or

recreational land on the property. There is no plan to construct any new facilities or expand buildings, roads, parking lots, equipment storage, or laydown areas. No changes to the onsite transmission and distribution equipment, including power line rights-of-way, are anticipated to support this action. No new construction outside of the existing facilities will be necessary.

The proposed EPU will require a modification to the high pressure turbine. The turbine is located within the turbine building, and the modification will not require any land disturbance. The EPU would not significantly affect material storage, including chemicals, fuels, and other materials stored aboveground or underground. There is no modification to land use at the site, and no impact on the lands with historic or archeological significance. The proposed EPU would not modify the current land use at the site significantly over that described in the Final Environmental Statement (FES).

The licensee has stated that the proposed EPU will not change the character, sources, or energy of noise generated at the plant. Modified structures, systems, and components necessary to implement the power uprate will be installed within existing plant buildings and no noticeable increase in ambient noise levels within the plant is expected.

Therefore, the NRC staff concludes that the environmental impacts of the proposed EPU are bounded by the impacts previously evaluated in the FES.

#### Transmission Facility Impacts:

The potential impacts associated with transmission facilities for the proposed action include changes in transmission line corridor right-of-way maintenance and electric shock hazards due to increased current. The proposed EPU would not require any physical modifications to the transmission lines. Entergy's transmission line right-of-way maintenance practices, including the management of vegetation growth, would not be affected. No new requirements or changes to onsite transmission equipment, operating voltages, or transmission line rights-of-way would be necessary to support the EPU. The main plant transformers will be

modified and replaced to support the uprate; however, replacement of the transformers would have been required before the end of plant life as part of the licensee's ongoing maintenance program. Therefore, no significant environmental impact beyond that considered in the FES is expected from this kind of replacement of onsite equipment.

The National Electric Safety Code (NESC) provides design criteria that limit hazards from steady-state currents. The NESC limits the short-circuit current to ground to less than 5 milli-ampere. There will be an increase in current passing through the transmission lines associated with the increased power level of the proposed EPU. The increased electrical current passing through the transmission lines will cause an increase in electromagnetic field strength. Since the increase in power level is approximately 8 percent, the increase in the electromagnetic field will not be significant. The licensee's analysis shows that the transmission lines will continue to meet the applicable shock prevention provisions of the NESC. Therefore, even with the slight increase in current attributable to the EPU, adequate protection is provided against hazards from electric shock.

The impacts associated with transmission facilities for the proposed action will not change significantly over the impacts associated with current plant operation. There are no physical modifications to the transmission lines; transmission line right-of-way maintenance practices will not change. There are no changes to transmission line rights-of-way or vertical clearances and the electric current passing through the transmission lines will increase only slightly. Therefore, the NRC staff concludes that there are no significant impacts associated with transmission facilities for the proposed action. The transmission lines are designed and constructed in accordance with the applicable shock prevention provisions of the NESC.

Water Use Impacts:

Potential water use impacts from the proposed action include hydrological alterations to the Mississippi River and changes to the plant water supply. The Mississippi River is the source of water for cooling and most auxiliary water systems at Waterford 3. The cooling water is withdrawn from the Mississippi River via an intake canal approximately 49 meters (m) (162 feet (ft)) long leading from the river to an intake structure containing four water pumps. The cooling water for the circulating water system (CWS) is pumped through the condenser to condense the turbine exhaust steam to water. The water then flows to the discharge canal approximately 29 m (95 ft) long and is returned to the river through the discharge structure. The water from the CWS is also used in the turbine system heat exchangers and the steam generator blowdown system.

The Mississippi River is the principal water source of all municipal, industrial, and agricultural use for towns and water districts downstream of Baton Rouge, Louisiana. All of the water required for plant operation, except potable water, will be withdrawn from the Mississippi River. The rate of withdrawal will not increase as a result of the EPU. As a result, operation of Waterford 3 will not affect the availability of water to downstream water users. Groundwater is not used in plant operations; therefore, there are no impacts to onsite groundwater use. The NRC staff concludes that the EPU would not have a significant impact on water usage as a result of hydrological alterations or changes in the plant water supply.

