WOLF CREEK
NUCLEAR OPERATING CORPORATION

April 23, 2012

Gautam Sen
Manager Regulatory Affairs

RA 12-0038

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

Subject: Docket No. 50-482: 2011 Annual Environmental Operating Report

Gentlemen:

The purpose of this letter is to submit the enclosed Annual Environmental Operating Report, which is being submitted pursuant to Wolf Creek Generating Station (WCGS) Renewed Facility Operating License NPF-42, Appendix B, "Environmental Protection Plan." This report covers the operation of WCGS for the period of January 1, 2011, through December 31, 2011.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4175, or Mr. William Muilenburg at (620) 364-8831, ext. 4511.

Sincerely,

Gautam Sen

GS/rlt

Enclosure: 2011 Annual Environmental Operating Report (9 pages)

cc: E. E. Collins (NRC), w/e
J. R. Hall (NRC), w/e
N. F. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

IE25
NRR

WOLF CREEK GENERATING STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT 2011

ENVIRONMENTAL MANAGEMENT ORGANIZATION

WOLF CREEK NUCLEAR OPERATING CORPORATION

P.O. BOX 411

BURLINGTON, KANSAS 66839

April 2012

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1.0 INTRODUCTION

The 2011 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 (WCGS) operated during 2011 in a manner protective of the environment.

2.0 ENVIRONMENTAL MONITORING

2.1 AQUATIC [EPP Section 2.1]

2.1.1 Impacts of Water Withdrawal on the Neosho River

There were no adverse impacts to the Neosho River due to water-use conflicts because river flows downstream of the makeup pumps was maintained during 2011. 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 (cfs) during drought conditions would extend the duration and severity of low-flow conditions below John Redmond Reservoir (JRR). This, in turn, was expected to reduce riffle habitat that would adversely affect the Neosho madtom, a federally listed threatened species.

Actual makeup water withdrawals during 2011 are summarized as follows:

Source	Period	Duration (days)	Average Pump Rate (cfs)	Average River Flow at Pump (cfs)
Neosho River	None in 2011	0	na	Na
JRR Storage	8/8/11–9/8/11	32	113	159
	10/13/11 – 12/1/11	50	116	148

For comparison purposes, the 41 cfs assessed above refers to a continuous annual average from JRR storage. Combining the two pumping periods, the actual 2011 pumping from JRR storage averaged 115 cfs for 82 days, which was equivalent to 26 cfs, when calculated on a similar, annual basis. This was lower than the 41 cfs evaluated as impacting the Neosho River during drought conditions. In addition, average pump rates were less than the average river flows at the pumps demonstrating that downstream flows were maintained. Makeup pumping activities did not impact flows intended to maintain minimum desirable stream flows in the Neosho River. Consequently, no adverse impacts due to water-use conflicts occurred during 2011.

2.1.2 Oxidizing Biocide Discharges to Coffey County Lake

Circulating Water System (CWS) Discharge:

There were no adverse impacts observed due to biocides during 2011. Biocide use at WCGS was predicted to cause periodic, appreciable mortality in a conservatively estimated 40 acres of the discharge area to CCL. 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).

Actual biocide use during 2011 averaged 0.08 mg/l total residual oxidant (TRO). This level was much lower than those evaluated in the FES/OLS, thus impacts were considered to be correspondingly less. The Kansas Department of Health and Environment (KDHE) also requires, through the WCGS National Pollutant Discharge Elimination System (NPDES) permit, that biocide discharges for the CWS be less than 0.2 mg/l TRO, for a maximum of two hours per day. These requirements were not exceeded during 2011. Consequently, biocide impacts to CCL have been less than initially evaluated in the FES/OLS, and NPDES compliance assures that this will continue.

Essential Service Water System (ESWS) Discharge:

Flow from the WCGS Service Water System (SWS) diverted through the Essential Service Water System (ESWS) was completed to provide microbiologically induced corrosion protection and sedimentation control. The KDHE established a 1.0 mg/l TRO limit for the SWS diversion through the ESWS. Actual measurements of TRO averaged 0.12 mg/l, and compliance with the NPDES limit in 2011 was 100 percent. Based on this information, permitted biocide discharges 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, fish 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."

