INSTRUCTIONS FOR UPDATING YOUR ER

To update your copy of the Braidwood Station Environmental Report - Operating License Stage, please remove and destroy the following pages and insert the Amendment 7 pages as indicated.

VOLUME 1

REMOVE	INSERT
Page ii	Page ii

VOLUME 2

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Page ii	Page ii
Pages 3.9-1/3.9-2 and 3.9-3/3.9-4	Pages 3.9-1/3.9-2 through 3.9-4
Figure 3.9-2	Figure 3.9-2
Figure 6.1-7	Figure 6.1-7
Pages QE100.1-1/QE100.1-2 and QE100.1-3/QE100.1-4	Pages QE100.1-1/QE100.1-2 and QE100.1-3/QE100.1-4
Following Page A6-1 (do not remove)	Page A7-1

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BRAIDWOOD NUCLEAR GENERATING STATION - UNITS 1 & 2

ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE

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3.9 TRANSMISSION FACILITIES

3.9.1 LOCATION AND DESCRIPTION OF RIGHT-OF-WAY

Figure 3.9-1 shows the transmission connections for the Braidwood Nuclear Station. These consist of existing double circuit 345 kV lines connecting to the LaSalle County Generating Station and the East Frankfort Transmission Substation and of a double circuit 345 kV line constructed on new right-of-way (ROW) to an existing line on the property of the Crete Transmission Substation. One circuit of the double circuiit 345 kV line will connect to the Bloom Transmission Substation with an intermediate connection at the Davis Creek Substation. The other circuit will connect to the Burnham Transmission Substation. No connection will be made to the Crete Transmission Substation. There are no plans at this time to construct any additional transmission line originating from the Braidwood Station in conjunction with Units 1 and 2. 7

Figure 3.9-2 shows the detailed route of the new line from the Braidwood Nuclear Generating Station - Units 1 and 2 (Braidwood Station) to the existing Crete Transmission Substation. This route traverses approximately 55 miles and crosses nearly flat agricultural land of low relief. 1

The basic ROW requirement for the double circuit 345 kV line which will transmit the power from Braidwood Station is 145 feet wide. The following ROW descriptions are included so that land use can be evaluated for all property acquired, including archeological surveys. A 330 foot ROW that includes space for a double circuit 345 kV line and a future line comprises the first 7.3 miles. The next 15.6 miles is, in general, also 330 feet wide and accommodates a four circuit 345/138 kV transmission line and, for the most part, has space for a future line. In Section 36 of Rockville Township in Kankakee County, the four-circuit construction terminates at the Davis Creek Transmission Substation. The double circuit 345 kV line continues north for 7.4 miles on a 315 foot wide ROW that can also accomodate a future line. The next 17 miles between Wilton and Washington Townships involves a 180-foot widening of an existing 200-foot ROW. This 380-foot ROW will have a double circuit 345 kV line parallel to and with structures opposite those of an existing 765 kV line. From Washington Township 7.75 miles northward to the Crete Substation, a new 235-foot ROW will accommodate a double circuit 345 kV line and a future four circuit 138/345 kV line (see Figure 3.9-2). Structure types for the 55 mile transmission line will be similar throughout, single shaft structures for tangent and light angles (up to 13°) and lattice steel towers for angles over 13°. The single shaft structures will normally not exceed 6 feet 7

3.9.4 RADIATED ELECTRICAL AND ACOUSTICAL NOISE

The diameter of the conductors used will be in the range that results in low corona, audible noise, and electric noise. The same engineering criteria used on past designs, resulting in few problems, has been duplicated or improved for this transmission line. 7

3.9.5 INDUCED OR CONDUCTED GROUND CURRENTS

Induced or conducted ground currents can become a significant factor in urban areas where extensive networks of pipes and cables have been placed underground. The magnitudes of currents induced into such underground networks are dependent upon the current in the overhead transmission lines, the distance above the ground, the soil characteristics, and the extent of parallelism between the transmission lines and the underground equipment. Also, during high ground fault conditions, present designs are such that the entire fault current does not pass through the ground. High speed relays at the substations operate to render such situations highly transient, reducing the potential corrosion due to the "battery effect". (The soil can serve as as an electrolyte between the transmission ground and the underground equipment of other systems. As with conventional batteries, corrosion of these "terminals" could result.) A complete analysis of these problems cannot be made until the load currents have been determined and load flow studies have been completed.