Discharge Impacts:

The potential impacts to the Mississippi River from the plant discharge include turbidity, scouring, erosion, and sedimentation. These impacts can occur as a result of significant changes in the thermal discharge, sanitary waste discharge, and chemical discharge.



1. Thermal Discharge:

Surface water and wastewater discharges at Waterford 3 are regulated by the State of Louisiana via a Louisiana Pollutant Discharge Elimination System (LPDES) Permit. This permit is periodically reviewed and renewed by the Louisiana Department of Environmental Quality (LDEQ). The EPU is expected to increase the temperature of the water discharged to the Mississippi River.

The LPDES Permit 1) restricts the temperature rise in the discharge water to five degrees Fahrenheit over the temperature of the river water and 2) limits the temperature of the discharge water to 118 degrees Fahrenheit. The licensee has calculated the increased heat load delivered to the CWS under EPU conditions and estimated an expected increase in the discharge water temperature of 2.2 degrees Fahrenheit. Based on this expected temperature increase from power uprate, the temperature limits defined in the LPDES Permit are adequate, and no changes to the LPDES Permit are necessary.

2. Chemical Discharge:

Wastewater treatment chemicals that are currently regulated and approved by the State of Louisiana through the LPDES Permit for use in the once-through cooling water will not change as a result of the power uprate. The concentration of pollutants in the once-through effluent stream will remain the same and have insignificant impact.

3. Sanitary Waste Discharge:

Sanitary wastes at the Waterford 3 facility are discharged to an onsite sewage treatment plant. Since there will be no increase in the Waterford 3 staffing levels as a result of the power uprate, there will also be no increase in sanitary waste. The use of chemicals will not change as a result of the power uprate, and the power uprate will have no impact on current water chemical usage.

Therefore, the NRC staff concludes that the environmental impacts associated with the plant discharge will not be significant.

Impacts on Aquatic Biota:

The potential impacts to aquatic biota from the proposed actions include impingement and entrainment, thermal discharge effects, and changes associated with the transmission line rights-of-way. Aquatic species found in the vicinity of Waterford 3 are associated with the Mississippi River. The river near the Waterford 3 site region supports aquatic biota ranging from microorganisms and various plankton to large commercial finfish. The more abundant fish near the site area include blue catfish, channel catfish, freshwater drum, and striped mullet. There are no unique fish habitats in the river near Waterford 3.

1. Impingement and Entrainment:

Fish and other organisms removed from the cooling water by the traveling water screens are washed to a trough to a point downstream of the intake. The EPU will not increase the withdrawal rate or change current pumping operations. Therefore, the water velocity through the traveling screens will not change as a result of the EPU. The flowrate of water being withdrawn from the intake canal at the intake structure would not increase and no change would be made in the design of the intake structure screens. Therefore, changes in the entrainment of aquatic organisms or in the impingement of fish are not anticipated as a result of the EPU.

2. Thermal Discharge Effects (Heat Shock):

Entergy has conducted thermal studies in the Mississippi River in the vicinity of the Waterford 3 discharge for over 25 years and no adverse impacts on fish have been observed. The temperature of the water discharged to the river will remain within the limits of the LPDES Permit. The LPDES Permit states that the bounding thermal limit adequately regulates the

amount of heat discharged to the Mississippi River from this facility such that it protects the balanced indigenous population.

3. Transmission Line Rights-of-Way:

There will not be changes in transmission line right-of-way maintenance practices associated with the EPU. Therefore, no changes are expected in the amount of water or in the water quality of the water run-off to the streams or the river.

The EPU will not increase the flow of the water withdrawn from the river, and the amount of heat discharged to the Mississippi River will remain within the thermal limit specified by the LPDES Permit. There are no changes in transmission line right-of-way maintenance practices associated with the proposed action. Therefore, the NRC staff concludes that there are no significant impacts to aquatic biota for the proposed action.

