WOLF CREEK
NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

April 17, 1996

WO 96-0059

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Annual Environmental Operating Report

Gentlemen:

Enclosed is the Annual Environmental Operating Report which is being submitted pursuant to Wolf Creek Generating Station (WCGS) Facility Operating License NPF-42, Appendix B. This report covers the operating of WCGS for the period of January 1, 1995 to December 31, 1995.

If you should have any questions regarding this submittal, please contact me at (316) 364-8831, extension 4450, or Mr. W. M. Lindsay at extension 8760.

Very truly yours,

Otto L. Maynard

OLM/jad

Attachment

cc: L. J. Callan (NRC), w/a
W. D. Johnson (NRC), w/a
J. F. Ringwald (NRC), w/a
J. C. Stone (NRC), w/a

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WOLF CREEK GENERATING STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT

1995

ENVIRONMENTAL MANAGEMENT SECTION

WOLF CREEK NUCLEAR OPERATING CORPORATION

P.O. BOX 411

BURLINGTON, KANSAS 66839

APRIL 1996

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1.0 INTRODUCTION

Wolf Creek Nuclear Operating Corporation (WCNOC) has committed to minimizing the impact on the environment from operating Wolf Creek Generating Station (WCGS). The 1995 Annual Environmental Operating Report is being submitted in accordance with the objectives of the Environmental Protection Plan (EPP) as required by Facility Operating License NPF-42. The purpose of this report is to demonstrate that the plant operated during 1995 in an environmentally acceptable manner.

2.0 ENVIRONMENTAL MONITORING

2.1 AQUATIC [EPP SECTION 2.1]

2.1.1 Impacts of Water Withdrawal on the Neosho River

The owners of WCGS have contracted with the Kansas Water Resources Board to pump 9.672 billion gallons per calendar year from the tailwaters of the John Redmond Reservoir (JRR) to Wolf Creek Lake (WCL). During 1995, 3.824 billion gallons or 39 percent of the contracted allotment were pumped. Auxiliary raw water was pumped at a rate of approximately 1.3 million gallons per day which comprises about 12 percent of the total pumped. The remainder was transferred via the make-up pumps operated on April 14 and from October 20 through December 3, 1995. Measurements taken during 1995 by the United States Geological Survey indicate that downstream flows in the Neosho River at Burlington were maintained at rates similar to past makeup pumping activities. Adverse impacts to the Neosho River attributable to 1995 pumping activities were not observed.

The Final Environmental Statement/Operating License Stage (FES/OLS) postulated that makeup water withdrawal of 41 cfs during drought conditions would extend the duration and severity of low-flow conditions below JRR. This, in turn, was expected to reduce riffle habitat which would adversely affect Neosho madtom populations, now federally listed as a threatened species. This combination of circumstances - makeup water withdrawal during very low river flows - did not occur during 1995.

2.1.2 Oxidizing Biocide Discharges to Wolf Creek Lake

Circulating Water System Discharge:

During 1995, Betz Bio-Trol 88P Microbiocide was used rather than gaseous chlorine, which was used exclusively in the past. The Betz product is a halogenated oxidizing biocide. An evaluation completed by WCNOC demonstrated that the Bio-Trol 88P impacts to the cooling lake environment would not be greater than that expected from chlorine use. The expected impact from biocide use was derived from a postulated level (FES/OLS, Section 4.2.6.1) of between 0.68 and 1.08 mg/l of total residual chlorine at the Circulating Water System (CWS) discharge. Three 30-minute doses per day of 411 pounds of chlorine per dose were projected to produce these concentrations. These concentrations were expected to cause periodic, appreciable mortality in a conservatively estimated 40 acres of the discharge area of WCL (FES/OLS, Section 5.5.2.2). The WCGS National Pollutant Discharge Elimination System (NPDES) permit was changed

to allow the use of oxidizing biocides, other than exclusively chlorine, and limits the concentration of total residual oxidant (TRO) to be 0.2 mg/l in the circulating water effluent. Biocide dose duration is limited to two hours per day. In practice, WCGS has kept TRO well below the NPDES allowable limits. During 1995, actual oxidizing biocide dosages to the CWS averaged approximately 25 pounds per day. Monitoring detected a daily average TRO concentration of <0.1 mg/l. Compliance with the permit for daily maximum TRO and dose duration was 100 percent.

