

In Reply, reference DRS-2022-0227
August 2, 2022

NRC Document Control Desk
U.S. Nuclear Regulatory Commission,
Washington, DC 20555-0001

Subject: 16-AAT907B Power Supply 10 CFR Part 21 Notification

To Whom It May Concern:

This Notification letter is to inform the United States Nuclear Regulatory Commission of a 10 CFR Part 21 reportable condition on NPS Part Number 16-AAT907B, 48 VDC Power Supplies (QTY 11), delivered to Wolf Creek Generating Station in August 2018 under Contract Number 775446/5.

Summary:

Plant installed: Wolf Creek Generating Station Unit 1, Burlington, KS

Basic Component: 16-AAT907B

Serial Numbers: (11)

18-17-015, 18-17-017, 18-17-018, 18-17-019, 18-17-020, 18-17-021, 18-17-022, 18-17-023, 18-17-024, 18-17-025, 18-17-026

Host Component: 8N25-12, 8N28-12, 8N26-13, 8N26-14

Host Cabinet: 9N39-13, 9N39-14, 9N39-15, 9N40-11, 9N40-12 (ESFAS & LSELS)

Nature of Deviation: Failure to meet reliable/consistent operation of cooling fan on power supply 16-AAT907B.

Background:

DRS Consolidated Controls Inc. (Currently Leonardo DRS Naval Power Systems, henceforth referred to as NPS) provided 48 VDC power supply, Part Number 16-AAT907B to Wolf Creek Generating Station in 2018. It was discovered in 2019 by Wolf Creek that there was anomalous fan performance occurring within this power supply after several months of operation. These issues were in the form of the following:

- fan noise
- fan failure to operate

The power supplies were replaced by Wolf Creek upon discovery. NPS and the power supply manufacturer were notified of the issue to begin investigation on root cause and remedial actions.

Actions Already Taken

NPS has fulfilled an order (Contract Number 789557) for new units of QTY 4, 16-AAT907B. These were delivered to Wolf Creek 3/2021.

- NPS has fulfilled an order (Contract Number 792247/2) for repair units of QTY 4, 16-AAT907B from site. These were delivered 3/2022.
- NPS has evaluated fan replacement as acceptable (Documented in ER16-0390/02) in maintaining the previous qualification of the 16-AAT907B.

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- Wolf Creek has informed DRS that they would re-install previous generation of power supply assembly, 8N to accommodate timing for repair of power supplies.
- Update of Statement of Work (SOW PR16-0502) to power supply manufacturer to prevent recurrence of component changes prior to evaluation.
- Supplier Corrective Action Requests (SCAR) 1922 and 1923 were issued to power supply manufacturer due to failure to notify of potential issues due to fan as per Purchase Order requirements.
- Internal Corrective Action Request (CAR) 1893 was opened to analyze root cause of delay in 10 CFR Part 21 evaluation.

Extent of Condition:

Wolf Creek Generating Station is the only power plant affected by this deviation.

Actions to be Taken:

- NPS to complete fulfillment of Purchase Order (Contract Number 792497/1) for new units of QTY 3, 16-AAT907B. Delivery in July 2022.
- Resolution of SCARs 1922 and 1923 with the power supply manufacturer
- Resolution of Internal (CAR) 1893 along with root cause and remedial actions.

Respectfully Submitted



Kevin Andino
Senior Director of Quality
Leonardo DRS Naval Power Systems

Attachment: DQP-SP-048A_Rev4 10 CFR Part 21 Discovery and Evaluation Checklist

Cc: Brandon Ma, Evergy
Robert Bunz, Evergy
Sandy Somerhalder, Evergy
Oliver Cueff, DRS
Mackenzie Manning, DRS
Harry Brooks, DRS
James Mena, DRS
Paul Stankiewicz, DRS
Mei Wu, DRS