Impacts on Terrestrial Biota:

The potential impacts to terrestrial biota from the proposed action include construction activities and changes associated with the transmission line right-of-way maintenance. The power uprate will not disturb land, and no construction activities are planned for the EPU. The proposed EPU will not change the land use at Waterford 3, and no habitat of any terrestrial plant or animal species will be disturbed as a result of this power uprate. In addition, none of Entergy's transmission line rights-of-way maintenance practices will change. Therefore, the NRC staff concludes that there will be no significant impact to the habitat of any terrestrial plant or animal species as a result of the EPU.

Threatened and Endangered Species:

Potential impacts to threatened and endangered species from the proposed action include the impacts assessed in the aquatic and terrestrial biota sections of this environmental assessment. These impacts include impingement and entrainment, thermal discharge effects, and impacts due to transmission line right-of-way maintenance for aquatic species, and impacts

to terrestrial species from transmission line right-of-way maintenance and construction activities.

There are five species listed as threatened or endangered under the Federal Endangered Species Act within St. Charles Parish, Louisiana. These are the bald eagle (*Haliaeetus leucocephalus*), brown pelican (*Pelecanus occidentalis*), Gulf sturgeon (*Acipenser oxyrinchus desotoi*), pallid sturgeon (*Scaphirhynchus albus*), and the West Indian manatee (*Trichechu manatus*). There have been reported sightings of the bald eagle (*H. leucocephalus*), gulf sturgeon (*A. oxyrinchus desotoi*), and the pallid sturgeon (*S. albus*) in St. Charles Parish. Thermal studies documented in the LPDES fact sheet found that no threatened or endangered species were present near Waterford 3.

In a letter dated March 15, 2004, the Louisiana Fish and Wildlife Service (LFWS) commented on the endangered species in the vicinity of the station. The pallid sturgeon was identified as an endangered fish found in both the Mississippi and Atchafalaya Rivers. The West Indian manatee (*T. manatus*) was also listed as a Federally protected species known to inhabit Lakes Pontchartrain and Maurepas and associated coastal waters and stream during summer months. The LFWS did not identify any critical habitat in the vicinity of the site.

According to Entergy, the impacts from the Waterford 3 EPU to these species is insignificant because: 1) the EPU for Waterford 3 will not result in a decline of suitable habitat for these species; and 2) sightings of these species are rare and infrequent. Therefore, the NRC staff concludes that the proposed EPU would not affect threatened and endangered species significantly over the effects described in the FES.

#### Social and Economic Impacts:

Potential social and economic impacts due to the proposed action include changes in tax revenue for St. Charles Parish and changes in the size of the workforce at Waterford 3. The NRC staff has reviewed information provided by the licensee regarding socioeconomic

impacts. Waterford 3 is a major employer in the community with approximately 750 full-time employees. Entergy is also a major contributor to the local tax base. Entergy personnel also contribute to the tax base by paying sales taxes. Because the plant modifications needed to implement the EPU would be minor, any increase in sales tax and additional revenue to local and national business will be negligible relative to the large tax revenues generated by Waterford 3. It is expected that the proposed uprate will reduce incremental operating costs, enhance the value of Waterford 3 as a power-generating asset, and lower the probability of early plant retirement. Early plant retirement would be expected to have a significant negative impact on the local economy and the community as a whole by reducing tax revenues and limiting local employment opportunities, although these effects could be mitigated by decommissioning activities in the short term. The proposed EPU would not significantly affect the size of the Waterford 3 labor force and would have no material effect upon the labor force required for future outages after all stages of the modifications needed to support the EPU are completed.

Summary:

In summary, the proposed EPU would not result in a significant change in non-radiological impacts in the areas of site, land use, transmission facility operation, water use, discharge, aquatic biota, terrestrial biota, threatened and endangered species, or social and economic factors. No other non-radiological impacts were identified or would be expected. Table 1 summarizes the non-radiological environmental impacts of the proposed EPU at Waterford 3.

