

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL **B17106**

TO: Mr. Olan D. Parr		FROM: Penn. Power & Light Company Allentown, Pa. Norman W. Curtis		DATE OF DOCUMENT 6/14/77
<input checked="" type="checkbox"/> LETTER <input type="checkbox"/> ORIGINAL <input type="checkbox"/> COPY		<input checked="" type="checkbox"/> NOTORIZED <input checked="" type="checkbox"/> UNCLASSIFIED		DATE RECEIVED 6/17/77
PROF		INPUT FORM		NUMBER OF COPIES RECEIVED 1 SIGNED

DESCRIPTION

Ltr. notorized 6/14/77.....trans the following:

PLANT NAME: Susquehanna 1 & 2
RJL 6/20/77

DISTRIB. PER P.M.

ENCLOSURE

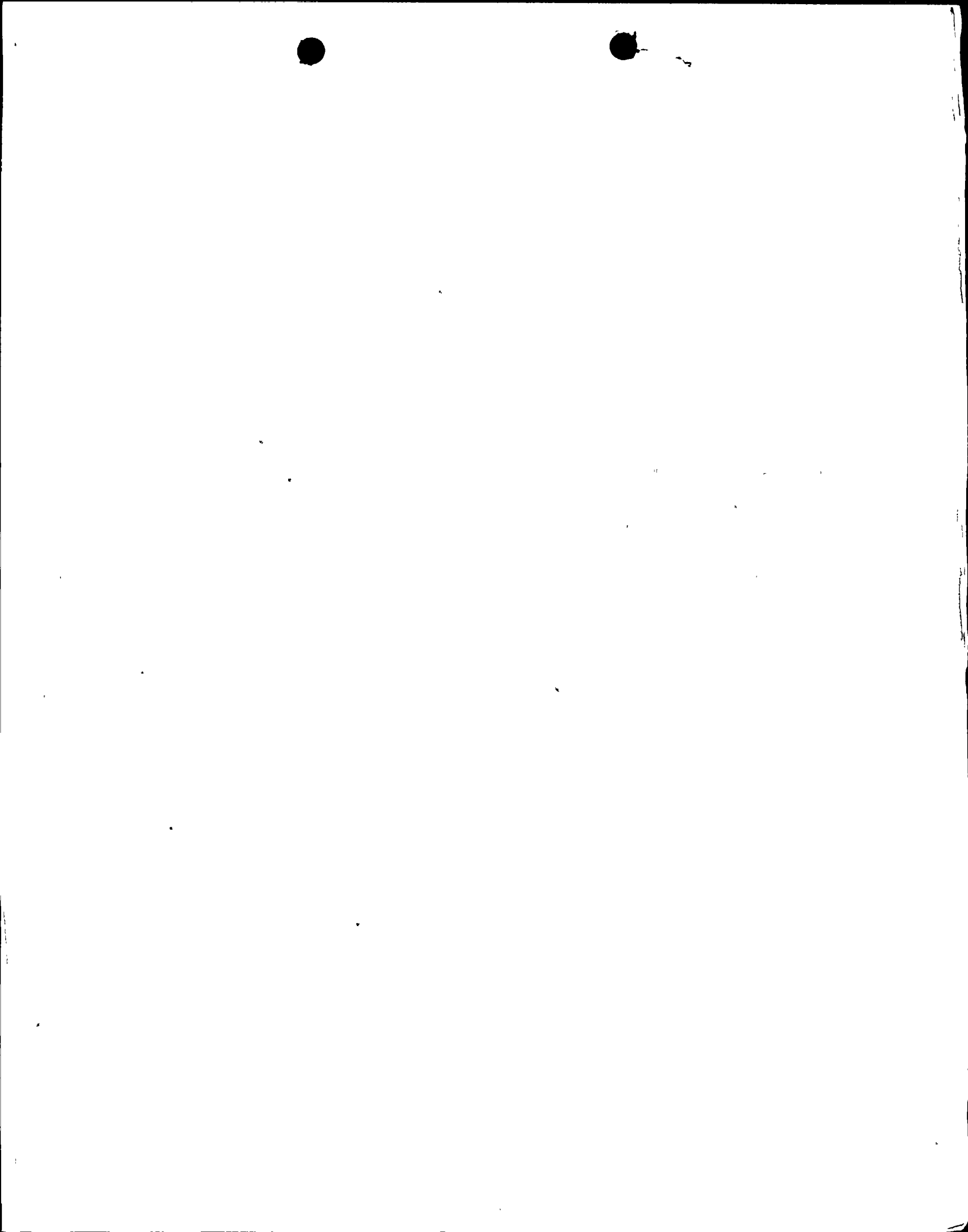
Consists of additional information relative to their previous request to establish a cold weather concrete freeze-protection period of three days..