3.9.6 ELECTROSTATIC FIELD EFFECTS

Electrostatic fields are present at any voltage level. The field strength is dependent upon voltage, height of conduct, and distance from the centerline of the support structure. Past installations of 138 kV and 345 kV lines have produced few if any complaints. Introduction of 765 kV lines, however, has caused review of these effects and explanations to the public of the electrostatic fields under these lines. The intensity of the field can be calculated before installation and actually checked by measurement after installation. Past experience has shown calculated values to have been conservative. Based on these conservative calculated values, the 345 kV lines, either independently or in conjunction with 138 kV lines, are not expected to cause significant electrostatic effects. Where the 345 kV lines are to be placed parallel to the existing 765 kV line, Section J-K as depicted on Figure 3.9-2, calculated values show that the field intensity is increased slightly in some areas and actually decreases in other areas. In either 7

case the incremental difference is so slight as to be hardly measurable. It is planned to measure the field strength before installation and again after installation of the 345 kV lines for comparative analysis. As in the past, CECo. will work cooperatively with landowners to mitigate or correct any adverse effects caused by the electrostatic field. Corrective measures will be in accordance with the following paragraphs. 1

Fences and other fixed metallic objects in and along transmission line rights-of-way are grounded when CECo. design calculations

indicate that the elctrostatically induced drain current would exceed the minimum level of perception (approximately 1 milli-ampere) of a person touching the fence or metallic object.

Induced voltages on electric fences are drained by the installation of drain coils at appropriate intervals. The grounding technique for non-electric fences on wood posts is to install steel posts at appropriate intervals and connect the fence to them. Fences on steel fence posts do not need additional grounding. 1

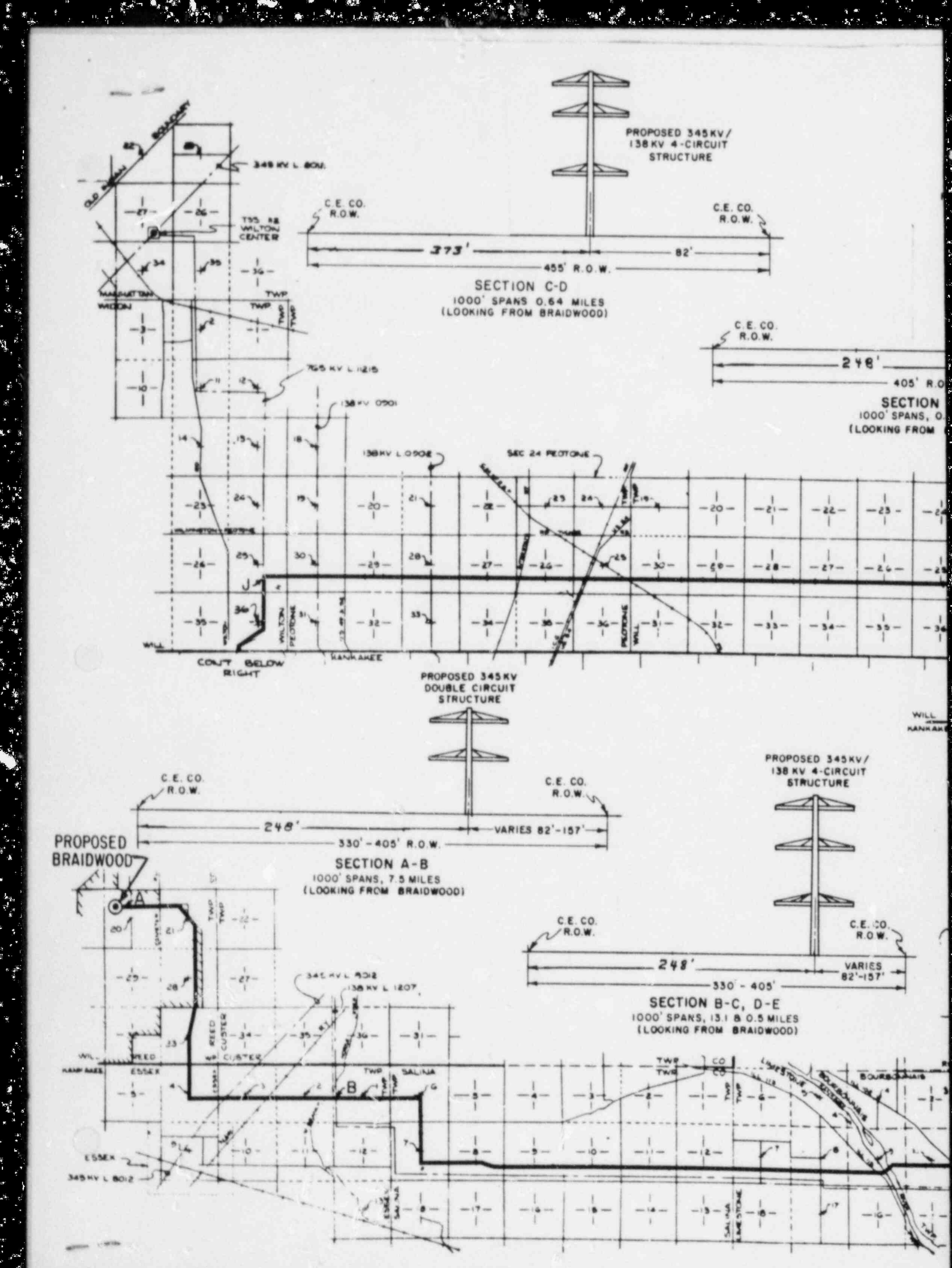
With respect to mobile equipment, the ground clearance of the 345 kV lines will be such that under all conditions the current due to electrostatic effects will be less than 5 milliamperes, rms, if the largest anticipated trucks, vehicles or equipment operated under the lines were short circuited to ground.

