

ATTACHMENT A

**Results of 1991 Foliar Survey
of the Byron Generating Station
and its Environs**

Prepared by

Barry J. Jacobsen, Ph.D.
Plant Pathologist

for

Commonwealth Edison
72 West Adams St.
Chicago, IL 60690-0767

Introduction

The 1991 foliar survey was done on September 18 and 19, 1991, utilizing aerial infrared photographs taken by Aero-Metric Engineering, Inc., Sheboygan, WI, on August 15, 1991. Plant foliage within 1.5 miles of the evaporative cooling towers was surveyed for incidence of saline aerosol injury, plant diseases, insect damage, and other abnormalities. This survey documents conditions 6 years after the plant became operational and is the seventh survey of the area by this author since 1980. In addition to surveying the area photographed, similar plant types 10-20 miles west and east of the generating station were examined.

Methods and Materials

Analysis of aerial infrared Cibachrome print photographs, ground truth examination of areas of unusual infrared reflectance, and random ground surveys were used to document the health of foliage in the survey area. The area surveyed covered all or portions of sections 7, 8, 17, 18, 19, and 20 of Marion township, and sections 11, 12, 13, 14, 15, 23, and 24 of Rockvale township.

Photographs 4-1 through 4-4 are high altitude photographs and cover all of the survey area. Photographs 1-1 through 1-8 are from the most northerly flight line for the low altitude photo series, 2-1 to 2-8 cover the center of the survey area, and 3-1 to 3-8 are the most southerly flight line. The low altitude flight line and photo area are marked on photo 4-3.

Results

No saline aerosol or salt-related plant injury were identified in the survey area. Abnormal signatures on infrared photographs were found to be due to soil erosion,

lightning strikes, weed growth, herbicide injury, plant diseases, insect damage, soil type differences, and injury associated with transplanting and lawn mowing operations.

Specific examples are given in analysis of the following photographs:

Photograph 1-8

Cloud shadows are notable on the left side of the photo. In soybean field marked 3, several low wet areas with weed growth are noted. Site marked 2 in a corn field is an area of lighter soil where some drought damage was suspected. Site 4 is a tree killed by lightning. Site 1 was identified as sumac showing dieback from canker disease. Ground truth of site 5 revealed no obvious damage.

Photograph 1-7

Much of this photo was unusable due to cloud shadow. Site 1 was identified as a lightning strike. The field marked 2 had large areas of foxtail and other grassy weeds.

Photograph 1-6

Other than cloud shadow, there were no notable items on this photo.

Photograph 1-5

No particular problem was noted at site 1. Hickory, red and white oak, slippery elm, walnut, apple, and hawthorn in the area were healthy except for minor leafspot diseases noted later in this report. Site 2 was a lightning strike killed oak. No problem was identified at site 3. Trees marked at site 4 were stressed due to mechanical damage. Tree plantings at this site demonstrated mechanical damage from grass mowing/trimming operations, drought stress, and erosion. Minor problems with canker diseases and powdery mildew on viburnum plantings. There was no evidence of salt injury.

Photograph 1-4

No problem was identified at site 1. The area adjacent to the plant fence line and pipeline was extensively ground truthed. Very little of the old construction damage was

noted on oaks adjacent to the pipeline. Minor problems noted were rust and Marssonina leafspot on cottonwood, black rot on wild grape, Hypoxylon canker on aspen, apple scab and black rot on apple, cedar apple rust on hawthorn, Botryosphaeria canker on sumac, black leafspot on slippery elm, leafspot on multiflora rose, Boxelder, daisy, autumn olive, milkweed, gooseberry, and hickory were generally healthy. Alfalfa was generally healthy with the exception of common leafspot and potato leaf hopper damage. The motocross area has stabilized and no generating plant effects were noted.

Photographs 1-3 through 1-2

The comments made regarding Photograph 1-4 were characteristic of this area. The tree at site 1 on Photograph 1-2 was identified as an elm dying from Dutch Elm Disease.

Photograph 2-8

Site 1 was an area of poor soybean growth, possible associated with herbicide injury on light soils. Sites 2, 3, and 4 were all Dutch Elm Disease kill sites. Site 5 was a weedy soybean field (foxtail, velvetleaf, smartweed).

