



**FAX**

DATE December 15, 2017

TO US Nuclear Regulatory Commission (301.816.5151)

FROM Melanie Dirks

SUBJECT Interim Report for Potential 10 CFR 21 Notification SOR Qualification Test Report 9058-102

No. Pages 4  
(Including Cover)

Please reference the interim report details regarding SOR qualification test report 9058-102.

A handwritten signature in cursive script that reads 'Melanie Dirks'.

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December 15, 2017

Attn: Document Control Desk  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Interim Report for Potential 10 CFR 21 Notification SOR Test Report 9058-102 Revision 2

References:

1. Nuclear Regulatory Commission Inspection Report of SOR Inc. No. 99900824/2017-01
2. SOR Test Report 9058-102 Revision 2

SOR is providing this letter in accordance with 10CFR Part 21, which requires submittal of an interim report if an evaluation of an identified deviation or failure to comply that cannot be completed within sixty (60) days from the date of discovery.

Name and address of individual informing the NRC:

Melanie Dirks  
Director of Quality  
SOR Inc.  
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Lenexa, KS 66215-2003

Description of the Deviation or Failure to Comply that is being evaluated:

SOR Qualification Test Report 9058-102 Revision 2

Evaluation Status:

On October 18, 2017 a deviation in the original qualification testing of SOR safety-related switches was discovered by a NRC vendor inspection conducted from October 16-20, 2017. SOR continues to evaluate those items cited by NON 99900824/2017-201-01 Items 1 through 3 and other effects on safety related components identified by SOR.

Item 1 Qualified Life and Activation Energies

SOR will perform and list the calculations for the information already present in the existing report. The bounding conditions and heat rise will be added to the appropriate sections of report 9058-102.

Per 9058-102, Rev 2; Section 9 assumes 120 degrees F ambient and assumes switch is constantly loaded.

Effect on qualified life due to temperature rise of air in housing:

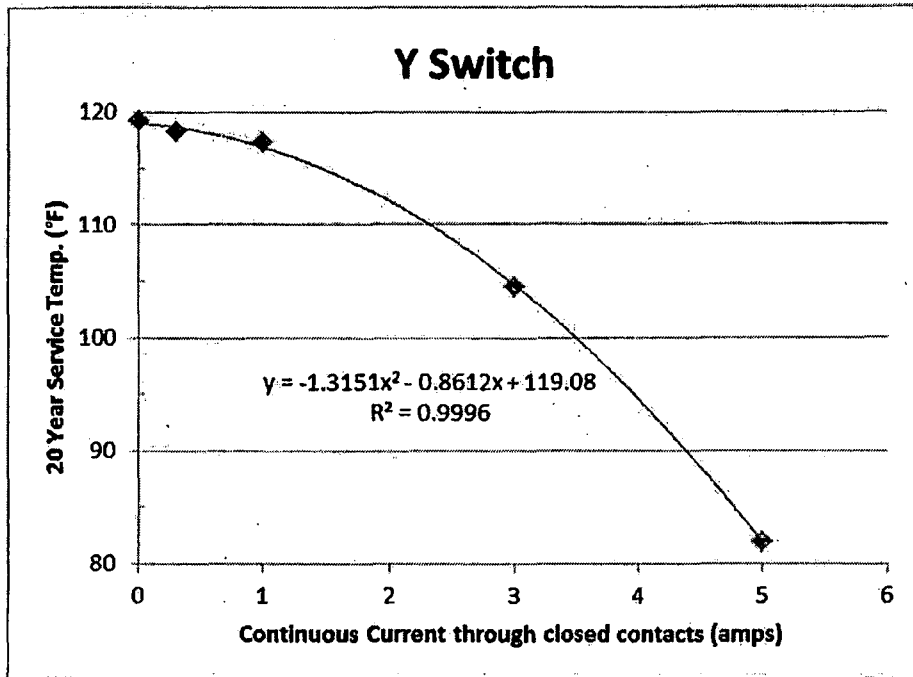
Temperature rise of air was 4 degrees F at worst case 5 amps.

This has no effect on any materials within the housing with the exception of a Y switch element.

For the Y switch element, the predominant overriding factor is the terminal temperature as noted below.

Engineered to Order with Off-the-Shelf Speed

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Reduction in qualified life due to temperature rise of wire:

Effect on epoxy – None due to high activation energy

Effect on wire – None due to the Rockbestos qualification value of 90 degrees C for 40 years

Reduction in qualified life due to temperature rise of switch element terminal:

Effect on B switch – None due to high activation energy

Effect on W switch – Pending further evaluation

Technical evaluation for activation energies will be added to report 9058-102. Further investigation will be required before completion however; at this time there is no reason to believe that the qualification will be affected.

**Item 2 Bounding conditions of the adjustable ranges for pressure and temperature**

Justification will be added to the report 9058-102. At this time there is no reason to believe that the qualification will be affected.

**Item 3 Documentation and evaluation of test anomalies and evaluation against acceptance criteria**

All anomalies not previously addressed in the report 9058-102 will be added and an evaluation will be documented which determines effect on qualification.

All issues associated with hydrostatic testing in report 9058-102 will be addressed in an NOA. SOR's evaluation of the anomaly concluded that there was no effect on qualification.

All issues associated with repeatability in report 9058-102 will be addressed in NOA's.

Temperature switches will be changed from 1% to 1.5% repeatability,

Vacuum switches will be changed from 1% to 1.5% repeatability during and post LOCA.

An anomaly on model 9RT-B45-U8-C2A-JTTNQ will be addressed in an NOA. SOR found no effect on qualification for this model.

## Review of Other Effects on Safety Related Components

### Thermal conduction test on direct mount temperature switches

There will be a similar effect on qualified life due to the proximity of temperature switches to process temperatures which may be at an elevated temperature. SOR will perform the calculations and present the results in the appropriate sections of the report.

### Additional Undocumented Anomalies

Additional undocumented anomalies have been identified including Insulation Resistance and Contact Resistance. These will be documented on NOAs. At this time there is no reason to believe that the qualification will be affected.

### Acceptance Criteria Not Clearly Defined

The report 9058-102 will be revised to address acceptance criterion which was not adequately defined. At this time there is no reason to believe that the qualification will be affected.

### Effects for Uncertainties of M&TE on Qualification

SOR is in the process of retrieving information on M&TE from all testing that was performed by NTS and SOR in 1992. This information is being evaluated to confirm whether or not there is an effect on the qualification levels. This issue is still being investigated but two areas that will likely be affected.

Qualified life – due to an unaccounted for inaccuracies of the temperature indicator used to monitor thermal aging, the qualified life will be revised from 20 years at 120 degrees F to 20 years at 119,257 degrees F service temperature.

LOCA – Due to the fact that NTS actual values for the LOCA autoclave pressure and temperature were not reported and is no longer available, it will be necessary to reduce the LOCA profile by an amount equal to the M&TE uncertainties. This issue is still being investigated.

### Review of other SOR Reports

SOR needs to review approximately 47 other reports for possible issues. These are much smaller reports with very limited scope. Most are analyses which are based on 9058-102 or 9058-112. At this time, no additional findings are anticipated.

### Completion of the Evaluation:

The qualification test report was written in 1992. Due to the age of the report, SOR continues to retrieve records and consult contracted sources. The evaluation is expected to be completed as soon as possible or by February 27, 2018.

If you have any questions regarding this matter, please contact:

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Sincerely,  
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