ACKNOWLEDGED
(2-P) (1/4")
DO NOT REMOVE

SAFETY	FOR ACTION/INFORMATION	ENVIRNNMENTAL
ASSIGNED AD: <i>LTR VASSALLO</i>	ASSIGNED AD: V. MOORE (LTR)	
BRANCH CHIEF: <i>LTR PARR</i>	BRANCH CHIEF:	
PROJECT MANAGER: <i>MINER</i>	PROJECT MANAGER:	
LICENSING ASSESTANT: <i>LTR. RUSHBROOK</i>	LICENSING ASSISTANT:	
	B. HARLESS	

INTERNAL DISTRIBUTION			
REG FILES	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY & ENVIRON ANALYSIS
NRC PDR	HEINEMAN	TEDESCO	DENTON & MULLER
T & E (2)	SCHROEDER	BENAROYA	CRUTCHFIELD
OELD		LAINAS	
GOSSICK & STAFF	ENGINEERING	IPPOLITO	
HANAUER	KNIGHT <i>LTR</i>	F. ROSA	ENVIRO TECH.
MTEG	BOSNAK		ERNST
CASE	SIHWELL <i>2</i>	OPERATING REACTORS	BALLARD
BOYD	PAWLICKI	STELLO	YOUNGBLOOD
		EISENHUT	
PROJECT MANAGEMENT	REACTOR SAFETY	SHAO	SITE TECH.
SKOVHOLT	ROSS	BAER	
P. COLLINS	NOVAK	BUTLER	GAMMILL (2)
HOUSTON	ROSZYCZY	GRIMES	
MELTZ	CHECK		SITE ANALYSIS
HELTEMES		<i>C.P. TANN</i>	VOLLMER
SK	AT&I		BUNCH
	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION			CONTROL NUMBER
<input checked="" type="checkbox"/> LPDR:			771710139 MAY GD
<input checked="" type="checkbox"/> TIC	NSIC		
NAT LAB			
REG IV (J. HANCHETT)			
16 CYS ACRS SENT CATEGORY			



JUN 14 1977



Director of Nuclear Reactor Regulation
Attention: Olan D. Parr, Chief
Light Water Reactors Branch No. 3
U.S. Regulatory Commission
Washington, D.C. 20555

Docket Nos. 50-387
and 50-388

SUSQUEHANNA STEAM ELECTRIC STATION
COLD WEATHER CONCRETE SPECIFICATION
ER 100450 FILE 840-2, 150-1
PLA-177

Regulatory Docket File

Dear Mr. Parr:

In accordance with a telephone discussion on June 1, 1977 between your Messrs. S. Minor and C. Tan and our Messrs. R. McNamara and W. Barberich, we are submitting additional information relative to our previous request to establish a cold weather concrete freeze-protection period of three days.

The Portland Cement Association, in their Bulletin entitled "Cold-Weather Concreting" (copy attached) includes the following general requirements "Fresh concrete must be protected against the disruptive effects of freezing. This danger exists until the degree of saturation of the concrete has been sufficiently reduced by the withdrawal of mix water in the process of hydration. If no water is available from outside the concrete (curing water, for example), the time at which this reduction is accomplished will correspond approximately to the time at which the concrete attains a compressive strength of about 500 psi."

In addition, ACI306-66, Par. 1.10.1 states "Prevent damage to concrete from freezing and thawing at an early age. The degree of saturation of freshly-placed concrete, which has no access to an external source of water, will be reduced as the concrete hardens and water is used in the hydration process. Under such conditions, the time at which the degree of saturation becomes reduced below the level which would cause damage by freezing corresponds roughly with the time at which the concrete attains a compressive strength of 500 psi. At temperatures of 50 F most well proportioned concrete will reach this strength sometime during the second day."

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With reference to our Susquehanna concrete mix test program to determine the effects of freezing and cold weather curing on strength, we are enclosing a copy of the test report, as prepared by Bechtel Corporation, which supports the above-mentioned statements. The two concrete mixes which were tested were designated C-1P and C-2P. These mixes were proportioned to give a design strength of 4,000 psi at 90 days. The normal experience on production tests in that these mixes will develop at least 5,000 psi at 90 days. They are the two most frequently used mix designs for project Category I structures. The primary purpose of this test was to verify that the Susquehanna concrete mix designs behave in the same manner as indicated by the above-mentioned predictions. This purpose was accomplished and the expected results were verified.


We trust that this additional information addresses your concerns, and that you will find the proposal for three day freeze protection to be acceptable for this project.

Very truly yours,



Norman W. Curtis
Vice President-Engineering and Construction

Sworn to and subscribed before me
this 14th day of June, 1977.



Notary Public

My Commission expires March 15, 1980

RWM:JMD

