

Byron Station
Environmental Protection Plan
1993 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 1993, 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 2, 1993, and the field survey was done on August 25, 26, and 27, 1993.

The examination and analysis of the photographs and the field survey were performed by a consulting plant pathologist. Dead, dying and stressed foliage signatures and different plant types were identified and marked on the photographs. These sites were inspected during the field survey to determine the cause of the signatures on 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. 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 soil erosion, herbicide injury, plant diseases, insect damage, or hail and storm damage, or from planting and cultivating problems. Commonwealth Edison Environmental Services has reviewed the consultant's report. A copy is included. A set of positive color transparencies encompassing the survey area is provided to the addressee of the Environmental Operating Report.

The 1993 aerial photographic monitoring represents the fifth and final operational survey. This concludes the 8 year monitoring period established in the Environmental Protection Plan.

Section 4.2.2

a) Confirmatory Sound Survey

The Confirmatory Sound Survey requirements were completed in 1988.

b) Noise Related Complaints

No noise related complaints were received by Commonwealth Edison concerning Byron Station during 1993.

(3696ZZ/032594/3)

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ATTACHMENT B

Section 3.1

Plant Design and Operation

In 1993, a facility change was installed to change the flow characteristics of the Rock River. The U.S. Army Corps of Engineers and other state and local agencies evaluated the effect of the change on the environment and found the design and installation of the change was in accordance with agency permits.

Results of the 1993 Foliar Survey
of the Byron Generating Station
and its Environs.

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Introduction

The 1993 foliar survey was done on August 25, 26, and 27, utilizing aerial infrared photographs taken by Aero-Metric Engineering Inc., Sheboygan, WI on August 2, 1993. Plant foliage within 1.5-2.0 miles of the evaporative cooling towers was surveyed for incidence of saline aerosol injury, plant diseases insect damage and other abnormalities. Plant materials in areas similar to that in the Byron Generating Station survey area were also examined. These areas were 5-10 miles west and northeast of the station.

This survey documents conditions 8 years after the station became operational and is the eighth survey of this area by this author since 1980. The aerial infrared photographs were of high quality and the condition of vegetation (both crop and noncrop) was favorable for analysis of potential saline aerosol damage.

Methods and Materials

Analysis of aerial infrared Cibachrome print photographs, ground truth examination of areas of unusual infrared reflectance, and both programed and random ground surveys were used to document the condition of vegetation in the survey areas. The area surveyed in detail 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. In addition random surveys were done in sections 6, 7, and 19 of Rockvale township plus sections 5, 8, 17, 12, and 13 of Scott township.

Photographs 4-1 through 4-4 are high altitude photographs and cover all of the detailed survey area. Photographs 1-1 through 1-6 are of the most northerly flight line for the low altitude photoseries, 2-1 through 2-6 cover the center of the survey area and 3-1 through 3-7 are the most southerly flight line. The areas detailed by photo series 1-1 through 1-6, 2-1 through 2-6 and 3-1 through 3-7 are marked on photo 4-3.

Results

No saline aerosol or salt-related plant injury was identified in either the detailed or random survey area. Abnormal signatures were found to be due to flooding damage, weed growth in crop fields, soil type differences, plant diseases, and injury associated with transplanting and lawnmowing operations.

The type of crop identified in the survey are marked on photos 4-4 and 4-3. The designations are A = alfalfa, C = corn, GH = grasshay, P = pasture and s = soybean. Specific ground truth inspection sites are marked on the following low altitude photographs.

Photograph 1-6

Site 1. This was a wheat stubble field with weedy areas that correspond to low areas that were likely wet spots. Velvetleaf in these areas showed damage from leafminer feeding and Septoria leafspot. Canadian thistle in these areas showed no foliar abnormalities.

Site 2. Oak and elm trees are included in a pasture area

show dieback most likely caused with compaction and root damage associated with grazing cattle.

Site 3. This is a dead elm tree. Based on elm bark beetle larvae feeding, Dutch Elm Disease is the suspected cause of death.

Site 4. This was found to be cut hay left in the field.

Site 5. This is a soybean field. The following foliar problems were noted in the field survey. Downey mildew, Septoria brown spot, Bacterial blight, and soybean looper feeding.

Photograph 1-5

Site 1. This is a grasshay field showing old waterways, soil differences, and stripes corresponding to haying swathes.

Site 2. This is a corn field showing wet areas and planter skips.

Site 3. This is an area of broadleaf weeds (smartweed, velvet leaf, and ragweed) in a hayfield.

