Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

April 17, 1990

LTR: BYRON 90-0376
FILE: 2.7.300

Mr. A. Bert Davis
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Annual Environmental Operating Report for Facility Licenses NPF-37 and 66

Dear Mr. Davis:

Attached you will find the Annual Environmental Operating Report as required by the Technical Specifications, Appendix B, Section 5.4 for Facility Licenses NPF-37 and 66. The period of this report is from January 1, 1989 to December 31, 1989.

The report was reviewed against the objectives of the Environmental Protection Plan as stated in the Technical Specifications, Appendix B, Section 1.0, and it has been determined that these objectives are being met.

The report is contained in Attachments A, B, C, and D as indexed.

Attachment A — Summaries and analysis of the results of environmental protection activities required by Appendix B, Section 4.2. Please note the requirements of Section 4.2.2 pertaining to the Confirmatory Sound Level Survey have been completed. The final survey was submitted as part of the 1988 Annual Environmental Operating Report.

Attachment B — A list of non-compliances to the Environmental Protection Plan and the corrective actions.

Attachment C — A list of all changes in Station design or operation, tests, and experiments as required by Appendix B, Section 3.1.

Attachment D — A list of all non-routine reports as required by Appendix B, Section 5.4.2.

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In accordance with Regulatory Guide 10.1, one copy of this report is provided for your use and 18 copies are being submitted directly to the Document Control Desk, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555.

Sincerely,

R. Pleniewicz
Station Manager
Byron Nuclear Power Station

RP/DEW/bf

Attachments

cc: NRC Resident Inspector
Document Control Desk (18 copies)
Site Nuclear Licensing Administrator
Environmental Affairs

(2505z/49z)

Byron Station
Environmental Protection Plan
1989 Annual Environmental Operating Report

ATTACHMENT A

Section 4.2 Environmental Monitoring

section 4.2.1 Aerial Remote Sensing

The aerial photographic monitoring program was done in 1989, as scheduled in the Environmental Protection Plan for Byron Station. The aerial photographs and the field survey covered an area of approximately one mile radius centered at the Byron Station cooling towers. The photographs were taken at a scale of one inch to five hundred feet using false color infrared film. The photography was done on August 18, 1989, and the field survey was done on September 10 and 11, 1989.

The examination and analysis of the photographs and the field survey was performed by a consulting plant pathologist. Dead, dying and stressed foliage signatures and different plant types were identified and marked on the photographs and then inspected during the field survey to determine the cause of the signatures of the photographs.

The plant pathologist prepared a report covering the results of the analysis of the aerial photographs and the ground truthing field survey of the suspect areas. The conclusion being that a wide-range of plant abnormalities were observed in the survey area but no saline aerosol or salt injury was identified. Abnormal foliage signatures seen on the photographs or in the field survey were found to be the result of herbicide applications, plant diseases, hail and storm damage, or from planting and cultivating problems. A copy of the consultants report is submitted herewith together with a set of positive color transparencies encompassing the survey area.

The 1989 aerial photographic monitoring represents the third operational survey, the fourth operational survey is scheduled to be done during the summer of 1991.

7274e/BBB:vt

Report to

Commonwealth Edison Company

Regarding

1989 Foliar Survey of the Environs of the

Byron Generating Station, Byron, Illinois

by

Barry J. Jacobsen, Ph.D.

Introduction

The 1989 foliar survey focused on the approximately 12 square miles centered on the cooling towers at the Byron Generating Station. Particular attention was given to evidence or lack thereof of aerosol salt injury. Injury from salt aerosols is of concern when natural draft cooling towers are utilized for cooling water at electrical generating stations such as the Byron Generating Station.[1] The survey area has been examined for salt related injury since 1977 with surveys by this author since 1980. This and previous surveys detail the plant diseases and abnormalities present in the area.

Materials and Methods

The 1989 foliar survey involved analysis of aerial infrared photos taken by Aerometric Engineering, Sheboygan, WI, on August 18, 1989, and ground truth of the survey area on September 10 and 11, 1989. Infrared photos covered approximately 12 square miles (high altitude photos 4.1, 4.2, 4.3, and 4.4). Low altitude photos used primarily in photo analysis provided detail of approximately 9 square miles. Low altitude photos are 1-1 through 1-8 (north flightline), 2-1 through 2-8 (center flightline), and 3-1 through 3-8 (south flightline). These photos provide details from approximately 1 mile north and south of the generating station and from 1.5 mile east to 1.25 mile west. Photos were generally of high quality and neither cloud shadows nor sun shadows compromised photo analysis.

Results

No saline aerosol or salt injury was identified in the survey area. Problems noted in the survey area were due to weeds in crop fields, plant diseases, herbicide injury, drainage problems, planter problems, or root damage from construction equipment or cattle. Specific details are noted on low altitude photos below.

[1]McCune, D., D. Silbernam, R. Mandel, L. Weinstein, P. Freudenthal, and P. Giardina. 1972. Studies on the effects of saline aerosols of cooling tower origin on plants. Jour. Air Pollution Control Assoc. 27:319-324.

Photo 1-1. The wooded area identified as site 1.1 contained elm trees which are suspected of dying from Dutch Elm Disease and oak trees with decay. Site 1.2 was a wet area in a hay field. Site 1.3 was found to be a planter or cultivator problem in a corn field.

Photo 1-4. Site 1.4 was found to be an elm tree dying from Dutch Elm Disease.

Photo 1-5. Site 1.5.1 was an area showing the effects of roadside grading and associated tree dieback from root damage.

It was of interest that the decline of oak trees in the motocross area 1-5.2 had stabilized since the last survey in 1985.

