



Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101-1179 • 215/770-5151

Harold W. Keiser
Senior Vice President-Nuclear
215/770-4194

NOV 28 1988

Mr. William T. Russell
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
ENFORCEMENT ACTION 88-143-Response
TO STAFF QUESTIONS
PLA- 3120 FILES R41-2/R41-1C

Docket Nos. 50-387
and 50-388

Dear Mr. Russell:

Enclosed is information requested by Mr. Clifford J. Anderson of your staff regarding qualification of Target Rock Solenoid Valves (387/86-25-05; 388/86-28-05). This information includes comment resolutions and qualification checklist notes dating back to 1982 showing that the difference between the tested and installed valve models was recognized and addressed. Also, included is a 1984 letter from the vendor which establishes that the design differences between the two models involved are not significant to the qualification. This information was part of our qualification binder EQDF-46 prior to the NRC inspection conducted during the week of November 17, 1986. Additionally, Binder Change Notice No. 9 incorporated a similarity analysis establishing similarity between Target Rock Solenoid Valve Models 77CC-001 and 75G-002 to 75KK-201 thru 207. This BCN was prepared on November 21, 1986.

Very truly yours,

H. W. Keiser

Attachment(s)

cc: ~~Document Control Desk (Original)~~
NRC Region I
Mr. F. I. Young - NRC Sr. Resident Inspector
Mr. M. C. Thadani - NRC Project Manager

Ho Enil
Add: Clifford J. Anderson
Region I

8812020097 881128
PDR ADOCK 05000387
PDC

IE14
11

3 3 3 1 6 / 2 0 0 4



SUSQUEHANNA STEAM ELECTRIC DISTRICT
REVISION SHEET, EQDF

UNIT 1

UNIT 2

JOB NO. 8856
REVISION PAGE REV.
DRAWING NO. 46
PAGE OF

DC 150.2 - B1 REV.0

NO.	DATE	REVISIONS	BY.	CHK	APPVD	APPVD	APPVD
1	8-15-82	INCORPORATED BCN 1, 2, 3, 4, 5					
2	1-30-85	ACCEPTED BY PP&L PER UE+C AND PP&L REVIEWS WITH BCN'S #1 AND #2.					
3	1-17-85	ACCEPTED BY PP&L PER UE+C AND PP&L REVIEWS AND BCN'S #1, TSW 1/20/85					
4	9-9-83	EQDF.46 UPDATED TO INC UNIT 2 ITEMS.					

SCALE

DESIGNED

DRAWN

BY.

CHK

APPVD

APPVD

APPVD

CHECK LIST "B"

REVIEW OF TEST REPORTS

Cog. Engr. PARBETH

Signature

4/14/82
Date

M/R 8856-J-70

Gen'l Reviewer GD

Signature

4/18/82
Date

Equipment PROCESS SOLENOID VALVES

1. List the test reports submitted

VP No.	Title	Lab. No.
8856-J70-75-1	QUALIFICATION TEST REPORT AGING SEISMIC AND ACCIDENT SIMULATION TEST	

2. Compare the test reports against the test procedures and list irregularities point by point:

- a. NONE
- b.
- c.

3. Are the irregularities significant enough to invalidate the test? Discuss.

NA

4. What are the test results?

- a. VALVE FUNCTIONED AS REQUIRED THROUGHOUT TEST
- b. ONE RELAY CONTACT FAILED DURING TEST DUE TO MOISTURE LEAKAGE PAST RUBBER CEMENT SEAL.
- c.

5. What method was used for determining random failure?

NA-

NO RANDOM FAILURES OCCURRED.

6. Are the test reports:

- a. Properly signed and dated? YES
- b. Is their applicability traceable to SSES equipment? YES
- c. Was the tested equipment the same model as used at SSES? NO -

MODEL NUMBER GIVEN REPRESENTS VENDOR SHOP ORDER. LETTER FROM VENDOR STATES APPLICABILITY OF TEST DONE ON MOD # 77CC-001 TO MOD. # 75KK SUPPLIED TO SUSQUEHANNA.

COPY NO.