Table 1: Summary of Non-Radiological Environmental Impacts

Land Use	No change in land use or aesthetics; will not impact lands with historic or archeological significance. No significant impact due to noise.
Transmission Facilities	No physical modifications to the transmission lines and facilities; no changes to rights-of-way; no significant change in electromagnetic field around the transmission lines; shock safety requirements will be met.
Water Use Surface Water	No increase in the water withdrawal rate from the river. Water withdrawal rate remains consistent with previous levels.
Groundwater	No change in groundwater use.
Discharge Thermal Discharge	No significant increase in temperature or heat load. Current LPDES Permit has adequate limits to accommodate any expected temperature and heat load increases.
Chemical and Sanitary Discharge	No expected change to chemical use and subsequent discharge, or sanitary waste systems; no change in pollutants to once-through cooling water effluent. No changes to sanitary waste discharges.
Aquatic Biota	No expected increased impact on aquatic biota.
Thermal Discharge (Heat Shock)	Historically not a problem. Additional heat is not expected to affect frequency of heat shock events or significantly increase the impact to aquatic biota.
Terrestrial Biota	No additional impact on terrestrial biota.
Threatened and Endangered Species	No expected increased impact on threatened and endangered species as a result of the EPU.
Social and Economic	No significant change in size of Waterford 3 workforce.

## RADIOLOGICAL IMPACTS

### Radioactive Waste Systems:

Waterford 3 uses Waste Treatment Systems designed to collect, process, and dispose of radioactive gaseous, liquid, and solid wastes in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20 and 10 CFR Part 50, Appendix I. The NRC staff concludes that the proposed power uprate will not result in changes to the operation or design of equipment used in the radioactive gaseous, liquid, or solid waste systems.

### Gaseous Radioactive Waste:

The Waterford 3 Gaseous Waste Treatment System is designed to collect, process, and dispose of radioactive gaseous waste in accordance with the requirements of 10 CFR Part 20 and 10 CFR Part 50, Appendix I.

The licensee calculated that the EPU will increase the potential doses to the public from gaseous effluents by less than 0.1 millirem per year over current doses, which are less than one millirem per year. These potential doses are well within the dose design objectives of 10 CFR Part 50, Appendix I and the annual doses projected in the FES. Therefore, the estimated increase in the offsite dose from gaseous effluents due to the EPU will be small with no significant impact on human health.

### Liquid Radioactive Waste:

The Waterford 3 Liquid Waste Treatment System is designed to collect, process, and dispose of radioactive liquid waste in accordance with the requirements of 10 CFR Part 20 and 10 CFR Part 50, Appendix I.

The licensee calculated that the EPU will increase the potential doses to the public from liquid effluents by approximately 10 percent over the current doses, which are less than 0.01 millirem per year. These potential doses are well within the dose design objectives of 10 CFR Part 50, Appendix I and the annual doses projected in the FES. Therefore, the

estimated increase in the offsite dose from liquid effluents due to the EPU will be small with no significant impact on human health.

Solid Radioactive Waste:

The Solid Radioactive Waste System collects, monitors, processes, packages, and provides temporary storage facilities for radioactive solid wastes prior to offsite shipment and permanent disposal. From 1998 through 2002, approximately 22,520 cubic feet of low level radioactive waste was generated, for an average of about 4,500 cubic feet per year.

There are three types of solid radioactive waste: wet waste, dry waste, and irradiated reactor components. The typical contributors to solid radioactive wet waste are secondary and primary resin, contaminated filters, oil, and sludge from various plant systems. The EPU will not change either reactor water cleanup flow rates or filter performance. However, the increased core inventory of radionuclides may lead to slightly more frequent replacement of filters and resins. Therefore, implementation of the EPU will not have a significant impact on the volume or activity of solid radioactive wet waste generated at Waterford 3.

Dry radioactive waste consists primarily of air filters, paper products, rags, clothing, tools, equipment parts that cannot be effectively decontaminated, and solid laboratory wastes. No significant change in the amount of dry waste is expected as a result of the EPU.