10 CFR Part 21 Discovery and Evaluation Checklist

DR and or CPAR Number: <u>CAR 1893</u>		
Discovery Date: <u>4/13/2022</u> (DR disposition Date)		
Initiators:		
Name: <u>James Mena</u> Department: <u>Engineering</u>		
Name: <u>Harry Brooks</u> Department: <u>Quality</u>		
NOTE: This form must be completed within five (5) business days of the date above, which is considered the date of Discovery. (the DR Disposition date)		
Description of Non-compliance (or attach the DR to this):		
If the issue involves only an item, proceed to Question A. If issue involves a service, proceed to Question B.		
Question		Answer
A.	For issues involving only an item, did the item fail in-service in conditions other than the following: <ul style="list-style-type: none"> The in-service failure is identified as a normal end of life issue. The in-service failure is identified as a calibration or instrument tolerance issue. The in-service failure is due to normal expected usage of a component such as installation, rework, repair, post-maintenance testing, etc. The in-service failure is environmentally induced where abnormal operational parameters exceed technical requirements (for example, dirt in the system, exceeding temperature, pressure, hydraulic stresses, structural stresses, voltage, amperage, electrical load, etc.). <p>The in-service failure is identified by normal operational checks, tests, inspections, or due to trouble alarms, provided the failure is not a departure from an item's technical requirements identified in a procurement document (as determined by question C).</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If the answer to Question A is "No," the condition is <u>NOT REPORTABLE</u> by the Company under 10 CFR 21. Check the "No" box in Question A and document the basis for the determination in Section J, and note on the DR "Part 21 Reporting Not Required".		
If the answer to Question A is "Yes," the issue is <u>potentially subject</u> to 10 CFR 21. Check the "Yes" box in Question A and proceed to Question B.		

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Question		Answer
B.	<p>Does the issue involve a failure to comply that is potentially associated with a substantial safety hazard?</p> <p>Failure to comply means the manufacture, construction or operation of a licensed facility or activity, a basic component supplied for such facility or activity, or a design certification or design approval under 10 CFR Part 52; which is not in compliance with the Atomic Energy Act of 1954, as amended, any applicable rule, regulation of 10 CFR, order or license issued by the Commission, or a standard design approval under 10 CFR under 10 CFR Part 52.</p> <p>A failure to comply is considered to be potentially associated with a substantial safety hazard if the failure to comply affects the performance of a safety function.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	<p>If the answer to Question B is "No," proceed to Question C.</p> <p>If the answer to Question B is "Yes", the issue is a failure to comply that may be reportable under 10 CFR Part 21, and requires an evaluation; check the "Yes" box in Question C and document the basis for all "Yes" answers in Questions A and B in Section E.</p>	
Question		Answer
C.	<p>Does the issue involve a deviation in a basic component delivered to a purchaser for use in a facility or an activity subject to the regulations in 10 CFR Part 21?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<p>If the answer to Question C is "No," 10 CFR Part 21 does not apply. No further investigation is necessary and an evaluation is not required. Check the "No" box in Question G and document the basis for all "NO" answers in Questions B and C in Section D.</p> <p>If the answer to Question C is "Yes," the issue is a deviation that may be reportable under 10 CFR Part 21, and requires an evaluation, check the "Yes" box in Question C and document the basis for all "Yes" answers in Questions A and C in Section E.</p>	
Section D	<u>Evaluation is NOT REQUIRED:</u>	
	<p>Document basis for determining the issue is not a deviation or failure to comply potentially associated with a substantial safety hazard. Attach this form and any supporting documentation to the DR/CAPA (<i>No further action is required once the basis has been documented.</i>)</p>	
Section E	Evaluation is REQUIRED: YES (See Evaluation at end of report)	
	<p>Document basis for determining the issue is a deviation or failure to comply potentially associated with a substantial safety hazard, and record the date this documentation was completed. Attach this form and any supporting documentation to the DR/CPAR (<i>This is the point of discovery, and an evaluation is required. Proceed to Question F.</i>)</p>	