The railroad right of way was surveyed in detail from Blackwalnut Rd. west to German Church Rd. Apple trees showed signs of sooty blotch, flyspeck, cedar apple rust, scab and black rot. Hawthorn showed signs of Entomosporium leaf spot. Corn showed signs of Helicium leaf spot, common rust, Stewart's leaf blight, smut, anthracnose and both nitrogen and potash deficiency. Wild grape showed signs of sooty mold, black rot 2,4-D damage and nipple gall mite damage. Sumac showed signs of Botryphaeria leaf spot and anthracnose. Raspberry showed signs of anthracnose, leaf curl aphid, and Septoria leaf spot.

Hackberry leaves commonly showed nipple gall mite infestation.

Vetch plantings were healthy and the following weeds were commonly observed to be healthy - lesser and giant ragweed, cockleburr, and smartweed.

Site 4. This is a waterhole with surrounding area where corn has died due to flooding. Vetch in the railroad right of way was healthy. Milkweed in this area showed heavy sooty mold growth. Wild aster showed damage from *Phyllosticta* leafspot, morning glory showed extensive leaf spotting by the anthracnose disease. and smartweed had leaf spotting from *Septoria* leaf spot.

Photograph 1-4

Site 1. This is a an area of broad leafed weeds in a grasshay field.

Site 2. This was found to be an area of poor grass growth most likely associated with poor soil conditions (e.g. compaction, low fertility, etc).

Site 3. The areas of poor growth in this cornfield were associated with soil type differences. Corn diseases not visible on photos noted include *Holcus* leafspot, common rust, Stewart's leaf blight, and anthracnose. Both nitrogen and potash deficiency were noted in several areas of this field. Minor corn borer damage was also noted.

Site 4. This is a drilled soybean field with a significant green foxtail weed infestation. Diseases were to those noted for site S, photo 1-6.

Photograph 1-3

Site 1. This was an area of multiflora rose which showed extensive defoliation by insects.

Photograph 1-2.

The area marked planter are typical of areas of poor or no seeding due to planter problem in this alfalfa field. Minor leafhopper burn and common leaf spot were noted.

Photograph 1-1

Site 1. This was found to be a dead decaying boxelder.

Pipeline. This area was extensively surveyed from Razorville road to River Road (west off photo.). Alfalfa planted in this area showed signs of Verticillium wilt and common leafspot and minor leafhopper burn. Wild grape showed signs of Isariopsis leafspot. Burdock was healthy except for leafminer damage. Hawthorn showed evidence of cedar apple rust and Entomosporium leaf spot. Quince was also affected by this disease and some defoliation due to this disease was noted. Siberian elm on the northside of the pipeline (marked x) showed some dieback associated with canker disease. Siberian elms showed minor damage from leafminer and blackspot leafspot. Walnuts showed significant damage from anthracnose. Also at the site marked X there were several red oaks showing signs of oak wilt. Russian and autumn olive plantings were healthy. Cottonwoods showed signs of rust and Marsonnina leafspot. Hackberry was commonly affected by nipple gall mite and was

beginning to show normal senescence. Sumac showed dieback due to Botryosphaeria leafspot.

Photograph 2-6

Site 1. This was found to be an area of poor soybean growth and grassy weed problem. Misapplication of herbicide is suspected.

Photograph 2-5

All areas of this photo were extensively surveyed. At the site marked 1 ground survey found spotting of lower leaves of both hackberry and Slippery elm the cause of this spotting could not be determined but is thought to be caused by a noninfectious agent. The distribution and type of injury ruled out saline injury. Other plant abnormalities noted in this area were dogwood anthracnose, white oak with minor leafminer feeding and oak leaf blister, Septoria leaf spot on blackberry, leaf spot on gooseberry, powdery mildew and Phyllosticta leafspot on Virginia creeper, Verticillium wilt of dogwood, Alternaria leafspot on Canadian thistle, common leafspot and anthracnose of red clover. Problems previously noted on sumac, oak, elm, boxelder, and soybean were also noted in this area.

Photograph 2-4

Site 1. Transplanted trees (honeylocust and basswood) in this area showed signs of basal injury with resulting cankers. These cankers were causing some dieback . In the planting to the

north a scotch pine showed weak growth and top dieback perhaps associated with borer damage. Several red oak showed signs of basal cankers and top dieback associated with injuries from lawn mowing or trimming equipment.

Site 2. This is an area of lighter soils which supported poor corn growth.