Irradiated reactor components such as in-core detectors and fuel assemblies must be replaced periodically. The volume and activity of waste generated from spent fuel assemblies and in-core detectors will increase slightly with the EPU conditions. The EPU would increase the number of fresh fuel bundles needed during each refueling cycle by four. This increase in the number of bundles will result in a slight increase in spent fuel discharge to the spent fuel pool.

The NRC staff concludes that any projected increases in solid waste generation under the EPU conditions will not be significant.



Direct Radiation Dose:

The licensee evaluated the direct radiation dose to the unrestricted area and concluded that it is not a significant exposure pathway. Since the EPU will slightly increase the core inventory of radionuclides and the amount of solid radioactive wastes, the NRC staff concludes that direct radiation dose will not be significantly affected by the EPU and will continue to meet the limits in 10 CFR Part 20.

Occupational Dose:

Occupational exposures from in-plant radiation primarily occur during routine maintenance, special maintenance, and refueling operations. An increase in power at Waterford 3 could increase the radiation levels in the reactor coolant system. However, plant programs and administrative controls such as shielding, plant chemistry, and the radiation protection program will help compensate for these potential increases. The average collective worker dose at Waterford 3 over the five-year period from 1998 to 2002 was 80.3 person-rem/yr. Conservatively assuming a linear increase in the occupational exposure due to the EPU, the projected in-plant occupational exposure would increase to approximately 88 person-rem/yr, which is well below the 1300 person-rem/yr estimated in the Waterford 3 FES. The increase is based on the power uprate ratio of .096 (3716 MWt/3390 MWt). Therefore, no significant occupational dose impacts will occur as a result of the EPU.

The EPU will not result in a significant increase in normal operational radioactive gaseous and liquid effluent levels, direct doses offsite, or occupational exposure. Potential doses to the public from effluents will continue to be well within the dose design objectives of 10 CFR Part 50, Appendix I and the annual doses projected in the FES. Any increase in direct doses offsite will continue to be within the limits of 10 CFR Part 20 and the slight potential increase in occupational exposure will be well within the FES estimate.

Postulated Accident Doses:

As a result of implementation of the proposed EPU, there will be an increase in the source term used in the evaluation of some of the postulated accidents in the FES.

The inventory of radionuclides in the reactor core is dependent on power level; therefore, the core inventory of radionuclides could increase by as much as 9.6 percent. The concentration of radionuclides in the reactor coolant may also increase by as much as 9.6 percent; however, this concentration is limited by the Waterford 3 Technical Specifications and is more dependent on the degree of leakage occurring through the fuel cladding. The overall quality of fuel cladding has improved since the FES was published and Waterford 3 has been experiencing very little fuel cladding leakage in recent years. Therefore, the reactor coolant concentration of radionuclides would not be expected to increase significantly. This coolant concentration is part of the source term considered in some of the postulated accident analyses.

For those postulated accidents where the source term increased, the calculated potential radiation dose to individuals at the site boundary (the exclusion area) and in the low population zone would be increased over the values presented in the FES. However, the calculated doses would still be below the acceptance criteria of 10 CFR Part 100, "Reactor Site Criteria," and the Standard Review Plan (NUREG-0800). Therefore, the NRC staff concludes that the increased environmental impact in terms of potential increased doses from the postulated accidents are not significant.

Fuel Cycle and Transportation:

The environmental impacts of the fuel cycle and transportation of fuels and wastes are described in Tables S-3 and S-4 of 10 CFR 51.51 and 10 CFR 51.52, respectively. An additional NRC generic environmental assessment (53 FR 30355, dated August 11, 1988, as corrected by 53 FR 32322, dated August 24, 1988) evaluated the applicability of Tables S-3 and S-4 to higher burnup cycle. The assessment concluded that there is no significant change in environmental impacts for fuel cycles with uranium enrichments up to 5.0 weight-percent U-235 and burnups less than 60 gigawatt-day per metric ton of uranium (GWd/MTU) from the parameters evaluated in Tables S-3 and S-4. In an amendment dated July 10, 1998, Waterford 3 was granted the ability to increase the fuel enrichment from 4.9 percent to 5.0 percent. Since the fuel enrichment for the power uprate will not exceed 5.0 weight-percent U-235 and the rod average discharge exposure will not exceed 60 GWd/MTU, the environmental impacts of the proposed power uprate will remain bounded by these conclusions and will not be significant.