REPORT NO. 2375 D
PROJECT NO. 77CC
DATE 9/26/79
TOTAL PAGES 9

QUALIFICATION TEST REPORT
AGING, SEISMIC AND ACCIDENT SIMULATION TEST
OF
TARGET ROCK CORPORATION
1" SOLENOID VALVE; MODEL 77CC-001
(MODIFIED PER SK 4017)
PER REQUIREMENTS OF
IEEE 323-1974, 344-1975 and 382-1972 Standards

Prepared By

V. Liantonio

V. Liantonio

Approved By

R. Langseder

R. Langseder

TARGET ROCK CORPORATION

EAST FARMINGDALE, LONG ISLAND, N. Y.

J70-75-1

COPY NO.

BCN #2 PAGE 11 of 29

REPORT NO. 1827 B
PROJECT NO.
DATE 11/4/76
TOTAL PAGES

FF104700 8856-J70-59-1

ENVIRONMENTAL TEST REPORT

ON TRC MODEL 75G-002, 1"

"Y" PATTERN SOLENOID MOTOR VALVE

SOFT SEATED, HIGH PRESSURE VERSION

PER

PROVISIONS OF TR TEST PROCEDURE

#1674

DISTRIBUTION		
	NO.	DATE
VENDOR	1	
CLIENT	1342F	
FIELD	IFH	
Q.E.		
CIVIL		
ELECT.		
PLT. DES.		22
MECH.		
CON. SYS.	1	22
ARCH.		22
PURCH.		10
EXPED.		
INSPECT		
SCHED.		
START-UP	IFH	
RECORD	IF	DRW

BECHTEL
SAN FRANCISCO

CONDUCTED DURING SUMMER,

1976

8-31-79

ORIGINAL

VENDOR'S DRAWING REVIEW

- 1 Approved—Mfg. may proceed
- 2 Approved—Submit final dwg.— Mfg. may proceed.
- 3 Approved except as noted.—Make changes and submit final dwg.—Mfg. may proceed as approved
- 4 Not Approved—Correct and resubmit.
- 5 Approval not required.—Mfg. may proceed

Approval of this drawing does not relieve supplier from full compliance with contract or purchase order requirements.

REVIEWED	C	E	L	M	I	A	JOB NO.
							8856

BY A.M. Dain DATE 9/19/79
BECHTEL

TARGET ROCK CORPORATION

EAST FARMINGDALE, LONG ISLAND, N. Y.

ENVIRONMENTAL QUALIFICATION PROGRAM MANAGEMENT
COMMENT SHEET

Item	Comments	Resolution	
		Init.	Date
	<p><u>Comments to the Vendor</u></p> <p>a) The models supplied per reference 2(b) are 75KK. Target Rock model tested (Report No. 2375D) is 77CC-001. Provide certification that the valve operators tested are similar to the valve operators supplied under P.O. 8856-J-70. Verify and provide justification for any differences. <i>LETTER FROM P. Kneill 4-24-82</i></p> <p><i>PAGE 2 OF REPORT CLOSED. VENDOR ENCLOSED WITH REPORT</i></p> <p>b) Address any synergistic effects, if any... <i>NOT REQUIRED FOR NUREG 0588 CAT II</i></p> <p>c) Confirm that the same valve and operator were used throughout the test series. Since no serial numbers are given in the test report, it is not possible to ascertain this from the report. <i>VALVE IDENTIFIED AS 77CC-001 AND SK-4017 UNIVQUELY DESCRIBES THE VALVE CLOSED. USED THROUGHOUT THE TEST PROGRAM.</i></p> <p><i>SEE COMMENT & RESOLUTION # 7 BY DIFL, R. 406M OF 4-21-82 IN THIS SECTION. P. Kneill 4-26-82</i></p>	<p><i>ROB</i></p> <p><i>ROB</i></p> <p><i>ROB</i></p> <p><i>ROB</i></p>	<p><i>4/19/82</i></p> <p><i>4/26/82</i></p> <p><i>4/14/82</i></p> <p><i>4/14/82</i></p>

EQPM Form 3 (2/2/82)