Fish mortality due to cold shock was not observed in CCL following declines in plant power level. Two such plant shutdowns or power level decreases occurred as follows:

Date	Duration
3/19/11 to 6/24/11	97 days, 9 hrs
6/26/11 to 6/30/11	3 days, 11 hours

Due to the absence of fish mortality following the plant power changes, significant impacts to the CCL from potential cold shock did not occur.

2.1.4 Impingement and Entrainment

Impacts of entrainment and impingement of fish and aquatic organisms due to WCGS cooling water pumping 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. The KDHE requested WCGS to monitor impingement impacts for the Clean Water Act (CWA) 316 (b), Phase II regulations. This monitoring has been completed, and results have been submitted to the KDHE. Entrainment monitoring has not been required. No significant adverse impacts to the CCL fishery were identified because of impingement. Fishery management at WCGS has succeeded in controlling impingement, and minimizes potential impacts of impingement to the fishery.

2.1.5 Impacts of Coffey County Lake Discharges to the Neosho River

The WCGS NPDES permit requires that CCL discharges be sampled on the first day of each discharge and weekly thereafter until the end of each respective discharge. A discharge limit was set for pH (NPDES Outfall 004). Lake discharges typically can occur at the Blowdown Spillway and Service Spillway. During 2011, no discharges occurred at the Blowdown Spillway. There were no NPDES violations from discharges from the Service Spillway, and no detrimental effects were expected to the Neosho River water quality.

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 significant changes in overall vegetation management of the exclusion zone during 2011.

2.2.2 Vegetation Buffer Zone Surrounding Coffey County Lake

To create a buffer zone of at least 500 acres around CCL, as specified in EPP Section 2.2 (b), agricultural production activities were curtailed in 1980 within a border ranging from approximately 200-400 feet adjacent to the lake shoreline. This area is approximately 1440 acres. 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 established in these areas. Land management activities 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

Herbicides were used on transmission corridors, 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.

The transmission lines associated with WCGS include the Wolf Creek-Rose Hill and a small portion of the Wolf Creek-Benton line. Herbicide treatment of the Wolf Creek-Benton corridor was completed during 2011. Herbicides included a mix of Tordon K (EPA Reg No 62719-17), Garlon 3A (EPA Reg No 62719-37), and Escort (EPA Reg No 352-439). In areas adjacent to water bodies, a mix of Habitat (EPA Reg No 241-426) and Accord (EPA Reg No 62719-517) was used.

In areas where bare-ground control was desired, herbicides mixed per label instruction of either Karmex DF (EPA Reg. No 352-508), Oust (EPA Reg. No. 352-401), or Sahara DG (EPA Reg. No. 241-372) was used. Roundup Ultra (EPA Reg. No 524-475), or comparable substitute, 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.

Noxious weed and nuisance tree/brush growth were controlled with, Tordon RTU (EPA Reg. No. 62719-31), Remedy (EPA Reg. No. 62719-70), Weed Pro 2,4-D (EPA Reg. No. 10107-31), and Roundup Ultra. Areas treated included the dam, railroad easements, and selected grassland areas around the cooling lake.

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 Wolf Creek Nuclear Operating Corporation (WCNOC) 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]

Fog monitoring concluded that operation of WCGS did not appreciably increase fogging incidents from that measured before operation. 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 CCL 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.

During 2011, 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 likely caused by the cooling lake did occur during the winter months of 2011, but was restricted to the plant site and immediate vicinity of the lake. 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 CCL. 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 in September 1985. Transmission line surveys were conducted from 1983 through 1988. Monitoring of lake use by waterfowl, waterbirds, and bald eagles continued through 1996. By then, sufficient data had been collected to determine waterfowl, waterbird, and bald eagle usage of CCL. Consequently, the scope of the wildlife monitoring program was reduced. The current program consists of reviewing CCL waterfowl and bald eagle survey data collected by the Kansas Department of Wildlife, Parks and Tourism (KDWPT). If review of the KDWPT's data indicates that usage has increased from that previously documented, then additional monitoring may be initiated if warranted. Any such additional monitoring may include collision mortality monitoring.

Review of waterfowl and bald eagle monitoring data from the KDWPT indicate that waterfowl and waterbird usage was consistent with past years. Increased transmission line collision potential was not indicated. No disease outbreaks or widespread crop depredation attributable to waterfowl use of CCL were observed. 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. The land management program continued 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]

Plant design or operational changes were evaluated for potential significant affects to the environment, the presence of which would constitute an unreviewed environmental question (UEQ) per the EPP. Evaluations completed during 2011 demonstrate that significant impacts to the environment would not occur, and that no changes constituted a UEQ. Below are brief descriptions of these evaluations completed in 2011.