Summary:

The proposed EPU would not result in a significant increase in occupational or public radiation exposure, would not significantly increase the potential doses from postulated accidents, and would not result in significant additional fuel cycle environmental impacts. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action. Table 2 summarizes the radiological environmental impacts of the proposed EPU at Waterford 3.

Table 2: Summary of Radiological Environmental Impacts

Radiological Waste Stream	No change in design or operation of waste streams
Gaseous Waste	Slight increase in amount of radioactive material in gaseous effluents; within FES estimate; offsite doses would continue to be well within NRC criteria.
Liquid Waste	Slight increase in amount of radioactive material in liquid effluents; within FES estimate; offsite doses would continue to be well within NRC criteria.
Solid Waste	No significant change in radioactive resins; no significant changes in dry waste; no significant changes in irradiated components.
Dose Impacts Occupational Dose	Up to 9.6 percent increase in collective occupational dose possible; well within FES estimate
Offsite Direct Dose	Slight increase possible; not significant; offsite doses would continue to be within NRC criteria.
Postulated Accidents:	Up to 9.6 percent increase in calculated doses from some postulated accidents; calculated doses within NRC criteria.
Fuel Cycle and Transportation:	Increase in bundle average enrichment. Fuel enrichment and burnup would continue to be within bounding assumptions for Tables S-3 and S-4 in 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions;" conclusions of tables regarding impact would remain valid.

Alternatives to Proposed Action:

As an alternative to the proposed action, the NRC staff considered denial of the proposed EPU (i.e., the "no-action alternative"). Denial of the application would result in no change in the current environmental impacts; however, other fossil-fuel generating facilities may need to be built in order to maintain sufficient power-generating capacity. As an alternative, the licensee could purchase power from power generating facilities outside the service area. The additional power would likely also be generated by fossil fuel facilities. Construction and operation of a fossil-fueled plant would create impacts in air quality, land use, and waste management significantly greater than those identified for the EPU at Waterford 3.

Implementation of the proposed EPU would have less impact on the environment than the construction and operation of a new fossil-fueled generating facility or the operation of fossil facilities outside the service area. Furthermore, the EPU does not involve environmental impacts that are significantly different from those presented in the 1981 FES for Waterford 3.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the 1981 FES for Waterford 3.

Agencies and Persons Consulted:

In accordance with its stated policy, on August 13, 2004, the NRC staff consulted with the Louisiana State official, Ms. Nan Calhoun of the LDEQ, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

DATES: The comment period expires November 12, 2004. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration of comments received on or before this date.

ADDRESSES: Submit written comments to Chief, Rules and Directives Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Mail Stop T-6 D59, Washington, DC 20555-0001. Written comments may also be delivered to 11545 Rockville Pike, Room T-6D59, Rockville, Maryland 20852, from 7:30 a.m. to 4:15 p.m. on Federal workdays. Copies of written comments received will be electronically available at the NRC's

Public Electronic Reading Room link <http://www.nrc.gov/reading-rm/adams.html> on the NRC Homepage or at the NRC's Public Document Room located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room Reference staff at 1-800-397-4209, or 301-415-4737, or by e-mail at [pdr@nrc.gov](mailto:pdr@nrc.gov).

SUPPLEMENTARY INFORMATION: The NRC is considering issuance of an amendment to Facility Operating License No. NPF-38 issued to Entergy for operation of Waterford 3 located in St. Charles Parish, Louisiana.

FOR FURTHER INFORMATION CONTACT: N. Kalyanam, Office of Nuclear Reactor Regulation, Mail Stop O-7D1, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, by telephone at (301) 415-1480, or by e-mail at [nxk@nrc.gov](mailto:nxk@nrc.gov).

Dated at Rockville, Maryland, this 30th day of September 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

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cc:

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