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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket No. 50-482: 2002 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 operation of WCGS for the period of January 1, 2002, through December 31, 2002.

No commitments are identified in this correspondence. If you have any questions concerning this matter, please contact me at (620) 364-4038, or Ms. Jennifer Yunk at (620) 364-4272.

Very truly yours,

A handwritten signature in black ink that reads "Karl A. (Tony) Harris". The signature is stylized with a large, looped "K" and a cursive "Harris".

Karl A. (Tony) Harris

KAH/rlg

Enclosure

cc: J. N. Donohew (NRC), w/e
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WOLF CREEK GENERATING STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT 2002

ENVIRONMENTAL MANAGEMENT ORGANIZATION
WOLF CREEK NUCLEAR OPERATING CORPORATION
P.O. BOX 411
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1.0 INTRODUCTION

The 2002 Annual Environmental Operating Report is being submitted in accordance with the objectives of the Environmental Protection Plan (EPP), Appendix B to the Facility Operating License NPF-42. The purpose of this report is to demonstrate that the Wolf Creek Generating Station was operated during 2002 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 up to 9.672 billion gallons of water per calendar year to Wolf Creek Lake (WCL) from the tailwaters of the John Redmond Reservoir (JRR). A total of 4.728 billion gallons, or 49 percent of the contracted allotment, was used for WCGS purposes during 2002. The majority of the total, 4.553 billion gallons, was used for WCL makeup water, which was pumped from February 12 through March 7, March 16 through 20, March 30 through April 11, April 13 through May 24, November 12 through 29, and December 6 through 14, 2002. The remainder, 0.175 billion gallons, was water pumped for use as auxiliary raw water for WCGS. Measurements at Burlington, Kansas, taken during 2002 by the United States Geological Survey, indicate that flows downstream of the WCGS withdrawal station in the Neosho River were not reduced by makeup pumping activities. Consequently, there were no adverse impacts to the Neosho River attributable to WCGS pumping activities during 2002.

The WCGS Final Environmental Statement/Operating License Stage (FES/OLS, Section 5.6), NUREG-0878, postulated that makeup water withdrawal of 41 cubic feet per second during drought conditions would extend the duration and severity of low-flow conditions below JRR. This, in turn, was expected to reduce riffle habitat that would adversely affect the Neosho madtom, a federally listed threatened species. Neosho River flows at Burlington were maintained during makeup withdrawal activities. There was no impact to Neosho madtom habitats from WCGS water withdrawal during 2002.

2.1.2 Oxidizing Biocide Discharges to Wolf Creek Lake

Circulating Water System (CWS) Discharge:

Biocide use at WCGS was predicted to cause periodic, appreciable mortality in a conservatively estimated 40 acres of the discharge area to WCL. However, these impacts were not expected to meaningfully affect the overall biological productivity of the lake (FES/OLS, Section 5.5.2.2). The postulated biocide levels expected to cause the impacts were from 0.68 to 1.08 mg/l of total residual chlorine at the CWS discharge (FES/OLS, Section 4.2.6.1). Three 30-minute doses per day of 411 pounds of chlorine per dose were projected to produce these concentrations.

Impacts from actual biocide use during 2002 were considered to be less than postulated in the FES/OLS. A sodium hypochlorite and sodium bromide

formulation was used to control biological fouling in WCGS cooling water systems during 2002. Evaluations completed by WCNOG demonstrated that the sodium hypochlorite and sodium bromide formulation would not have greater impacts to the cooling lake environment than those expected from the level of chlorine use identified in the FES/OLS. All changes were reviewed and approved by the Kansas Department of Health and Environment (KDHE) prior to implementation.

The WCGS National Pollutant Discharge Elimination System (NPDES, Number I-NE07-PO02) permit limits biocide discharges to levels lower than postulated in the FES/OLS. This permit was administered by the KDHE. The biocide level for the CWS was limited to a maximum of 0.2 mg/l, total residual oxidant (TRO), for a maximum of two hours per day. Compliance during 2002 was 100 percent. Actual oxidizing biocide dosages averaged approximately 38.7 pounds per day and the daily average TRO was 0.08 mg/l.