In Section 5.5.2.2 of the FES/OLS, the proposed biocide treatments were not expected to meaningfully affect the overall biological productivity of WCL. Because the actual values during CWS biocide treatments were well below the evaluated levels and no fish mortality attributable to oxidizing biocides was observed, permitted biocide discharges during 1995 were not considered to have had appreciable effects on the cooling lake environment.

Essential Service Water System Discharge:

During 1995, a continuous diversion of approximately 17,000 gpm of Service Water System (SWS) flow to the Essential Service Water System (ESWS) was completed to provide microbiologically induced corrosion protection and sedimentation control. The Kansas Department of Health and Environment (KDHE) established a 1.0 mg/l TRO limit for the SWS flow diversion through the ESWS. Measurements of TRO averaged <0.2 mg/l and compliance with the NPDES limit in 1995 was 100 percent. No fish mortality or water quality changes attributable to ESWS biocide discharges were observed.

2.1.3 Cold Shock

In the event of a rapid decline in plant power level during winter, fishes attracted to the WCGS heated discharge could experience mortality due to a quick reduction in body temperature (cold shock). In reference to licensing document evaluations, the WCGS EPP Section 2.1 (c) states, "Cold shock effects on fish due to reactor shutdowns could cause significant mortality to aquatic species in the cooling lake." In 1995, no cold shock mortality events were identified.

2.1.4 Impingement and Entrainment

Impacts of entrainment and impingement were projected to be significant in the WCGS EPP. Condenser mortality for entrained organisms was expected to approach 100 percent. Because of this, sampling efforts to monitor entrainment impacts were not required by the NRC and have not been implemented at WCGS. Through casual observations, fish impingement at the WCL circulating water intake was considered minimal during 1995, thus no sampling efforts to monitor impingement impacts have been initiated.

2.1.5 Impacts of Wolf Creek Lake Discharges to the Neosho River

Cooling lake discharges were regulated by NPDES permit limitations. NPDES permit sampling was completed on the first day of each discharge and weekly thereafter until the end of each respective discharge. Lake discharges were from periodic testing of the blowdown spillway and from stormwater runoff at the service spillway. Discharge limits were set for sulfates, chlorides, and pH. In 1995, no NPDES violations at the lake's discharge were observed. Based on completed monitoring studies, there have been no detrimental effects to the Neosho River water quality due to lake discharges.

2.2 TERRESTRIAL [EPP SECTION 2.2]

2.2.1 Control of Vegetation in the Exclusion Zone

The composition and structure of vegetation in the 453 ha (1120 acre) exclusion zone were selectively controlled to be compatible with the function and security of station facilities. Most areas in the immediate vicinity of the power block have been planted and maintained in a lawn-type condition. Other areas within the exclusion area have been mowed for security and aesthetic purposes.

2.2.2 Vegetation Buffer Zone Surrounding Wolf Creek Lake

To create a 500 acre buffer zone around WCL, agricultural production activities were curtailed in 1980 below an approximate elevation of 1095' MSL, eight feet above WCL normal operating surface water elevation (1087' MSL). This border ranges from approximately 200 to 400 feet adjacent to the lake shoreline. Previously grazed or hayed native tallgrass areas were left undisturbed. Previously cultivated lands were allowed to advance through natural successional stages or native grasses were reestablished. Land management activities specified in an annual land management plan included controlled burning to enhance and/or maintain the designated buffer zone with a naturally occurring biotic community.

