

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

TO: Mr Rusche

FROM: Duke Power Company
Charlotte, Nc
W O Parker Jr

DATE OF DOCUMENT **9-29-76**
DATE RECEIVED **10-6-76**

LETTER
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DESCRIPTION

Ltr re their 5-13-76 request for amdt of Appendix B tech specs.....furnishing addl info concerning chemical effluents..... in response to our 8-2-76 ltr.....

PLANT NAME: Oconee 1-3

ENCLOSURE

NO NOT REMOVE

SAFETY	FOR ACTION/INFORMATION	ENVIRO	10-7-76	ehf
ASSIGNED AD:		ASSIGNED AD:		
BRANCH CHIEF:	<i>Schwencer (6)</i>	BRANCH CHIEF:		
PROJECT MANAGER:	<i>Zech</i>	PROJECT MANAGER:		
LIC. ASST.:	<i>Sheppard</i>	LIC. ASST.:		

INTERNAL DISTRIBUTION			
<input checked="" type="checkbox"/> REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
<input checked="" type="checkbox"/> NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
<input checked="" type="checkbox"/> I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
<input checked="" type="checkbox"/> OELD		LAINAS	
<input checked="" type="checkbox"/> GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECHN
MIPC	MACCARRY	KIRKWOOD	ERNST
CASE	KNIGHT		BALLARD
HANAUER	SIRWEIL	OPERATING REACTORS	SPANGLER
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT	STAPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
MELTZ		GRIMES	VOLLMER
HELTENES	AT & I		BUNCH
SKOVHOLT	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION			CONTROL NUMBER
<input checked="" type="checkbox"/> LPDR: <i>Walhalla, SC</i>	NAT LAB:	BROOKHAVEN NAT LAB	10146
<input checked="" type="checkbox"/> TIC:	REG. VIE	ULRIKSON(ORNL)	
<input checked="" type="checkbox"/> NSIC:	IA PDR		
<input checked="" type="checkbox"/> ASIB:	CONSULTANTS		
<input checked="" type="checkbox"/> ACRS (6 CYS HOLDING) ENT	<i>To LA Sheppard</i>		

DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

REG PUBLIC DOCUMENT ROOM
Regulatory Docket File

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

September 29, 1976

TELEPHONE: AREA 704
373-4083

Mr. Benard C. Rusche, Director
Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. A. Schwencer, Chief
Operating Reactors Branch #1

RE: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

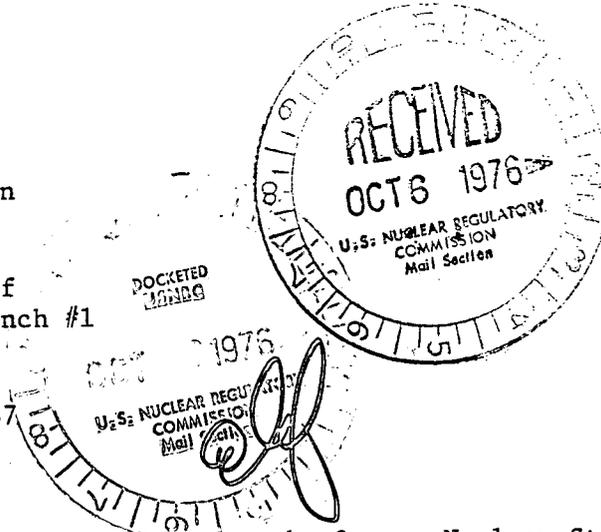
My letter of May 13, 1976 proposed an amendment to the Oconee Nuclear Station Appendix B Technical Specifications to increase the upper limit of pH in chemical effluents from the station from 8.5 to 9.0. In response, your letter of August 2, 1976, identified and requested additional information required before an evaluation of this proposal could be completed. Pursuant to this request, the following information is herewith submitted:

To evaluate the effect of this revision, a study based on alkalinity was performed to better assess the effect of Oconee chemical effluents on the Keowee receiving waters. A theoretical model was developed for the effluent discharge plume based on eddy diffusion, mixing length, entrainment, and width growth models in turbulent flow. This model does not take into account chemical reaction (buffering or neutralization), and is therefore, highly conservative.

The chemical effluent discharge plume was modeled for two sets of conditions. A worst case condition was considered for which the effluent discharge stream had a maximum alkalinity value of 26.5 mg/l as CaCO₃ equivalent and a maximum effluent flow of 22.8 cfs. Similarly, a normal case condition was considered in which effluent stream alkalinity and flow values were 7.5 mg/l as CaCO₃ equivalent and 7.7 cfs respectively. The above values are consistent with data obtained at Oconee and are likewise consistent with alkalinities of typical Piedmont South Carolina streams as reported in the "U. S. Geological Survey Water-Data Report SC-76-1."

For the worst case, the alkalinity of the effluent discharge would be dispersed to 8.4 mg/l as CaCO₃ equivalent after 250 feet of mixing with the Keowee receiving waters. For the normal case, the effluent alkalinity would be dispersed to 8.5 mg/l as CaCO₃ equivalent after 30 feet of mixing. These values are slightly higher than the average background Keowee River alkalinity of 7.5 mg/l as CaCO₃ equivalent and indicate that mixing of the effluent stream with the Keowee receiving waters will result in no significant change to the pH or the alkalinity of the receiving water with the exception of a very small area near the discharge points.

10146

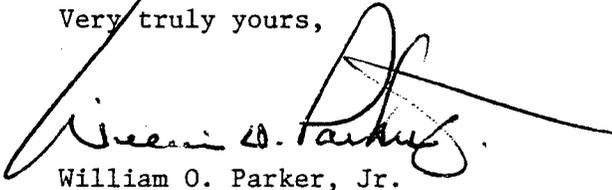


Mr. Benard C. Rusch
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The above conclusion is supported by data obtained on March 16, 1976, when current technical specification limits were exceeded inadvertently by releasing chemical effluents with a pH of 8.7 and an alkalinity of 23.0 mg/l as CaCO₃ equivalent. Following this incident, no discernible difference was measured in the alkalinity upstream and approximately 1600 feet downstream of the discharge.

It is concluded that chemical effluents released from Oconee Nuclear Station with a pH of 9.0 would have insufficient alkalinity to affect anything other than a very small localized area near the release point. Therefore, increasing the pH effluent release limit to this value would have no overall effect on any aquatic species.

Very truly yours,



William O. Parker, Jr.

EDB:ge