3.9.7 OZONE PRODUCTION

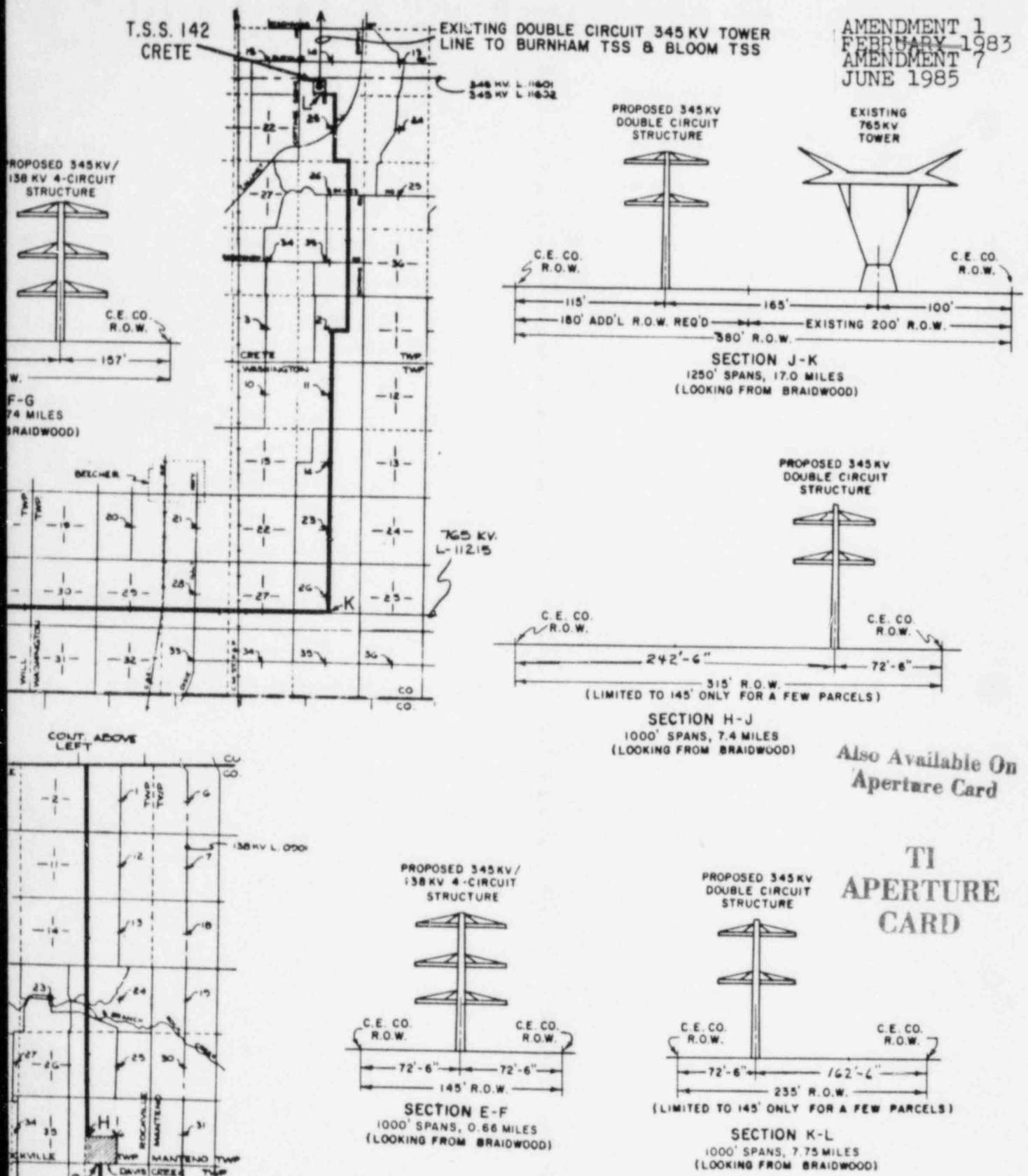
The generation of gaseous effluents as a result of corona activity on extra high voltage (EHV) transmission lines has been raised as an environmental issue. As a result, CECo. engaged the services of an outside consultant to determine the validity and magnitude of the ozone effect.