2.2.3 Herbicide Use for Maintenance of WCGS Structures

A soil sterilant was applied on selected gravel areas of WCGS. These included the protected area boundary, various lay-down storage yards, meteorological tower, support building borders, storage tank berms, switchyard, hazardous waste and waste oil storage areas, and on-site railroad beds. The herbicides applied consisted of a Karmex (EPA Reg. No. 352-247) and Oust (EPA Reg. No. 352-401) mix. Application rates followed label instructions. These herbicides were registered by the Kansas Department of Agriculture. No environmental impacts from herbicide treatment of WCGS facilities were identified.

The transmission line right-of-ways associated with the power plant were not sprayed during 1995.

2.2.4 Waterfowl Disease Contingency Plan and Monitoring

A waterfowl disease contingency plan was maintained to provide guidance for station biologists in the event of suspected or actual disease outbreaks. The contingency plan lists appropriate federal and state wildlife agency contacts to be made by WCNOC in the event of such problems. During routine wildlife monitoring and surveillance activities taking place over this reporting period, no waterfowl mortality attributable to disease pathogens was identified.

2.2.5 Fog Monitoring Program [EPP Subsection 4.2.1]

Visibility monitoring was initiated in December 1983 and continued through 1987. The purpose of this study was to evaluate the impact of waste heat dissipation from WCL on fog occurrence along U. S. 75 near New Strawn, Kansas. The program was required through one year of commercial operation which started in September 1985. Upon conclusion of 1987 data collection, it was determined that sufficient information was available to evaluate cooling lake fogging and that all commitments relevant to fog monitoring had been satisfied. Operation of WCGS did not increase fogging incidents from that measured before operation. In addition, there were no reports of such incidents from individuals or local agencies responsible for traffic safety. Implementation of mitigative actions or further monitoring was not warranted.

2.2.6 Wildlife Monitoring Program [EPP Subsection 4.2.2]

A wildlife monitoring program was initiated to monitor and assess wildlife populations or parameters most likely to be impacted by the operation of WCGS. As outlined in the 1994/1995 annual wildlife study plan, specific objectives of the wildlife monitoring program were to assess waterfowl, waterbird, and bald eagle usage of WCL. Because these annual monitoring programs target each migration season (autumn through early spring), this EPP reporting period overlaps with part of the 1995/1996 monitoring program. The objectives of this program were the same as for the 1994/1995 season. An abstract of the wildlife monitoring results is presented in the attachment to this report.

2.2.7 Land Management Program [EPP Subsection 4.2.3]

Land management activities on all company-owned lands except within the 453 ha (1120 acre) WCGS exclusion area were designed to achieve balances between agricultural production and conservation values. An annual management plan addressed needs and accepted techniques for land maintenance, soil conservation, and wildlife management. These included the construction or establishment of fences, terraces, waterways, wetland areas, and permanent vegetative covers. An environmental education area was developed and opened in 1994. A summary of the 1995 land management activity report appears in the attachment to this report.

3.0 ENVIRONMENTAL PROTECTION PLAN REPORTING REQUIREMENTS

3.1 PLANT DESIGN OR OPERATIONAL CHANGES [EPP SECTION 3.1]

Proposed plant design and operational changes which have the potential to affect the environment must receive an environmental evaluation prior to implementation. A summary of each modification or operating change which required an environmental evaluation in 1995 is presented. There were no changes in station design or operation nor were there tests or experiments that involved an unreviewed environmental question during 1995.

Evaluation: Separating Condensate Demineralizing System and Makeup Water Treatment System Effluents

This evaluation addressed the separation of condensate demineralizing system (AK) and makeup water treatment effluents that previously had been routed to the lime sludge pond. Monoethanolamine (ETA) from the AK System was redirected to the wastewater treatment facility and then discharged at the circulating water outfall. Makeup water treatment effluents with high levels of suspended solids were to be discharged directly to the lime sludge pond. Discharging ETA at the circulating water outfall was to result in lower concentrations of ETA going to the cooling lake than when previously discharged from the lime sludge pond. This project implemented a regulatory commitment made to the KDHE. The Environmental Protection Plan (EPP) defers these types of issues to the KDHE. No adverse environmental impacts were expected. This separation was completed during 1995.