Photograph 2-3

Site 1. This site was previously discussed in the discussion for site 1 photo2-4.

Site 2. This was a large dead elm thought to be killed by Dutch Elm Disease although this site showed accumulation of eroded soil in the rootzone. This is also noted in photo2-2.

Site 4 (there is no 3). This was a planting of snowball bush, buckthorn and purple leaf plum. Snowball bush showed minor powdery mildew.

Site 5. Although not visible in the photo, oaks in this area continue to show dieback associated with accumulation of eroded soil in their rootzone (fill damage).

Photograph 2-2

Site 1. Ground truth could not identify the cause of this unusual signature. Detailed analysis was precluded owing to the fact this site was within the plant fence.

Site 2. Previously discussed under photo 2-3.

Site 3. This was an area of barren soil perhaps related to soil compaction or a spill of a phytotoxic substance.

The area to the west of the station was surveyed in detail. Anthracnose was noted on the yellowbark hickory. No evidence of cement dust damage noted in previous reports could be seen. Multiflora rose showed signs of insect defoliation and blackspot disease. Cottonwood showed signs of Marsonnina leafspot and leafminer feeding. Apple showed signs of cedar apple rust, apple scab, black rot, flyspeck and both apple maggot and codling moth feeding. Cedar apple rust and Entomosporium leafspot were common on hawthorn. Waffer ash, aspen, White and scotch pine, Siberean elm and black cherry were generally healthy. There was no sign of continuing damage associated with the sandblasting operation previously noted.

Alfalfa and corn in this area had the same abnormalities noted previously. Smooth brome showed significant amounts of leafrust.

Photograph 2-1

Both sites 1 & 2 were discussed previously.

Photographs 3-7 and 3-6

Other than planter problems there are no remarkable sites on these photographs.

Photograph 3-5

Site 1. This is an oat stubble field with weeds providing the unusual signature.

Photograph 3-4

Site 1. This is a dying scotch pine. Symptoms are indicative of the pine wilt nematode disease. Other scotch pine showed significant needle cast disease (either Dothiorella Lophodermium). Dogwood at this site showed extensive Septoria leafspot infection. Both Norway and blue spruce were healthy. Crabgrass showed extensive bacterial leaf spot infection.

Site 2. This site is a maple grove with most specimens having extensive heart rot. Lombardy poplar to the east show extensive dieback associated with fungal cankers. Canadian thistle in this area and on Site 3 show white tops associated with aster yellow infection. Wild grape in this area showed extensive blackrot infection. Smooth brome also showed extensive rust at this site.

Site 3. This was a very weedy planting of sunflower. Sunflower showed minor infection with powdery mildew, rust, and downy mildew. Alfalfa showed minor common leafspot. Lambsquarter showed Cercospora leafspot. Morning glory and curled dock plants were healthy in appearance.

Photograph 3-3

There are no remarkable signatures in this photograph not previously commented on (e.g. weeds in crop fields, planter problems etc.).

Photograph 3-2

Site 1. This abnormal signature was cedar and hackberry trees stripped of bark by animals in this confined pasture.

Site 2. These are catalpa trees showing dieback and decay. This has been described in previous reports.

Photograph 3-1

There are no remarkable signatures not previously described.

General Comments

Road surveys showed little evidence of roadside herbicide application. In most areas (Razorville road and the road leading to the motocross area) where roadside grading damage was noted in earlier surveys plants showed signs of recovery. No plants showed signs of salt damage.

Crops, trees, weeds, and other plants examined in sections 6, 7, and 19 of Rockvale and 5, 8, 17, 12, and 13 of Scott township showed problems similar to those in the intensive survey area as did random checks of crops and woody species 10-20 miles north east of the generating plant.

Crop diseases in the survey area were not of economic importance. However, the nitrogen and potash deficiency noted east of the generating station likely reduced yields.

Conclusion

No saline aerosol or other salt related injury was identified in the surveyed area. Abnormalities noted in photographs or in the ground truth survey were due to water damage, soil type differences, weeds in crop fields, plant diseases, fill damage or remant crop (hay) left in fields.



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A.M.E. PROJECT NO: 1-930704

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One (1) each color diapositive and four (4) each color prints of the following color infrared positives:

Line	Exposures	Scale
1	1 through 6	1"=500'
2	1 through 6	1"=500'
3	1 through 7	1"=500'
4	1 through 4	1"=2000'

rp 2-18

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ARIAL COLOR PHOTOGRAPHS

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IF FILMED