Since the ozone has only recently been recognized as a potential pollutant, some background information on the substance may be helpful. Ozone (O_3) is 50% denser than oxygen (O_2) and is a very reactive compound. It is formed naturally in three ways: High in the atmosphere, oxygen reacts with ultraviolet sunlight to form ozone, which circulates to lower altitudes as a result of weather. Sunlight reacting with airborne pollutants can also create ozone. Finally, lightning and other high voltage discharges cause oxygen to disassociate and recombine to form ozone. Generally, the ambient ozone level is proportional to the strength of the sunlight, increasing during the day and decreasing during the night. North winds, however, also bring in ozone from the Arctic. It is possible for high voltage transmission lines to produce ozone if they have high voltage discharges (corona). The U.S. and Illinois Environmental Protection Agencies have set an air quality standard of 8 parts per 100 million as the maximum 1-hour concentration, which is not to be exceeded more than once per year.

A field test program has been completed on the CECo. system. the program provides comparative data for three locations: (a) remote from high voltage transmission lines for the ambient ozone level of the area; (b) adjacent to a 345 kV switchyard; and (c) on the ROW of the existing 765 kV transmission line presently in operation on the CECo. system.


PROPOSED 345KV/
138KV 4-CIRCUIT
STRUCTURE
C.E. CO.
R.O.W.
373'
82'
455' R.O.W.
SECTION C-D
1000' SPANS 0.64 MILES
(LOOKING FROM BRAIDWOOD)
345 KV L 8012
765 KV L 1215
138 KV 0901
138KV L 0902
SEC 24 PEOTONE
WILTON
PEOTONE
KANKAKEE
COUT BELOW
RIGHT
PROPOSED 345KV
DOUBLE CIRCUIT
STRUCTURE
248'
VARIES 82'-157'
330'-405' R.O.W.
SECTION A-B
1000' SPANS, 7.5 MILES
(LOOKING FROM BRAIDWOOD)
PROPOSED
BRAIDWOOD
A
B
345 KV L 8012
138 KV L 1207
REED
CUSTER
ESSEX
SALINA
345 KV L 8012
VARIES
82'-157'
330 - 405'
SECTION B-C, D-E
1000' SPANS, 13.1 & 0.5 MILES
(LOOKING FROM BRAIDWOOD)

AMENDMENT 1
FEBRUARY 1983
AMENDMENT 7
JUNE 1985



BRAIDWOOD NUCLEAR GENERATING STATION
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FIGURE 3.9-2
ROUTE MAP & STRUCTURE PROFILE
BRAIDWOOD-CRETE R.O.W.

LEGEND:

- ▲ Air Sampler and Thermoluminescent Dosimeters.
- ▲ Air Sampler and Thermoluminescent Dosimeters as Part of Dresden Program.
- (S) Surface Water, Sediment, & Benthic Organisms.
- (F) Fish
- (V) Vegetables and Other Human Food Crops as Part of Dresden Program. (Exact Locations are Not Known.)
- ✪ Dresden Station

Note: Locations of Milk Sampling are Not Shown.

BRAIDWOOD NUCLEAR GENERATING STATION
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FIGURE 6.1-7

RADIOLOGICAL MONITORING
SAMPLING LOCATIONS

QUESTION E100.1

In addition to other requested information, provide a summary and brief discussion, in table form, by section, of differences between currently projected environmental effects (including those that would degrade and those that would enhance environmental conditions) and the effects discussed in the environmental report and environmental hearings associated with the construction permit review. On a similar basis, indicate changes in plant or plant component design, location or operation that have been made or planned since the construction permit review.