Photograph 2-7

Sites 1, 2, and 3 were elms dead or dying from Dutch Elm Disease.

Photograph 2-6

Sites 1 and 2 were drought damage associated with light soils. Site 3 was a hackberry showing marginal chlorosis that appears to be caused by herbicide injury. This damage was also apparent to a lesser extent on adjacent trees. The damage was limited to approximately 100 ft. in the fence row.

Photograph 2-5

Abnormalities in corn fields was due to differences in type and plant equipment ships.

Photograph 2-4

The majority of the area covered by this photograph was within the generating plant and was not inspected. Other areas are noted on other photographs.

Photograph 2-3

Site 1 was found not to be a problem site. Site 2 was area of reduced corn growth due to less fertile droughty soils.

Photographs 2-2 and 2-1

No remarkable sites were identified on these photographs.

Photograph 3-8

Site 1 is an alfalfa/grass pasture (north field) and corn (south field) showing reduced growth due to soil type differences. Site 2 (example) was found to be similar.

Photograph 3-7

Site 1 was a weedy alfalfa field. Other abnormal signatures shown on this photograph were due to soil type differences.

Photographs 3-6, 3-5, and 3-4

All marked sites were due to soil type differences.

Photograph 3-3

Site 1 was Catalpa trees showing dieback associated with decay. These have been noted in previous surveys. Sites 2 and 3 were not found to be problems following ground inspection.

Photograph 3-2

Site 1 was an elm showing symptoms typical of Dutch Elm Disease. Other abnormalities were waterways or soil-type differences.

Photograph 3-1

No remarkable sites were identified on this photograph.

Photograph 4-3

This church site has been inspected in each survey. Mountain ash at this site were damaged by fireblight and two yews in landscape plantings had indications of transplant failure associated with poor drainage. Crabapples showed premature defoliation due to apple scab.

General Survey Comments

The following plant abnormalities were noted both in the generating plant survey area and in similar survey areas 10-20 miles away.

Corn: Severe European corn borer damage was noted throughout the region. Other problems noted were common smut, rust, and anthracnose.

Soybeans: Brown stem rot and pod and stem blight were common in most fields. Most fields were senescent and ready for harvest.

Alfalfa: Common leafspot and burn from potato leaf hopper were common throughout the survey area. Verticillium wilt was identified in several fields in the generating plant survey area. Incidence was less than 1% but will increase in coming years.

Vetch: Minor Ascochyta canker was common on the railroad right-of-way.

Clover: Powdery mildew was common as was Pseudopeziza leafspot.

Wild Grape: Isariopsis leafspot, powdery mildew, and black rot were common throughout the region. Minor phenoxy herbicide injury was noted at several locations.

Wild Blackberry: Orange rust and Septoria leafspot were common.

Apple: Apple scab, black rot, sooty blotch, and flyspeck were common, as was apple maggot damage.

Elm (Slippery, American, and Siberian): Black spot, Dutch Elm Disease, and leafminer injury were common.

Oak (Red and White): Actinopeltae leafspot and powdery mildew were common.

Dogwood: Septoria leafspot was common throughout the survey area.

Hackberry: Nipple gall mite.

Green Ash: Transplant stress, anthracnose, and plant bug damage were common to this species in plantings at the generating plant.

Multiflora Rose: Black spot and other fungal leafspots were common.

Sumac: Botryosphaeria canker was common throughout the survey area.

Ragweed, White Daisy, Plantain, Dandelion: Powdery mildew was common throughout the area on these species.

Waffer Ash, Hickory, Box Elder, and Slipper Elm were beginning to show normal fall senescence.

Hawthorn: Cedar apple rust was common throughout the region.

Maple, Cedar, Basswood, Gooseberry, Walnut, white Pine, Scotch Pine, and Spruce were generally healthy in the survey area.

Conclusion

No saline aerosol or other salt related injury was identified in the survey area. Abnormalities noted on the infrared photographs and in ground surveys were the result of soil type differences, weeds in crop fields, lightning strikes, herbicide injury, or plant disease.