NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 8285
FILE: ENVIRO

FROM:	DATE OF DOC	DATE REC'D	LTR	TWX	RPT	OTHER
Niagara Mohawk Power Co. Syracuse, N. Y. Gerald K. Rhode	7-29-75	8-4-75	XXX			

TO:	ORIG	CC	OTHER	SENT NRC PDR	SENT LOCAL PDR
Bernard C. Rusche	1 Signed			XXX	XXX

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	XXXx			1	50-220

DESCRIPTION:
Ltr. trans the following.....

ENCLOSURES:
Main Steam Isolation Valve Position Switch, Enviro. Test Report....

(1 cy. Encl. Rec'd)
DO NOT REMOVE
ACKNOWLEDGED

PLANT NAME: Nine Mile Point # 1

FOR ACTION/INFORMATION VCR 9-29-75

BUTLER (L) W/ Copies	SCHWENCER (L) W/ Copies	ZIEMANN (L) W/ Copies	REGAN (E) W/ Copies	REID (L) W/ COPIES
CLARK (L) W/ Copies	STOLZ (L) W/ Copies	DICKER (E) W/ Copies	LEAR (L) W/ Copies	
PARR (L) W/ Copies	VASSALLO (L) W/ Copies	KNIGHTON (E) W/ Copies	SPIES W/ Copies	
KNIEL (L) W/ Copies	PURPLE (L) W/ Copies	YOUNGBLOOD (E) W/ Copies	LPM W/ Copies	

INTERNAL DISTRIBUTION

REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
NRC PDR	SCHROEDER	GRIMES	R. DIGGS (L)	BRAITMAN
OGC, ROOM P-506A	MACCARY	GAMMILL	H. GEARIN (L)	SALTZMAN
GOSSICK/STAFF	KNIGHT	KASTNER	E. GOULBOURNE (L)	MELTZ
CASE	PAWLICKI	BALLARD	P. KREUTZER (E)	
GIAMBUSSO	SHAO	SPANGLER	J. LEE (L)	PLANS
BOYD	STELLO		M. RUSHBROOK (L)	MCDONALD
MOORE (L)	HOUSTON	ENVIRO	S. REED (E)	CHAPMAN
DEYOUNG (L)	NOVAK	MULLER	M. SERVICE (L)	DUBE (Ltr)
SKOVHOLT (L)	ROSS	DICKER	S. SHEPPARD (L)	E. COUPE
GOLLER (L) (Ltr)	IPPOLITO	KNIGHTON	M. SLATER (E)	PETERSON
P. COLLINS	TEDESCO	YOUNGBLOOD	H. SMITH (L)	HARTFIELD (2)
DENISE	J. COLLINS	REGAN	S. TEETS (L)	KLECKER
REG OPR	LAINAS	PROJECT LDR	G. WILLIAMS (E)	EISENHUT
FILE & REGION (2)	BENAROYA	Benaroya	V. WILSON (L)	WIGGINTON
MIPC	VOLLMER	HARLESS	R. INGRAM (L)	
			M. DUNCAN (E)	

EXTERNAL DISTRIBUTION

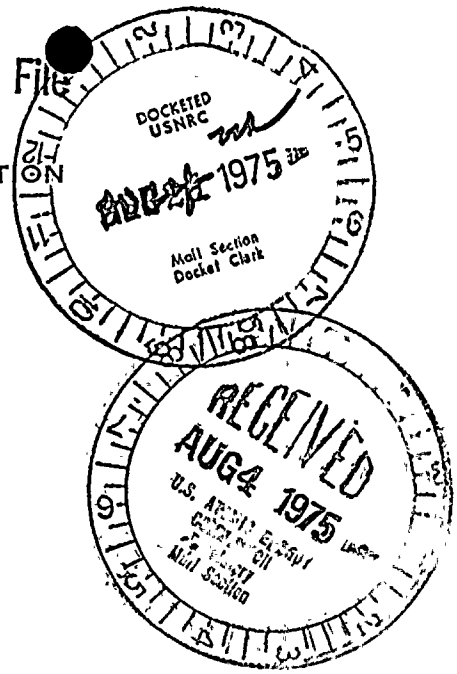
1 – LOCAL PDR Oswego N. Y.
1 – TIC (ABERNATHY)
1 – NSIC (BUCHANAN)
1 – ASLB
1 – Newton Anderson
16 ACRS ~~HOLDING~~/SENT Teets

(1)(2)(10) – NATIONAL LABS
1 – W. PENNINGTON, Rm E-201 GT
1 – CONSULTANTS
NEWMARK/BLUME/AGBABIAN

1 – PDR-SAN/LA/NY
1 – BROOKHAVEN NAT LAB
1 – G. ULRIKSON ORNL

ENCL

Regulatory Docket File



NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD WEST
SYRACUSE, N. Y. 13202

July 29, 1975

Mr. Bernard C. Rusche, Director
Office of Nuclear Reactor Regulations
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Nine Mile Point Unit #1
Docket No. 50-220

Dear Mr. Rusche:

A report on environmental qualification test results applicable to the main steam isolation valve position switch at Nine Mile Point Unit #1 is attached. This report is intended to fulfill the commitment made in Amendment No. 2 to the "Application to Convert Provisional Operating License to Full-Term Operating License."

Results are for a similar type switch successfully tested by the General Electric Company. Test conditions were more stringent than those committed.

In summary, test results indicate that the main steam isolation valve position switches will perform their required function during normal and incident conditions.