Photo 1-6. Site 1-6.1 was a group of elms in decline with Dutch Elm Disease suspected as the cause. Site 1-6.2 was an area of stagheaded oaks. This was judged to be due to root injury from change in soil grade in earlier years.

Photo 1-8. Sites 1-8.1, 1-8.2, 1-8.3 were found to be old decaying boxelder. Site 1-8.4 depicts an area of oaks adjacent to the pipeline. These trees had shown decline and oak wilt in past surveys. Damage to white oak in this area by oak wilt is still evident as is stagheading resulting from earlier root injury from construction equipment used in the construction of the pipeline.

Photo 2-1. Site 2-1.1 was found to be areas of poor stands in a soybean field. Seedling diseases, herbicide injury, or cultivar injury are suspect causes.

Photo 2-2. Site 2-2.1 was found to be a false signature and no problem was found. Site 2-2.2 was a large dead elm tree. Sites 2-2.3 and 2-2.4 were found to be large stagheaded oaks. The cause for stagheading appeared to be decay.

Photos 2-4. Site 2-4.1 was a cloud shadow. Site 2-4.2 were oaks with some stagheading associated with poor drainage. This was much more severe in the 1987 survey.

Photo 2-7. Site 2-7.1 was a boxelder in decline due to decay. Site 2-7.2 was found to be two dead white pine. No cause was identified although one showed woodboring beetle activity.

Photo 2-8. Site 2-8.1 was found to be boxelder trees--some in decline from decay. Site 2-8.2 showed locust trees in decline due to root damage associated with a cattle feeding site.

Photo 3-1. Site 3-1.1 was found to be a large white oak showing symptoms of oak wilt disease. Site 3-1.2 was found to be a group of chlorotic slippery elm. There was some evidence of herbicide wash from adjacent corn and soybean fields and this is the suspected cause of chlorosis. Slippery elm, American elm, & Prunus sp. outside of the wash area were asymptomatic.

Photo 3-2. Trees at site 3-2.1 were dead oaks which are in a pasture area. Animal damage is the suspected cause of death.

Photo 3-4. Site 3-4.1 was found to be an area of grass in an alfalfa planting. Site 3-4.2 were areas of "light" poor fertility soils and poor corn growth. Herbicide injury to seedlings is also suspect.

Photo 3-6. Site 3-6.1 was a planting of decaying catalpa trees. This site has been noted in previous surveys.

Problems noted in the survey area during the ground survey are listed in Table 1.

Table 1. Problems found in the ground survey around the Byron Generating Station on September 10 and 11.

Plant	Problem
Alfalfa	Common leafspot, potato leafhopper damage
Apple	Cedar apple rust, scab
Blackberry	Septoria leafspot, Anthracnose canker
Boxelder	Decay in older individuals, some marginal burning was noted on younger plants but not on newest growth. Damage may be associated with herbicide drift or aphids.
Cedar	Cedar apple rust galls
Corn	Gibberella earrot, smut, common rust, corn borer, hail, and wind injury
Cottonwood/Poplar	Rust, decay, canker diseases, sooty mold
Hawthorn	Entomosporium leaf spot, cedar-hawthorne rust
Hackberry	Decay, nipple gall mite injury
Hickory	Leafblotch disease, this was common throughout the survey area
Wild Grape	Hormonal type herbicide injury, black rot
Autumn Olive	Phomopsis canker
Dogwood	Septoria leafspot
Prunus sp.	Bacterial leafspot
Slippery Elm	Early season senescence--particularly in wet sites
Chinese Elm	Black spot
American Elm	Dutch Elm Disease, black spot, leaf miner damage, sooty mold

Table 1 (cont.). Problems found in the ground survey around the Byron Generating Station on September 10 and 11.

Plant	Problem
Honeysuckle	Russian aphid damage
Waffer Ash	Scale insect
Ragweed	Powdery Mildew
Soybean	Diaporthe stem canker, Brown stem rot, Septoria leafspot, bacterial blight, Tobacco ringspot virus budblight--(this disease was particularly obvious in soybean fields east of Black Walnut Road), grasshopper damage, hail damage
Sumac	Botryosphaeria canker
Oak	Oak wilt, decay, insect defoliation, construction injury
Juniper	Phomopsis canker
Crabapple/Apple	Apple scab, apple maggot
Mountain Ash	Dieback associated with mechanical injury or sunburn canker
Maple	Tarspot leafspot, maple bladder gall mite
Timothy	Helminthosporium leafspot
Many woody species (On Marril Road)	Brush killer injury

Salt sensitive species, such as white pine and alfalfa, in and adjacent to the survey area were closely examined and no symptoms resembling saline aerosol or salt deposition injury were observed. Plants noted to be free of problems included willow, velvet leaf, wild strawberry, daisy, green ash, scotch pine, basswood, lesser ragweed, red clover, burdock, and multiflora rose.

The condition of crops corn, soybeans, hay, and alfalfa appeared to be very good with excellent yield potential.

Conclusions

No saline aerosol or salt deposition symptoms were noted in the survey area. Foliar problems on plants were associated with plant diseases, herbicide injury, drainage problems, root damage from construction equipment or cattle, and poor stands associated with planter or cultivator problems.

With the exception of hail and storm damage to corn (primarily east of the station), corn borer injury, brown stem rot, and tobacco leafspot virus, there were no disease or insect problems of economic significance.

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ATTACHMENT B

List of Environmental Protection Plan non-compliances and corrective actions as requested in Appendix B, Section 5.4.1(1).

None

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ATTACHMENT C

List of changes in Station design, operation, tests, and experiments which involved a potentially significant unreviewed environmental question as requested in Appendix B, Section 3.1.

None

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ATTACHMENT D

List of non-routine reports submitted in accordance with Appendix B, Section 5.4.2.

None