Evaluation: Construction of a New Waste Stabilization Pond

This evaluation addressed potential environmental issues with constructing a new waste stabilization pond. This pond would replace the existing domestic sewage plant. The new stabilization pond was to be non-discharging thus eliminating existing sewage effluents from WCGS to the lake. All permits and design approvals were obtained from the KDHE. This project was considered to be an environmental benefit because waste discharges from the plant would be reduced. The project was completed in 1995.

Evaluation: Installation of a New Potable Water Line.

This evaluation addressed the impacts from installing a six-inch potable water line from a new rural water meter to the existing water pump house (approximately two miles across company lands). The pipeline would enable the rural water district to provide all drinking water for the plant. Producing drinking water on site would no longer be necessary. Trenching for the waterline would be primarily next to the existing utility right-of-way previously disturbed by plant construction. The initial disturbance would be minimal and eventually would be covered by regrowth of vegetation. No adverse impacts were expected. This project was completed in 1995.

Evaluation: Diverting Service Water and Groundwater to Circulating Water Discharge

This evaluation addressed environmental issues with diverting SWS and groundwater collected in the basement of the turbine building from the site oily waste discharge to the CWS discharge.

Diverting the collected SWS and groundwater would eliminate an industrial wastewater system bypass as required by the KDHE. This modification would remain in place until the underground SWS system leak near the west side of the turbine building was repaired. This was an NPDES issue and the EPP defers such items to the KDHE. No adverse impacts were expected. The diversion was completed in 1995.

Evaluation: Changing Makeup Water Treatment Conductivity Alarm

This evaluation covered potential effluent impacts by setting the high conductivity alarm for the makeup water treatment system mixed bed resins in accordance with an INPO finding. The alarm would be set to 0.08 umho/cm. Previously, the mixed bed was rinsed to a conductivity of less than 0.10 umho/cm. The mixed beds would require longer rinse times to achieve the lower conductivity level. It was estimated that meeting the lower conductivity limit would discharge an additional 3,000 gallons of ultra-pure rinse water from the demineralized water storage tank. This would occur approximately seven times each year. This would result in an additional 20,000 to 25,000 gallons of rinse water per year being discharged through the waste water treatment facility. Discharge of the additional pure rinse water would not increase the chemical composition of the effluents. No adverse impacts would result. This project was completed in 1995.

Evaluation: Use of New Condenser Tube Cleaning System

This evaluation addressed potential environmental issues with the use of recirculating sponge balls to clean mud and scale from the condenser tubes. A similar cleaning process was previously evaluated in 1994 and no impacts were expected and none were observed to have occurred. The older method discharged all cleaning "rockets" to the lake where they were collected. The new system addressed in this evaluation would collect the cleaning sponges and recirculate them within the system. They would not be routinely discharged to the lake. The already small chances of ingestion by fish and wildlife in the lake of the cleaning devices would be further reduced. Using the sponge ball system was expected to also reduce condenser tube corrosion by preventing under-deposit corrosion. This would reduce normal corrosion by-product build-up in the lake, primarily nickel, iron and chromium. Consequently, this modification was expected to further reduce already small environmental influences. This modification was completed during the 1996 refueling outage.

3.2 NONROUTINE ENVIRONMENTAL REPORTS

3.2.1 Submitted Nonroutine Reports

There were no nonroutine environmental reports involving significant impacts submitted to the NRC during 1995.

3.2.2 Unusual or Important Environmental Event Evaluations

No unusual or important environmental events reportable according to specifications in the EPP were identified during 1995.

3.3 ENVIRONMENTAL NONCOMPLIANCES [EPP SUBSECTION 5.4.1]

At WCGS in 1995, nonradiological environmental noncompliances or noteworthy events were documented and evaluated in accordance with WCNOC's Performance Improvement Request (PIR) program. The PIR program is WCNOC's administrative vehicle for corrective action. Events evaluated included monitoring plan deviations, hazardous waste management issues, biocide chemical feed control problems, acceptable refrigerant leak rates, NPDES issues, fish scale tolerance exceedances, and land expense accounting issues. All the documented events were determined not to be reportable pursuant to EPP criteria.

