

WOLF CREEK

NUCLEAR OPERATING CORPORATION

April 15, 2010

Richard D. Flannigan
Manager Regulatory Affairs

RA 10-0038

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

Subject: Docket No. 50-482: 2009 Annual Environmental Operating Report

Gentlemen:

Enclosed is the Annual Environmental Operating Report, which is being submitted pursuant to Wolf Creek Generating Station (WCGS) Renewed Facility Operating License NPF-42, Appendix B. This report covers the operation of WCGS for the period of January 1, 2009, through December 31, 2009.

No commitments are identified in this correspondence. If you have any questions concerning this matter, please contact me at (620) 364-4117, or Ms. Diane Hooper (620) 364-4041.

Sincerely,



Richard D. Flannigan

RDF/rlt

Enclosure - 2009 Annual Environmental Operating Report (9 pages)

cc: E. E. Collins (NRC), w/e
G. B. Miller (NRC), w/e
B. K. Singal (NRC), w/e
Senior Resident Inspector (NRC), w/e

JE25
NRR

WOLF CREEK GENERATING STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT 2009

ENVIRONMENTAL MANAGEMENT ORGANIZATION
WOLF CREEK NUCLEAR OPERATING CORPORATION
P.O. BOX 411
BURLINGTON, KANSAS 66839
April 2010

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1.0 INTRODUCTION

The 2009 Annual Environmental Operating Report is being submitted in accordance with the objectives of the Environmental Protection Plan (EPP), Appendix B to the Renewed Facility Operating License NPF-42. The purpose of this report is to demonstrate that the Wolf Creek Generating Station (WCGS) operated during 2009 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 drought conditions were not present during 2009. 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 2009 are summarized as follows:

<u>Source</u>	<u>Period</u>	<u>Duration (days)</u>	<u>Average Pump Rate (cfs)</u>	<u>Average River Flow at Pump (cfs)</u>
Neosho River	1/4 - 1/12/09	9	66	2497
	1/29 - 2/25/09	27	108	787
	7/30 - 8/8/09	10	73	737
	8/10 - 8/18/09	9	71	513
	8/29 - 8/31/09	3	71	1315
JRR Storage	8/9 - 8/10/09	2	77	231

For comparison purposes, the 41 cfs assessed above refers to a continuous annual average from JRR storage. The actual 2009 pumping from JRR storage of 77 cfs for 2 days was equivalent to 0.4 cfs, when calculated on a similar, annual basis. This was appreciably lower than the 41 cfs evaluated as impacting the Neosho River during drought conditions. Consequently, no adverse impacts due to water-use conflicts occurred during 2009.

2.1.2 Oxidizing Biocide Discharges to Coffey County 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 Coffey County Lake (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). Three 30-minute doses per day of 411 pounds of chlorine per dose were projected to produce these concentrations.

Actual 2009 biocide use was less than those evaluated in the FES/OLS, thus impacts were considered to be correspondingly less. A sodium hypochlorite and sodium bromide formulation was used to control biological fouling in WCGS cooling water systems. Evaluations completed at WCGS demonstrated that the formulation would not have greater impacts to the cooling lake environment than those expected from the level of chlorine use evaluated 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 2009 was 100 percent. Actual oxidizing biocide dosages averaged approximately 35.6 pounds per day and the daily average TRO was 0.07 mg/l.

Essential Service Water System (ESWS) Discharge:

During 2009, 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 KDHE established a 1.0 mg/l TRO limit for the SWS flow diversion through the ESWS. Actual measurements of TRO averaged 0.10 mg/l, and compliance with the NPDES limit in 2009 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, 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."

Fish mortality was not observed following rapid declines in plant power level during 2009. There were three such plant shutdowns that caused rapid declines in CWS discharge temperatures. The first was on April 28, the second on August 19, and the third on October 10, 2009. Water temperatures of the discharge water prior to all events were greater than 90 degrees (F), which fish tend to avoid. Consequently, fish were unlikely to have experienced rapid temperature declines, and no fish mortalities were observed as a result.

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 State of Kansas has 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 as a result of impingement. The cooling water intake structure at WCGS meets the performance standards set by the U.S Environmental Protection Agency (USEPA), and complies with the intent of the CWA. 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 2009, 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 2009.

2.2.2 Vegetation Buffer Zone Surrounding Coffey County Lake

To create a buffer zone of 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. Mechanical tree removal was completed on the Wolf Creek-Rose Hill corridor, with limited herbicide use. Stump treatment herbicide included Pathway (EPA Reg. No. 62719-31).

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 substitutes, 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 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]

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 2009, 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 2009, 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 and Parks (KDWP). If review of the KDWP'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 KDWP indicate that no significant usage increases occurred during 2009. 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]

There were no plant design or operational changes with potential significant impacts that required evaluation during 2009. Such changes that have the potential to affect the environment must receive an evaluation to determine the presence of an unreviewed environmental question prior to implementation. An unreviewed environmental question may exist when a change either results in a significant increase in any adverse environmental impact previously reviewed, is a significant change in effluents or power level, or is a matter not previously reviewed which may have a significant environmental impact.

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 2009.

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 2009.

4.0 SUMMARY OF ENVIRONMENTAL INVESTIGATIONS AT WOLF CREEK GENERATING STATION

4.1 2009 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 WCNOG'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 WCL 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. 2009 ZEBRA MUSSEL MONITORING ACTIVITIES

Zebra mussels were not observed during 2009 monitoring of the Neosho River and CCL. Zebra mussels were reported in Marion Reservoir, upstream of John Redmond Reservoir. Downstream colonization was considered likely, and subsequent establishment into CCL would likely occur due to makeup pumping activities necessary to maintain CCL. In this event, concerns at WCGS would include cooling system plugging, increased chemical treatment needs, and changes to the environment of CCL, such as increased vegetation growth and associated impacts to the fishery and cooling water use.

Anglers launching boats on CCL have reported being on several lakes known to have zebra mussels, thus represent potential transport vectors. Boat inspections and treatment have prevented introduction into CCL by this means.

Monitoring to provide early detection of zebra mussel in the vicinity of WCGS was conducted. Efforts included substrate and shoreline searches of the Neosho River upstream of JRR and immediately downstream of JRR in the vicinity of the Makeup-water Screen House, where water is pumped from the Neosho River to CCL. Settlement monitors were placed and substrate scrapes were conducted at plant structures on the Neosho River and CCL.

4.3 2009 FISHERY MONITORING ACTIVITIES

Fishery monitoring activities on CCL documented long-term trends and demonstrated that the fishery functioned as desired through 2009. 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.