Essential Service Water System (ESWS) Discharge:

During 2002 a continuous diversion of approximately 17,000 gallons per minute of WCGS Service Water System (SWS) flow to the ESWS was completed to provide microbiologically induced corrosion protection and sedimentation control. The SWS flows were diverted from SWS discharge with the CWS discharge. The KDHE established a 1.0 mg/l TRO limit for the SWS flow diversion through the ESWS. Actual measurements of TRO averaged <0.15mg/l, and compliance with the NPDES limit in 2002 was 100 percent. No fish mortality or water quality changes attributable to ESWS biocide discharges were observed. Based on this information, permitted biocide discharge during 2002 did not have appreciable effects on the cooling lake environment.

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."

Four power level reductions occurred during 2002. The first power reduction to 80 percent lasted approximately 12 hours on February 1, 2002. This reduction was to support transmission line repair due to an ice storm. Water temperatures in the heated discharge area of WCL were within the range that would attract some fish during this power reduction, thus exposing them to cold shock effects. However, because the power reduction was of short duration and the plant continued to operate at 80 percent, water temperatures did not drop sufficiently to cause cold shock effects. No fish mortality was observed after this reduction.

The other three power level reductions during 2002 were to zero percent power. The first began on March 21 to prepare for a refueling outage. The remaining reductions were on May 8 and 13, 2002 and occurred to support plant maintenance. Water temperatures during these reductions were high enough to cause most fish to avoid the CWS discharge area, thus fish were not as vulnerable to cold shock effects. No fish mortalities were observed following

these power level reductions. Therefore, there were no impacts to fish in the cooling lake due cold shock effects during 2002.

2.1.4 Impingement and Entrainment

Impacts of entrainment and impingement due to the operation of WCGS were projected to be significant, as indicated in the WCGS EPP, Section 2.1 (d). EPP Section 2.1 states that the NRC relies on the State of Kansas for determination of the need for monitoring entrainment and impingement impacts. Although the State of Kansas has not required WCGS to monitor entrainment and impingement impacts, periodic observations during 2002 indicated that fish impingement at the WCGS circulating water intake was negligible.

2.1.5 Impacts of Wolf Creek Lake Discharges to the Neosho River

The WCGS NPDES permit requires that WCL discharges be sampled on the first day of each discharge and weekly thereafter until the end of each respective discharge. Discharge limits were set for chlorides and pH (NPDES Outfall 004). Lake discharges typically have occurred at the Blowdown Spillway and Service Spillway. During 2002, no discharges occurred at the Blowdown Spillway. In addition, lake levels remained low enough so that no discharges occurred from the Service Spillway during 2002. Consequently, no NPDES violations at the lake's discharge occurred, and no detrimental effects have been identified to the Neosho River water quality in 2002.

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 hectare (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. There were no changes in vegetation management of the exclusion zone during 2002.

2.2.2 Vegetation Buffer Zone Surrounding Wolf Creek Lake

To create a buffer zone of at least 500 acres around WCL, agricultural production activities were curtailed in 1980 within a border ranging from approximately 200-400 feet adjacent to the lake shoreline. Previously grazed or hayed native grass areas were left undisturbed. Previously cultivated lands were allowed to advance through natural succession stages, or native grasses were reestablished in these areas. Land management activities included controlled burning to enhance and/or maintain the designated buffer zone with a naturally occurring biotic community. Actual area of this buffer was approximately 1440 acres, which exceeded the minimum of 500 acres referenced in the EPP, Section 2.2 (b).

2.2.3 Herbicide Use for Maintenance of WCGS Structures

Herbicides were used on gravel areas, railroad easements, and various land areas associated with WCGS. Application rates followed label instructions. All herbicides used were registered by the Kansas Department of Agriculture when purchased. No environmental impacts from herbicide treatment of WCGS facilities were identified. A summary of herbicide application is provided below.

