



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

May 6, 1991

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

Subject: Braidwood Station Units 1 and 2
Supplemental Response to Inspection Report
Nos. 50-456/90022 and 50-457/90024
NRC Docket Nos. 50-456 and 50-457

Reference: (a) L. R. Greger Letter to C. Reed dated December 19, 1990
(b) A. R. Checca Letter to A. B. Davis dated January 17, 1991

Dear Mr. Davis:

Reference (a) provided the results of a NRC Inspection of the Radiological Environmental Monitoring Program (REMP) at Braidwood Station. During this inspection, a violation of NRC requirements relating to the reportability of tritium concentrations in environmental samples was identified. Reference (b) provided Braidwood Station's response to the violation. In this response Braidwood Station committed to a special sampling study of the tritium levels in the Kankakee River at low river flow, nearby shallow wells used by the public and Braidwood cooling lake water. The purpose of the letter is to outline this special study.

Discussions with various company departments have led to the development of a comprehensive study of the Kankakee River. The study will be conducted for the period May through September, 1991. All samples will be collected and analyzed for tritium on a weekly basis. The sample locations identified include some current REMP sample locations plus additional sampling points. The sample points are listed in Attachment A. The environmental contractor will prepare a special report on a monthly basis detailing the results of the study. Upon completion of the study, the results will be provided to the NRC.

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PDR ADOCK 05000456
Q PDR

100078 029:1

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May 6, 1991

At the request of the NRC inspector, the Kankakee River recirculation at times of low flow was reviewed. The Environmental Services Department conducted a study during the drought year of 1988. The results, included in Attachment B, tend to show that recirculation does not occur during low flow periods. To provide further verification of this, a dye study under low river flow conditions would be necessary. If low river flow occurs during the period of the special sampling program, a dye study will be conducted and the results included in the special study report.

If you have any questions concerning this special study, contact K. Aieshire (x2726) at Braidwood Station.

Respectfully,

A.R. Bernier for

T. J. Kovach
Nuclear Licensing Manager

cc: S. DuPont, Sr. Resident Inspector - Braidwood
NRC Document Control Desk

ATTACHMENT A

Current Sample Points:

1. BD-7 - River Screen House (RSH), river water upstream of RSH.
2. BD-8 - Intake water
3. BD-9 - Discharge water
4. BD-10 - Downstream water sample
5. BD-25 - Upstream control sample, 4 miles upstream of RSH

New Sample Points:

1. Horse Creek at highway Il-113 - since the creek empties into the Kankakee River just upstream of the RSH, samples will confirm/disprove the creek as a source.
2. Well water - included at the request of the NRC inspector.

- | | Location | Depth | |
|----|--------------------|---------|-------------------------------------|
| a. | First house north | 110 ft. | closest to discharge |
| b. | Second house north | 395 ft. | deepest well |
| c. | Third house north | 50 ft. | shallow well |
| d. | Eighth house north | 80 ft. | typical well depth of homes in area |
3. Custer Park Fire Department well - upstream of RSH
 4. RSH Forebay - since the station does not make up continuously from the river, this point will confirm/disapprove any buildup of tritium which could be inadvertently taken into the station.
 5. Freshwater holdup pond - the location where river water is pumped prior to it's entry into the Braidwood cooling lake.
 6. Cooling lake water - collected at 2 (future) public access locations.

ATTACHMENT B

The attached data sheets are from a study which was conducted by Commonwealth Edison Company's Corporate Environment Services Group and Braidwood Station personnel during the drought year of 1988. The study transect was located just below the river intake screenhouse. River velocity was measured at 20 foot increments from the east to the west shoreline. The study indicated that, as expected, velocity is greatest near the center point of the river and tapers off towards both shorelines. It should be noted that under the study conditions, there was generally more flow on the station side of the river than the opposite side. This study does not indicate that recirculation is occurring during low flow periods. Additional investigation would have to be conducted however in order to provide further verification of this observation.

Flow AT WILMINGTON GAGE per U.S.G.S.
was 635 cfs

8-278-P
(May 1944)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Mass No.
Camp by
Checked by

DISCHARGE MEASUREMENT NOTES

Sta. No. 20

Date 6/27/1988 Party Joe Tidmore, JAWAOWZNIAK, BOB PAEZAN

Width Area Vel. G. H. Disch.
Method No. sec. G. H. change in hrs. Susp.
Method code. Horiz. angle cor. Susp. cor. Meter No.