ATTACHMENT

SUMMARY OF

ENVIRONMENTAL INVESTIGATIONS

AT WOLF CREEK GENERATING STATION, 1995

Wolf Creek Nuclear Operating Corporation

Environmental Management

P. O. Box 411

Burlington, Kansas 66839

Contents

1. 1995 LAND MANAGEMENT ACTIVITIES

This document presents the 1995 activities for Wolf Creek Generating Station's (WCGS) land management program. This program satisfied sections 2.2(b) and 4.2.3 of the Environmental Protection Plan (EPP), Appendix B to the Facility Operating License. It also goes beyond regulatory compliance and demonstrates wise stewardship of the natural resources. The goals that the program was designed to and did achieve were to:

a. maximize rent income from agricultural lands,
b. conserve or improve both agricultural and natural resources,
c. foster good relations with local agricultural and natural resource communities,
d. satisfy licensing requirements and,
e. enhance for education purposes the natural resources on the Environmental Education Area (EEA).

The lands at WCGS included in this program were primarily grasslands, croplands, and woodlands which were used for various purposes depending on the location and capability of each area. The improved properties around the power block area, switchyard and plant support buildings were not included. Most were leased for grazing, haying, and crop production. A strip around the shoreline was maintained in a naturally occurring biotic community to satisfy the EPP. Others were unsuitable for agricultural production, left unused to preserve lake shoreline stability, or reserved for their wildlife value.

The EEA has drawn a large amount of attention and lends itself very well for educational purposes. Improvement of wildlife habitat to the area was completed to enhance educational opportunities. Tree and shrub planting, native prairie grass planting, wildlife food plots, and controlled burning were a few of the techniques employed.

2. 1995 WATER QUALITY MONITORING ACTIVITIES

Neosho River water quality data for 1995 were within the ranges measured in previous years for all parameters. Most of the 1995 water quality results decreased slightly from 1993 levels but the Neosho river was significantly influenced by stormwater runoff in both years. Local precipitation rates decreased from July to December 1995 but stormwater stored behind John Redmond Dam increased downstream flows in the Neosho River through October. Monitoring results for the location upstream of the confluence with Wolf Creek are similar to the monitoring results for the downstream location. No plant operational impacts were detected.

Wolf Creek Lake water quality monitoring results for 1995 indicated that parameter levels continued to increase due to forced evaporation by plant thermal input. All parameters increased from 1993 levels but were still below 1992 levels. Above-normal rainfall in 1993 decreased water quality parameter levels from those measured in previous years. The 1995 data indicated that levels of total dissolved solids, chloride, sulfate, magnesium and calcium will continue to increase under conditions of normal precipitation as noted in the 1993 water quality monitoring report. These parameters have not increased above levels forecasted in the licensing evaluations. The increase from 1993 levels was not considered detrimental to Wolf Creek Lake. A weak thermal stratification was detected at the deep water location in August 1995 but did not adversely affect the lake fishery and was not detected during October.

3. 1995 ASIATIC CLAM MONITORING ACTIVITIES
(Corbicula fluminea)

Asiatic clams were found north of the access road causeway for the first time in 1995 and distribution of the Asiatic clam also expanded to the northernmost sections of the intake cove. Evidence of Asiatic clams was again found along most of the cooling lake shoreline. However, substrate sampling results indicated that the population of adult Asiatic clams in the cooling lake continued to be generally sparse. Sediment and accumulated clams were removed from the Circulating Water Screenhouse intake bays in January 1995.

Planktonic juveniles were detected at the Make-up Discharge Structure in May and October 1995. The Service Water System and internal Essential Service Water System piping and equipment were treated with a nonoxidizing biocide in October 1995 and chemical treatments are scheduled for June and September of 1996.