In areas where bare ground control was desired Oust (EPA Reg. No. 352-401) was used. Roundup Ultra (EPA Reg. No 524-475) was also used for problem weed areas. These herbicides were used on various gravel areas, including the switchyard, protected area boundary, meteorological tower, storage tank berms, railroad beds, and storage yards.

Nuisance tree and brush growth was controlled with Tordon 22 K (EPA Reg. No. 62719-6), Tordon RTU, Remedy, Farmland Weedone 2,4-D, and Roundup Ultra. Areas treated included the dam, spillways, railroad easements, and selected grassland areas around the cooling lake.

Four plants listed as noxious weeds by the Kansas Department of Agriculture were controlled on WCGS lands. These were seresia lespedeza, musk thistle, Johnson grass, and field bindweed. Serecia lespedeza was treated with Remedy and Farmland Weedone 2,4-D. Musk thistle was controlled by mechanical means. Johnson grass was controlled with Roundup Ultra while the tenants of the agricultural leases controlled field bindweed through normal farming practices.

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 WCNOG in the event of such problems. During routine environmental 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 that started in September, 1985. Upon conclusion of 1987 data collection, sufficient information was available to evaluate cooling lake fogging, and all commitments relevant to fog monitoring had been satisfied. The fog monitoring study concluded that operation of WCGS did not appreciably increase fogging incidents from that measured before operation.

During 2002, there were no reports of fogging incidents in the vicinity of nearby U. S. 75 from individuals or local agencies responsible for traffic safety. Periodic fogging caused by the cooling lake did occur during the winter months of 2002,

but was restricted to the plant site. No mitigation actions or further monitoring were warranted.

2.2.6 Wildlife Monitoring Program [EPP Subsection 4.2.2]

A wildlife monitoring program was initiated in 1982 to monitor and assess waterfowl, waterbird, and bald eagle usage of WCL. This program included transmission-line collision surveys to assess collision mortality and determine potential mitigation needs. This wildlife monitoring program was to continue for at least two years following WCGS start-up (FES-OLS Section 5.5.1.2), which occurred during September, 1985. Upon completion of 1996 monitoring, sufficient data had been collected to determine waterfowl, waterbird, and bald eagle usage of WCL. Consequently, the scope of the wildlife monitoring program was reduced. The current program consists of reviewing WCL waterfowl and bald eagle survey data collected by the Kansas Department of Wildlife and Parks (KDWP). If review of the KDWP's data indicates usage has changed from that previously documented, then additional monitoring may be initiated. This additional monitoring may include collision mortality surveys.

Review of waterfowl and bald eagle monitoring data from the KDWP indicate that no significant usage changes occurred during 2002. No disease outbreaks or substantial crop depredation attributable to waterfowl use of WCL was observed in 2002. No changes to the wildlife monitoring program were warranted.

2.2.7 Land Management Program [EPP Subsection 4.2.3]

Land management activities on all company-owned lands except within the 453 hectare (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 repair or construction of soil conservation structures, wetland areas, and permanent vegetative covers. An environmental education area was improved and maintained as part of the land management program. A summary of the year 2002 land management activities appears in Section 4.1 of this report. The land management program continued in 2002 to balance agriculture production and conservation values.

3.0 ENVIRONMENTAL PROTECTION PLAN REPORTING REQUIREMENTS

3.1 PLANT DESIGN OR OPERATION 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 two operational changes that required an environmental evaluation in 2002 is presented below. There were no changes in station design or operation nor were there tests or experiments that involved an un-reviewed environmental question during 2002. There were no events identified that required changes to the EPP.