Time	GAGE READINGS		Type of meter	for rod, other
	Recorder	Outside		
			Date rated	ft. above bottom of weight
			Meter	Spin before meas
			Meas. plots	"", diff. from rating
			Wading, cable, ice, boat, upstr., downstr., side	
			bridge	feet, mile, above, below
			gage, and	
			Check-bar, found	
			changed to	at
			Correct	
			Levels obtained	

Measurement rated excellent (1%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section

Flow Weather
Other Air *F@
Gage Water *F@
Record removed Intake flushed

Observer
Control

Remarks SECTION SIDE IS INITIAL POINT, JUST BELOW RIVER SCREENHOUSE AT RED MARKED TREE

TEST #1

G. H. of zero flow ft.

8-876
January 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Date 6/27/1988 DISCHARGE MEASUREMENT NOTES
KANIKAKE River at BRADWOOD STATION

Dist. from initial point	Width	Depth	Area of cross section	Remarks	Time in seconds	VELOCITY		Area	Discharge
						At point	Mean in vertical		
20'	14"				0				—
40'	24"				82				4.39
60'	4'0"				49				14.69
80'	5'5"				28				34.71
100'	5'9"				40				25.86
120'	6'6"				25				46.80
140'	7'7"				21				65.14
160'	8'0"				15				96.00
180'	7'8"				17				81.00
200'	6'4"				14				81.00
220'	4'6"				20				40.50
240'	3'0"				41				13.17
260'	2'5"				36				12.00
280'	1'10"				46				7.04
300'	1'10"				69				4.70
320'	2'8"				0				—
340'	2'0"				0				—
TOTAL									527 cfs

No. of Sheets. Comp. by Chh. by

9-175-P
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
DISCHARGE MEASUREMENT NOTES

Mass. No. _____
Comp. by _____
Checked by _____

Sta. No. 20

Date 6/27, 1988 Party J. TIDHART J. WOZNIAK & R. FHELAN
Width _____ Area _____ Vel. _____ G. H. _____ Disch. _____
Method _____ No. sect. _____ G. H. change _____ in _____ hrs. Susp. _____
Method coef. _____ Hor. angle coef. _____ Susp. coef. _____ Meter No. _____

GAGE READINGS					Type of meter
Time	Recorder	Inside	Outside		Date rated _____ for rod, other _____
					Meter _____ ft. above bottom of weight _____
					Spin before meas. _____ after _____
					Meas. plots _____ G. H. diff. from rating _____
					Wading, cable, ice, boat, upstr., downstr., side _____
					bridge _____ feet, mile, above, below _____
					gage, and _____
					Check-bar, found _____
					changed to _____ at _____
					Correct _____
					Levels obtained _____

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section _____

Flow _____ Weather _____
Other _____ Air _____ °F @ _____
Gage _____ Water _____ °F @ _____
Record removed _____ Intake flushed _____

Observer _____
Control _____

Remarks STATION SET IS INITIAL POINT JUST UPSTREAM OF SCALLOP AT RED MARKED TREE.
TEST #3

G. H. of zero flow _____ ft.

9-375
January 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Date 6/27, 1988 DISCHARGE MEASUREMENT NOTES

FANKAKEE River at Braidwood Station

Angle coil current	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY		Adjusted for hor. angle or	Area	Discharge
							At point	Mean in vertical			
	20'		14"			0					
	40'		24"			109					3.3
	60'		18"			46					15.65
	80'		5'5"			11					88.36
	100'		5'9"			17					60.88
	120'		6'6"			11					106.36
	140'		7'7"			8					171.00
	160'		8'0"			10					144.00
	180'		7'8"			9					152.00
0	200'		6'4"			13					87.22
	220'		4'6"			36					22.50
	240'		3'0"			17					31.76
	260'		2'5"			42					10.29
	280'		1'10"			76					4.26
	300'		1'10"			64					5.05
	320'		2'8"			0					
	340'		2'0"			0					
TOTAL											902.65 cfs

No. _____ of _____ Sheets. Comp. by _____ Chk. by _____

10-278-3
May 1977

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Miss. No.

Comp. by

Checked by

DISCHARGE MEASUREMENT NOTES

Sta. No. 270. Date 6/27 1988 Party Jol. T. & M. C. J. m. 7:00 AM C. 11:00 AM

Width	Area	Vel.	G. H.	Disch.	
Method	No. sec.	G. H. change	in	hrs.	Susp.
Method coef.	Hor. angle coef.	Susp. coef.			Meter No.

[illegible]

Measurement rated excellent (2.5%), good (5.5%), fair (8.5%), poor (over 8%). based on following conditions: Cross action

Flow	Weather	
Other	Air	°F (C)
Cage	Water	°F (C)
Observer	Intake flushed	u
	Record removed	

Control	Remarks
	<p>STATION SIDE IS INITIAL POINT, JUST BEFORE THE SPLIT-RAIL AT RED MARKED TREE. ANY OF ALL THREE TESTS G. H. of zero flow</p>

G. H. of zero flow

9-575
 January 1956
 UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY
 WATER RESOURCES DIVISION

DATE 6/27 1985 DISCHARGE MEASUREMENT NOTES
NAME KARLSTADT SITE FEATHERED ST

[illegible]

No. _____ of _____ Sheets. Comp. by _____ Cont. by _____