4. 1995 FISHERY MONITORING ACTIVITIES

This report summarized the results obtained from fishery monitoring of the Wolf Creek Lake during 1995. The fishery was monitored to assess gizzard shad densities and the status of the predator species that have kept shad numbers low. Operational problems that are routinely experienced at some power plants due to excessive shad impingement and clogging of cooling water intake screens have been avoided at Wolf Creek. The dynamics of the fishery in the lake has kept shad numbers low enough to prevent this, but monitoring has revealed subtle increases in shad numbers. With angler harvest beginning in 1996, the data also provided valuable information used to determine size and creel limits that would be compatible with shad control efforts.

Monitoring revealed that more shad were beginning to survive to reproductive age than in the past. The majority of each year's production of young, however, was still being consumed. Shad density was low enough so that no impingement problems occurred.

Most predator species responded to the slight shad increases by improving their average body conditions. The wiper stocking in June, 1995, was successful and should support the existing wiper population which were approaching the end of their expected life span. Predator densities were good for all species except largemouth. Data showed that predator fish responsible for keeping shad numbers down generally had good densities, were large on average, and had improved body conditions.

Shad control should not be sacrificed in lieu of angler harvest, but with the catch-and-release philosophy being stressed at Wolf Creek, limited harvest and continued shad control should be compatible. Size limits were set high so that only the oldest fish will be harvested. Low creel limits should spread available harvest among more people. Both should promote catch-and-release.

In summary, gizzard shad showed signs of increasing, but the predator populations were able to maintain control of shad numbers. Wipers were stocked in 1995 to help maintain the predator numbers. Angler harvest length and creel limits were designed to protect high numbers of larger predator fish capable of maintaining shad control benefits.

5. WILDLIFE MONITORING ACTIVITIES

The wildlife monitoring activities targeted possible impacts from station operation to migratory and wintering waterbirds in the vicinity of WCGS. The results presented here cover the 1994/1995 winter monitoring season and the first half of the 1995/1996 season. The general objectives of the program were to document and assess any trends or impacts to migrating or wintering populations of waterbirds, waterfowl, and threatened or endangered species that may be caused by station operation. Use of the cooling lake may expose birds to transmission line collision mortality or to disease outbreaks. Damage to local agricultural crops by large waterfowl concentrations using the lake was also a concern. To document and assess such occurrences or increased potential for such, specific objectives of the program were to monitor how many and where waterbirds, waterfowl, and threatened and endangered species used the lake during the winter migration season and compare these to the norm observed since station operation began.

During the 1994/1995 season thirty-two species of waterbirds and waterfowl were observed with snow goose, mallard, and Franklin's gull being most abundant. During operational winters, the heated effluent provided previously unavailable open water habitat on WCL. This, in combination with a lack of hunting pressure and close, abundant food supplies, has usually kept wintering birds on WCL longer than during preoperational seasons. Mallard and Canada goose usage has indicated preferences for areas of the cooling lake providing these factors, although these preferences were not usually significant ($p \leq 0.05$). No disease or crop depredation problems were observed during the 1994/1995 season or the first half of the 1995/1996 season. No significant transmission line collision events nor the increased potential for such were observed.

The bald eagle was the only threatened or endangered species that was consistently observed using the cooling lake. During operational winters, the cooling lake does not normally attract a disproportionate number of area bald eagles. The seasons of highest usage were associated with plant trips or power reductions causing cold shock fish kills resulting in a food resource not typically available in such quantity at WCL. Even then, the eagles utilized John Redmond Reservoir (JRR) nearly as much or more than they did WCL. Recent trends seem to indicate that area bald eagles prefer JRR over WCL even when JRR is ice-covered and WCL is largely ice-free. Thus, WCL does not appear to be affecting the area bald eagle population so as to attract such high numbers that transmission line mortality could be a problem.

A pair of bald eagles nested at WCL during the spring of 1994. This pair succeeded in hatching and fledging two eaglets that spring. During the spring of 1995, the same pair of bald eagles raised one eaglet, in a different nest at WCL. This pair of adult bald eagles has remained in the WCL area year-round since the initial successful nesting, and it is expected that they will continue to nest at WCL each spring in the future. All three eaglets have been banded by the U.S. Fish and Wildlife Service prior to fledging.