Document Under Review

J-70 TARGET ROCK SOLENOID VALVES

8. Comment	10. Resolution
<p>36 (CONT) PL LIKE ... IS NOT EXPECTED ... LEAVE ROOM FOR DOUBT.</p>	
<p>37 PL BINDER SECTION 5.0 COMMENTS PG 8 OF 34 PARA 6.1 TEST SPECIMENS ... AN EXPLANATION OF WHY THE TEST RESULTS FOR TRC MODEL 75G-002 SOLENOID VALVE WOULD APPLY TO THEIR MODEL 75KR</p>	<p>VENDOR LETTER OF APPLICABILITY OF TEST REPORT TO VALVES PROVIDED TO SSES IS ENCLOSED IN BINDER. P. 12 OF REPORT. CLOSED. P. Howe 4-24-82</p> <p>CLOSED ROBS 4/3/82</p>
<p>38 PL BINDER SECTION 5.0 COMMENTS PG 10 OF 34 PARA 6b and 6c ... SEE COMMENT 37.</p>	<p>see above CLOSED. ROBS 4/3/82 P. Howe 4-24-82 (CLOSED)</p>
<p>39 PL PG 11 OF 34 PARA 1.1 ... THE NRC POSITION FOR RECD OPERATIONS LESS THAN 1 HR IS THAT THE EQUIPMENT MUST REMAIN FUNCTIONAL FOR THAT TIME PLUS 1 HR. (SEE NUREG 1558 SECTION 2.4.3 (4) MARGINS)</p>	<p>NO ACTION REQUIRED CLOSED. ROBS 4/3/82 P. Howe 4-24-82 (CLOSED)</p>
<p>40 PL PG 11 PARA 1.5 CHEMICAL SPRAY ... USE OF DEMINERALIZED WATER SPRAY MUST BE ADDRESSED</p>	<p>NO VALVES ARE LOCATED IN CONTAIN AREA NO SPRAY IN THE REACTOR BLD. CLOSED ROBS 4/3/82 P. Howe 4-24-82</p>

J. Howell 10/14/81

8. Comment	10. Resolution
<p>50 PAGE 22 PL VALVE LIST ADD.... RHR SV-15780 A, B.</p>	<p>DONE ROB 4/3/82 CLOSED. P. have 4-25-82 CLOSED</p>
<p>51 PAGE 23 PL Para 6.1 Test Specimen A telephone conversation with the Manufacturer is not adequate documentation. The similarity of the valves should be certified in writing from the supplier.</p>	<p>DONE. LETTER ON P. 2 OF REPORT VP 8873-J70-75-1. CLOSED. P. have 4-25-82 NOT APPLICABLE ROB 4/3/82 CLOSED</p>
<p>52 PAGE 24 (This applies to PAGE 9 ALSO) PL Para 19 Margins Pressure margin... higher than req'd. Temp. margin... higher than req'd. Radiation margin... not stated. Voltage margin... none Frequency margin... none Time margin... less than req'd. Environmental hazards... as req'd Vibration margin... unknown</p>	<p>SEE CHECKLIST A FOR A DISCUSSION OF MARGINS. NOT APPLICABLE ROB 4/3/82 CLOSED CLOSED. P. have 4-25-82</p>
<p>53 PAGE 25 PL Para 3 See comment 19</p>	<p>SEE COMMENT & RESPONSE #16. NO ACTION CLOSED. ROB 4/3/82 P. have 4-24-82 CLOSED</p>
<p>54 PAGE 25 PL Para 4a Test Results More information is required to adequately justify the failure of the position switches. If water could get into the switches in the test chamber why wouldn't it be possible for water to get inside the switches installed at the SSES?</p>	<p>THE SWITCHES WERE NOT ORIENTED THE PROPER WAY DURING STEAM TEST. TEST CONDITIONS MUCH MORE SEVERE THAN REQUIRED FOR SSES. THE SEALING COMPANIS THAT WAS USED FOR TESTING NOT USED IN ACTUAL INSTANTION. CLOSED CLOSED. P. have 4-25-82</p>

Thurwell 10/14/81



3 8 3 1 6 / 2 0 5 1 2

RECEIVED AND
BECHTEL POWER CORP.