Sincerely,

Gerald K. Rhode
Vice President-Engineering

Attachment

8285

MAIN STEAM ISOLATION VALVE POSITION SWITCH

ENVIRONMENTAL TEST REPORT

Summary

This report was prepared to document the qualification of the National Acme Company limit switch model number SL-3MDP-DT. Limit switches of this design are used to monitor the position of main steam isolation valve stems and to generate scram signals.

The objective of the steam chamber test was to qualify the operation of the subject limit switches in the abnormal ambient conditions during the first 24 hours after a Loss-of-Coolant Accident. To qualify, the limit switch was required to operate for 24 hours under the controlled atmosphere. Two switches were tested for added confidence. There are minor differences between the test switch and the installed switch at Nine Mile Point Unit 1. These do not alter the applicability of the test results. (See the Discussion Section.) In addition, the test conditions were more conservative than those committed. A twenty-four hour test was performed; three hours at 103 psig and 340 F, 3 hours at 75 psig and 320 F and 18 hours at 16 psig and 250 F. As committed a test at 340 F and 62 psig was required. The above conservative testing conditions would also tend to negate any slight differences between the installed switch and the tested switch.

It has been demonstrated by the testing described herein that the switches will operate for at least 24 hours in the steam atmosphere in which it was tested. Since the test conditions conservatively simulate Loss-of-Coolant Accident ambient conditions, it is concluded that the limit switches will operate normally under the actual post-Loss-of-Coolant Accident conditions for at least 24 hours. In addition, the junction box and the hookup wire were also found to retain their integrity and function properly.

Procedure

Two limit switches were tested in accordance with the test description, entitled "Test Description, Position Switch for Main Steam Isolation Valve, Steam Environment" (attached as Exhibit 1). Briefly, the test consisted of the following. The limit switches test assembly (including the junction box and hookup wire) was placed in a steam chamber. Steam was generated to produce an environment of about 103 psig pressure and 340 F. The switches were operated during a 3 hour period. The environment was then changed to 75 psig pressure and 320 F. The switches were again operated during the next

18 hours. The actions of the limit switches were signified by on and off conditions of the light bulbs and the action of the solenoid valve connected to the limit switches. Upon removal from the test chamber, the test assembly was disassembled and inspected.

Discussion

Limit switches of the model tested are used to monitor the main steam isolation valve position and to generate scram signals. The limit switches perform their safety function within 5 to 10 minutes after the Loss-of-Coolant Accident. A test period of 24 hours was selected for margin of confidence.

There are differences between the test switch and the installed switch at Nine Mile Point Unit 1. The Nine Mile Point switch has an epoxy sealed conduit opening for the electrical leads whereas the switch tested did not. This difference is expected to improve the performance of the Nine Mile Point switch. The Nine Mile Point switch has an oil impregnated brass shaft bushing instead of the solid brass bushing on the tested switch.

Based on the above, the switches are essentially the same and the results received for the test switch are applicable to the operation of the installed switches at Nine Mile Point.

Results

An evaluation of the data received indicates that the limit switch qualifies for the abnormal ambient conditions of the first 24 hours after a Loss-of-Coolant Accident. The test itself proceeded in a routine manner, and the switches functioned normally for the 24 hour test period. Visual inspection of the test assembly revealed peeling of the paint on the surfaces of the junction box, slight charring of the lubricant, and bending of the longer sides of the junction box (inward for about 1/8 of an inch). The contacts of the switches were found intact, with no signs of pitting or burning. The hookup wires were found in good condition. There was no discoloration of the insulation. The junction box was found to have maintained its integrity. There was no trace of moisture or condensate in the junction box. The peeling of paints, and bending of the junction box did not interfere with the switch operation. The test pressure of 103 psig is much higher than the peak pressure expected, so in reality the junction box would bend even less than 1/8 of an inch. The charred lubricant did not interfere with switch operation during the test. Therefore, the switches will provide their design function during normal and incident conditions.

EXHIBIT 1

TEST DESCRIPTION

POSITION SWITCH FOR MAIN STEAM ISOLATION VALVE

STEAM ENVIRONMENT

I. Equipment To Be Tested

A. Position Switch

Manufacturer:	National Acme Mfg. Co.
Model:	SL-3MDP-DT
Rated Capacity:	125 volts, 20 amps

B. Wiring

Size:	16 Ga Stranded
Type:	General Electric Vulkene-insulated hookup wire

II. Test Facility

A. Autoclave capable of 350 F Temperature and 150 psig pressure.

B. Calrod type heater controlled by an auto transformer and a safety relay to limit maximum temperature.

C. Temperature is recorded based on output from a thermocouple located in the steam region of the autoclave. A pressure indicator is available.

III. Test Procedure

A. The two switches to be tested are mounted with a pressure-operated device to actuate the switches. Cables from the switches are contained within the autoclave and connected to wires which penetrate the autoclave. When the pressure-operated device is energized, the switch is actuated and a signal observed outside the autoclave.

B. The switches are mounted inside the autoclave and water added to immerse the heaters. The temperature is raised to boiling and the air purged from the autoclave. The temperature is raised further to the desired level and recorded. The pressure is observed and checked against saturated steam pressure for the corresponding temperature.

C. Conditions within the autoclave are held at or above the following conditions for at least the period indicated:

340 F	3 hours
320 F	3 hours
250 F	18 hours

D. The test switches are actuated from open to closed to open at the beginning, the end, and at least one other time during the test period for each temperature level. The test signal is at least 120 volts, 45 volt-amperes inrush and 25 volt-amperes steady state.

E. Criteria for successful completion

A. The signal described in III.D. above shall be observed each time the switch is actuated.