The first of the operational changes that required an environmental evaluation involved increasing the routine run times for testing the Emergency Diesel Generator A. The second was an identical procedural change for Emergency Diesel Generator B. Both changes were evaluated with respect to increased run time impacts on compliance with the WCGS Air Emission Source Class II Operating Permit. This permit limits internal combustion engine emissions of nitrous oxides (NOx) to 68 tons per four consecutive calendar quarters. Notification of the KDHE is required when 58 tons of NOx is reached in any four consecutive calendar quarters. Review of NOx emission data since 1997 indicated temporary peaks of approximately 45 tons NOx with an average of approximately 28 tons NOx per four consecutive calendar quarters.

The procedural changes would require each of the Emergency Diesel Generators A and B to be operated an additional 8 to 10 hours per year (2 to 2.5 hours per quarter). Using the equation provided in the Air Operating Permit, NOx emissions would be increased by 0.76 to 0.95 tons per year for each diesel, or 1.52 to 1.9 tons NOx annually for both. This would potentially increase past observed peak emissions to approximately 47 tons and the average to 30 tons NOx over four consecutive calendar quarters. These increases would be below the 68 ton NOx maximum limits and the 58 tons NOx notification limit to the KDHE required in the Air Operating Permit, thus would not jeopardize permit compliance. Consequently, no adverse environmental impacts would result.

3.2 NON-ROUTINE ENVIRONMENTAL REPORTS

3.2.1 Submitted Non-routine Reports

There were no environmental reports involving significant non-routine impacts submitted to the NRC during 2002.

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 2002.

3.3 ENVIRONMENTAL NONCOMPLIANCES [EPP Subsection 5.4.1]

Potential non-radiological environmental noncompliances and noteworthy events were documented and evaluated in accordance with WCNO's Corrective Action Program, using Performance Improvement Requests (PIRs). A PIR is WCNO's administrative vehicle for corrective action. Improvement items evaluated included solid waste management, worker safety around bird concentrations, hazardous material transporting, procedural processing/guidance, chemical control, waste-water handling, agricultural tenant emergency notifications, ecological monitoring forecasting for relicensing, and prevention of zebra mussel establishment in the lake. In addition, discrepancies were resolved involving contract laboratory accuracy and a small oil sheen at a NPDES outfall. All the documented events were determined not to be reportable pursuant to EPP criteria.

4.0 SUMMARY OF ENVIRONMENTAL INVESTIGATIONS AT WOLF CREEK GENERATING STATION

4.1 2002 LAND MANAGEMENT ACTIVITIES

This document presents the 2002 activities for the WCGS land management program. The EPP requires a land management program that will implement conservation and wildlife management techniques to attempt to balance production and conservation values (EPP Section 4.2.3). Values beyond meeting EPP requirements were also realized. The program objectives were to:

- a. conserve or improve both agricultural and natural resources,
- b. foster good relations with local agricultural and natural resource communities,
- c. satisfy licensing requirements,
- d. improve the appearance of the company's lands, and
- e. enhance, for educational purposes, the natural resources of the Environmental Education Area (EEA).

These objectives were attained as explained below.

Grasslands at WCGS consisted of areas leased for grazing and hay production and other areas maintained for regulatory compliance, soil conservation, and wildlife. Areas adjacent to WCL, approximately 1440 acres, exceeded the 500 acre buffer zone of "naturally occurring biotic communities" referenced in the EPP. Approximately 1,422 acres of native range-land were leased for grazing in 2002 with 13 separate lease agreements. Leases specified rotation programs, season lengths, and maximum grazing rates. By controlling these variables, range quality was maintained at levels which provided optimum wildlife value and long term rent generation.

Approximately 492 acres were leased to 13 local farmers for hay production in 2002. Hay meadows were managed for high quality production by requiring hay to be cut by July 31 and bales removed by August 31. No late cutting was allowed.

Fire has always been an integral part of the prairie and was used to control woody brush invasion, control less desirable cool-season grasses or weeds, increase wildlife value, and to increase prairie vigor and production. Prescribed burning was completed on approximately 203 acres during 2002. Dry weather conditions prompted local government bans on burning; consequently, many planned burns were not completed.