Target Rock Corporation, P.O. Box V, 1966E Broadhollow Rd., East Farmingdale, N.Y. 11735 / Phone: (516) 293-3800

FEB 3 9 11 AM '84

TELECOPY #415-768-5105

Please refer to: C487

January 26, 1984

FEB -3 '84 0200800

Bechtel Power Corporation
Post Office Box 2965
San Francisco, CA 94119

Attention: Jim Allan
221-1289

Subject: Environmental Qualification
Bechtel P.O. 8005-J-70-AC
Susquehanna Steam Electric Station
TRC Project 75KK
Models 75KK-201 thru 207

- Reference:
- a) Telcon Allan/Crowley 1/13/84
 - b) Qualification Test Procedure 1827
 - c) Qualification Test Procedure 2375

Dear Jim:

A review of qualification documentation reveals the following:

Models 75KK-201, 202, 203, 204, 205 & 207

The unpotted coil #100617-3 was a component part of the qualification vehicle as delineated by TRP 1827 and is identical to the coil used on the above listed Models. TRP 1827 can be used as the qualifying document for the models listed due to the similarity in design, manufacture and materials to the qualified valve.

Model 75KK-206

The potted coil #300359-1 was a component part of the qualification vehicle as delineated by TRP 2375 and is similar in design, manufacture and material composition to the coil #102115-1 used on model 75KK-206. TRP 2375 can be used as the qualifying document for the models 75KK-206 due to the similarity in design, manufacture and materials to the qualified valve.

Target Rock hopes that this information will serve your qualification requirements. Please direct any questions to the attention of the undersigned.

Very truly yours,

TARGET ROCK CORPORATION

Thomas D. Crowley
Thomas D. Crowley
Contracts Manager
Power Products

TC/kb

BINDER CHANGE NOTICE

1. PAGE 1 OF 3

2. BCN NO. 9

3. JUSTIFICATION

CHANGE PACKAGE NO. _____

ATTACHED

NOT REQUIRED

4. BINDER TYPE AND IDENTIFICATION

BINDER NO.	SEC.	REV.	FILE
EQDF-46	4.0	3	R34-1
EQEL			R34-1
EQPL			R34-1
SQRT	N/A		R25

5. DESCRIPTION OF CHANGE

1. Incorporate the attached analysis in Section 4.0 of this Binder.

DC151.0-A REV. 2

7
Allen Shale 11-21-86
ORIGINATOR DATE
Richard S. Bringer 11-21-86
APPROVAL DATE

SIMILARITY ANALYSIS

The purpose of the following discussion is to establish similarity between Target Rock Solenoid Valve Models 77CC-001 and 75G-002, to 75KK-201 thru 207.

Based on numerous discussions with the Target Rock Company, and a thorough review and comparison of the vendor supplied drawings of models 75KK-201 thru 207, and the tested valve drawings, the following can be concluded:

1. Coil - The Target Rock Company purchases the coil used in all their valves from the same manufacturer. This is clearly stated in the Target Rock Report no. 1827 and has been confirmed with the vendor during telephone conversations. Therefore, the coils are identical in both valve models.
2. Terminal Boards / Blocks: In the process of manufacturing of the solenoid valves, the Target Rock Company confirmed that all their terminal blocks are made of either of two materials; Phenolic or Diallyl Phthalate (DAP). Phenolic and DAP both have activation energies of 1.04, and both exhibit the same physical characteristics, radiation tolerances, etc. The vendor has confirmed that the terminal boards are the weak-link components of their valves. Therefore, it can be concluded that the terminal blocks used in the above valves are identical.
3. O-rings: All O-rings used in the Target Rock Solenoid Valves are made of Silicone Rubber. This has been confirmed by telephone conversation with the vendor and is documented in the drawings. Silicone rubber has an activation energy of 1.14.
4. Position Switches: The non-metallic used in the position switch of these valves is Silicone Rubber. This information was provided by the vendor.

SIMILARITY ANALYSIS [CONT'D]

DIFFERENCES

The only difference between the tested valves (77C-001 and 75G-002) and the plant installed models (75KK-201 thru 205 and 207) is the potted coil connection on the tested model. Model 75KK-206 has a potted coil connection. The potted or unpotted coil connections have no affect on the qualification or the materials analysis of these valves.