RESPONSE

The differences between the environmental effects discussed in the construction permit environmental report and the current operating license stage environmental report are presented in the attached Table Q100.1-1. The changes in plant or plant component design location or operation are presented in the attached Table Q100.1-2.

TABLE QE100.1-1

DIFFERENCES IN ESTIMATED ENVIRONMENTAL EFFECTS

SECTION	BRAIDWOOD ER-CP	BRAIDWOOD ER-OLS	DISCUSSION OF ENVIRONMENTAL EFFECT
2.3.4	No consideration of archaeological resources on transmission rights-of-way.	Archaeological surveys have been completed on the transmission right-of-way.	Previously unkown archaeological sites are now recorded and can be protected from future impacts.
3.9.1	Some discussion of future 765, 345 and 138 kV lines on portion of transmission rights-of-way.	Discussion limited to existlines and proposed lines emanating from Braidwood Station.	Discussion of future lines are not timely. Lines are not required for Braidwood Station Units 1 and 2 power transmission and may not be installed until well after the year 2000. 7
3.9.1	Two transmission line rights-of-way.	One transmission line right-of-way.	Reduces all the impacts normally associated with transmission lines including less river and highway crossings, fewer acres of farm land, woodlands and wetlands disturbed, reduced visual impact and reduction in cost.
3.9.1.2	Lattice steel towers.	Tangent and light angle structures to be single shaft.	Reduction in acres of farm land taken out of production, less interference with farming practices.
5.7	Noise at property line not covered.	Noise levels at property line to be in accordance with applicable state and federal standards.	Ambient, predictive and some operational noise surveys have been conducted.
8.0	Station operation to create about 200 new jobs at an estimated annual payroll of $3 million (1972 dollars).	Station operation to create approximately 533 new jobs with an estimated annual payroll of $14 million (1982 dollars).	Larger staff and induced employment will provide additional job opportunities to the local population and the resulting larger payroll will enhance the local economy. Larger staff, however, will increase local traffic and require local governmental and

TABLE QE100.1-1 (continued)

DIFFERENCES IN ESTIMATED ENVIRONMENTAL EFFECTS

SECTION	BRAIDWOOD ER-CP	BRAIDWOOD ER-OLS	DISCUSSION OF ENVIRONMENTAL EFFECT
			health services (police and fire protection, sewers, schools, doctors and hospitals). Comparing the 1970 and 1980 censuses shows population growth in some of the local towns and villages. No infrastructure problems are anticipated.
8.4	Total property taxes for 1981 estimated to be $3,218,000.	Actual property taxes for 1980, paid in 1981, were $5,039,942 for the partially completed plant. For 1986, the first year the plant is completed . The estimated property taxes are $9,281,900.	Local property taxes paid by Braidwood Station represent the major source of revenue to the local taxing units of the Braidwood and Reed Township area.

TABLE QE100.1-2

CHANGES IN PLANT DESIGN

SECTION	BRAIDWOOD ER-CP	BRAIDWOOD ER-OLS	DISCUSSION OF DIFFERENCE
2.1	Cooling pond size, 2,640 surface acres.	Cooling pond size, 2,537 surface acres.	The 2640 acre figure was an estimate. The 2537 acre figure is as-built after filling the pond.
2.7.1.1	Site size, 4,320 acres.	Site size, 4,454 acres.	Approximately 160 acres of strip mined land was added to the southeast section of the site. Minor reductions due to sale or exchange of small tracts and final survey adjustments re- in a net increase of 134 acres.
3.1.1	Size of structures.	Technical Support Center (TSC) added to the turbine building. Station gate house enlarged and permanent parking lot enlarged.	The TSC addition is an elongation of the turbine building. The gate house and parking lot are also enlargements and are not obtrusive.
3.1.3	Architectural Features	River screenhouse modified to lower profile and a screenwall was added to hide trashrack cleaning equipment.	The river screenhouse profile was lowered and the screenwall was added to improve the appearance of the facility.
3.3.4 3.3.5	Sanitary water system and demineralizer system water obtained from deep wells.	Sanitary and demineralizer system water will be drawn from the fresh water holding pond with surface water from the Kankakee River.	Poor quality groundwater resulted in decision to use surface water.

VOLUNTARY REVISIONS

Amendment 7 consists of voluntary revisions to the following parts of the Braidwood Station Environmental Report - Operating License Stage:

Section 3.9	Transmission Facilities
Section 6.1	Applicant's Preoperational Monitoring Programs
Amendment 2	Revised Response to QE100.1