Management of cropland reduced soil erosion, maintained rent income, and increased wildlife benefits. Conservation farming, terracing, and wildlife strip management continued to help achieve the objectives. A total of 1272 acres of cropland was leased to 13 local farmers in 2002. Consistent with past years, the cropland lease contracts specified that common conservation practices be followed. On fields with appropriate terraces to follow, contour farming was required. Fall tillage of crop residues was prohibited except for certain instances, such as tillage necessary for fall planting of wheat, plowing of terraces and deep tillage practices to improve productivity.

Activities at the EEA were designed to improve wildlife habitat and increase the public's chances to view a greater variety of wildlife. Tree and shrub planting, wildlife food plots, controlled burning, and trail improvements were a few of the techniques employed. The EEA has drawn a large amount of attention and continues to be well suited for educational purposes.

4.2. 2002 ZEBRA MUSSEL MONITORING ACTIVITIES

Zebra mussels were not found to occupy habitats in the Neosho River or WCL during 2002. Monitoring was completed to provide early detection so that zebra mussel prevention plans can be initiated at WCGS. Monitoring included substrate and shoreline searches of the Neosho River upstream of John Redmond Reservoir (JRR) and immediately downstream of JRR in the vicinity of the Makeup-water Screen House (MUSH), where water is pumped from the Neosho River to WCL. Settlement monitors were placed and substrate scrapes were conducted at plant structures on the Neosho River and WCL. Inspections of fishing boats using WCL were also initiated in 2002.

Zebra mussels were also not reported to inhabit most Kansas waters during 2002. Zebra mussel shells were removed from strainers at a power plant in Kansas City, Kansas, but no live specimens were found. One adult zebra mussel was found at a Mid-America Energy Company power plant on the Missouri River near Sioux City, Iowa in April, 1999. A marina employee also found them on a recreational boat in February, 2000, before the boat was launched at Lake of the Ozarks in Missouri. Evidence of zebra mussels were found in a fishing tournament tank at Milford Lake in Kansas, but it could not be confirmed that the specimens came from the lake.

The Neosho River and WCL would be conducive for zebra mussel survival and growth based on water quality conditions. Introduction to WCL will most likely be caused by Wolf Creek Generating Station (WCGS) pumping activities from the Neosho River, from being transported on recreational boats, or from fish stocking activities. Based on the increased reports in northeast Kansas, and because of the ability of this mussel to quickly inhabit and foul plant water systems, continued monitoring for the initial presence of zebra mussels in the vicinity of WCGS was recommended. In addition, continued inspections of boats at the Coffey County lake access park to prevent potential introduction into the lake was recommended.

4.3 2002 FISHERY MONITORING ACTIVITIES

The results obtained from fishery monitoring of WCL during 2002 indicate that the potential for gizzard shad impingement at the cooling water intake screens has remained low. The primary objective of the monitoring was to measure fish population dynamics to determine shad impingement potential. The fishery assessments targeted gizzard shad, the predator species that feed on them, and the predator-prey interactions.

Catch frequencies of young gizzard shad decreased slightly, and remained low during 2002. Consequently, no impingement problems developed. A higher proportion of larger adults were likely from the increased production in 2000.

The 2002 monitoring revealed that the predator populations showed signs favorable for continued shad control. Predator populations, as a whole, showed signs of being prey limited. Growth rates and body conditions tended to be low. Continuous declines in these areas would raise concerns, because it is important that the predator populations remain viable so that shad control continues. Catch rates were similar to past years', and recruitment was evident for many predator species. Predator populations assessed were white bass, wiper hybrids, largemouth bass, smallmouth bass, white crappie, and walleye.

Angling impacts to the predators' shad control benefits were also assessed. The catch-and-release philosophy being stressed at WCL has made the limited harvest compatible with continued shad control. Continued low body condition of smallmouth bass and walleye justified altering the length and creel limits for these species. Innovative length limits were put in place for smallmouth bass and walleye in an attempt to promote larger individuals. Monitoring data will be important to ensure no adverse impacts to the fishery results from angler harvest