1. Radwaste Component Cooling Water (CCW) System Temporary Modification

   Temporary CCW modifications to provide cooling needs in the Radwaste Building were evaluated and determined not to involve a UEQ, or impact the EPP. Applicability to clean air permits, ground water protection and refrigerant

programs were evaluated. Accounting and contingency measures were in place to ensure protection of the environment. Consequently, a UEQ did not exist.

2. Replacement of Air Conditioners

   Air conditioner replacement in the Turbine EHC Cabinet and Hydroxide Storage rooms was evaluated and determined not to involve a UEQ, or impact the EPP. The units would use R-410A, a refrigerant compliant with EPA regulations. Consequently, a UEQ did not exist.

3. Security Fence Upgrades

   Security fence upgrades were evaluated and determined not to involve a UEQ, or impact the EPP. The projects were confined to areas previously disturbed during plant construction. Environmental interfaces included temporary air emission tracking, storm water runoff considerations, and subsurface water contingencies. All interfaces were accounted for, consequently a UEQ did not exist.

4. Main Transformer Maintenance

   Maintenance activity at the Main Transformers was evaluated and determined not to involve a UEQ, or impact the EPP. The activity required oil removal and replacement for which secondary containment, spill prevention, used oil disposal, and PCB limits were specified. Use of temporary air emissions were accounted for. Consequently, the project did not involve a UEQ.

3.2 NON-ROUTINE ENVIRONMENTAL REPORTS [EPP Section 5.4.2]

3.2.1 Submitted Non-routine Reports

There were no environmental reports involving significant non-routine impacts submitted to the NRC during 2011.

3.2.2 Unusual or Important Environmental Event Evaluations [EPP Section 4.1]

No unusual or important environmental events that indicated or resulted in a significant environmental impact related to plant operations occurred during 2011.

4.0 SUMMARY OF ENVIRONMENTAL INVESTIGATIONS AT WOLF CREEK GENERATING STATION

4.1 2011 LAND MANAGEMENT ACTIVITIES

The WCGS Land Management Program achieved a balance of production and conservation values as required in EPP, Section 4.2.3. Beyond regulatory compliance, the program reflected WCNOC's dedication to proper stewardship of the natural resources.

The objectives of the Land Management Program were:

1. to conserve and/or improve both agricultural and natural resources;
2. to foster positive relationships with local agricultural and natural resource communities;
3. to enhance, for educational purposes, the natural resources on an Environmental Education Area;
4. to meet license requirements;
5. to maintain rent income at maximum levels while placing the higher priority on the above objectives.

Areas around the Coffey County Lake (CCL) shoreline were maintained in a naturally occurring biotic community to comply with Section 2.2(b) of the EPP. Some land areas have been maintained as wildlife habitat or reserved for educational purposes. The remainder of the land has been leased for grazing, hay, and crop production.

4.2. 2011 ZEBRA MUSSEL MONITORING ACTIVITIES

Zebra Mussels were not observed in the CCL, however, presence at the Makeup Water Screenhouse (MUSH) adjacent to the Neosho River means that it is highly likely that they will be transported to the lake during makeup pumping activities. The objective of the monitoring program was to determine the presence or absence of zebra mussels in CCL so that appropriate control plans could be initiated to prevent adverse impacts to plant operations.

Anglers launching boats on CCL have reported being on several lakes known to have zebra mussels, thus represent potential transport vectors. Inspection and treatment of these boats before launching was completed in 2011, and have likely prevented introduction into CCL by this means.

Monitoring efforts included planktonic veliger sampling from CCL at the Makeup Discharge Structure (MUDS) and Circulating Water Screen House (CWSH). Substrate and shoreline searches of CCL were also completed. Settlement monitors were placed and substrate scrapes were conducted at plant structures and CCL.

4.3 2011 FISHERY MONITORING ACTIVITIES

Fishery monitoring activities on CCL documented long-term trends and demonstrated that the fishery functioned as desired through 2011. Fish predation pressure on the gizzard shad population continued to prevent excessive shad impingement problems at the circulating water intake. Public angling on the lake did not impact the fishery's function of supporting plant operations. The catch and release philosophy promoted when the lake was opened for the public has been compatible with gizzard shad control objectives.