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Part 21 Evaluation Section		
<i>(If during the course of performing the evaluation, it is determined it cannot be completed within 60 days of the Point of Discovery, as documented in Section J, proceed to Section M and complete an interim report.)</i>		
Question		Answer
F	Does the responsible officer have actual knowledge that the NRC has been adequately informed of the defect or failure to comply.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	<p>If the answer to Question F is "Yes," evaluation and notification are not required. Check the "Yes" box in Question G and document the basis in Section J.</p> <p>If the answer to Question F is "No," the deviation or failure to comply must be evaluated under 10 CFR 21. Proceed to Question G.</p>	
G	Does the entity have the capability to perform an evaluation of the deviation or failure to comply potentially associated with a substantial safety hazard?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
For Suppliers	<p>If the answer to Question G is "No," the evaluation of the deviation or failure to comply potentially associated with a substantial safety hazard must be transferred to the purchaser(s)". Check the "No" box in Question G, notify the purchaser(s) within five (5) days that the evaluation is being transferred and they now are responsible for performing the evaluation in accordance with 10 CFR 21.21(b), and document this in Section I.</p> <p>If the answer to Question G is "Yes," the evaluation of the deviation or failure to comply potentially associated with a substantial safety hazard must be performed by the Company under 10 CFR 21. Check the yes box in Question G and proceed to Question H.</p>	
For Purchasers	<p>If the answer to Question H is "No," assistance is need to perform the evaluation of the deviation or failure to comply potentially associated with a substantial safety hazard. Check the "No" box in Question G, obtain assistance to perform the evaluation and proceed to Question H.</p> <p>If the answer to Question G is "Yes," the evaluation of the deviation or failure to comply potentially associated with a substantial safety hazard must be performed by the Company under 10 CFR 21. Proceed to Question H</p>	
Question		Answer
H	Could the deviation or failure to comply create a substantial safety hazard, if it were to remain uncorrected?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<p>If the answer to Question H is "No," the deviation or failure to comply cannot create a substantial safety hazard, if it were to remain uncorrected, and is <u>NOT Reportable</u> to the NRC.</p> <p>Check the "No" box in Question H and document the basis for the "No" response in Section J.</p> <p>If the answer to Question H is "Yes," the defect or failure to comply could create a substantial safety hazard if it were to remain uncorrected, and <u>IS REPORTABLE</u> by the Company under 10 CFR 21. Check the "Yes" box in Question H and proceed to Section K.</p>	



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Section I	(For suppliers only) Transfer of evaluation.	
	Document the basis for transferring the evaluation and the notification of purchasers, including date. <i>(No further action is required once the basis has been documented and purchaser notification)</i> Date Purchaser(s) notified: MM/DD/YYYY	
Section J	Notification is NOT REQUIRED:	
	Document basis for determining the issue is not reportable. i.e., the deviation or failure to comply could not create a substantial safety hazard, if it were to remain uncorrected, or the defect or failure to comply has been previously reported to the NRC. Attach this form and any supporting documentation to the DR/CPAR <i>(No further action is required once the basis has been documented.)</i>	
Section K	Notification is REQUIRED: YES	
	Document basis for determining the issue is a reportable defect or failure to comply (i.e., it could create a substantial safety hazard, if it were to remain uncorrected), and record the date this documentation was completed. Notify the responsible officer of this determination within five (5) days of the completion of the evaluation and document the date they were notified. Attach this form and any supporting documentation to the DR/CPAR (Proceed to Section M to document the notification and reporting to the NRC.) Date Evaluation was Completed: 06/09/2022 Date the Director or Responsible Offices was Notified: 06/14/2022	
Section M	Documentation of notification and reporting to the NRC.	
<u>Interim Report</u>	If during the course of performing the evaluation, it is determined it cannot be completed within 60 days of the Point of Discovery, as documented in Section J, an interim report must be submitted to the NRC within 60 days of the Point of Discovery. Date Interim Report was submitted to the NRC: MM/DD/YYYY Interim Report included all required information: <input type="checkbox"/> Yes <input type="checkbox"/> No Document confirmation the NRC received the Interim Report:	
<u>Initial Notification</u>	If Notification is required (Section K), then the responsible officer, or their designee, must provide the NRC initial notification within two (2) days of the responsible officer or their designee being notified. Date <u>Initial</u> Notification was provided to the NRC: 08/02/2022 Document method to provide Initial Notification and confirmation the NRC receive it: Fax	



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<u>Written Report</u>	<p>If Notification is required (Section K), then the responsible officer, or their designee, must submit a written report to the NRC within 30 days of the director or responsible officer being notified.</p> <p>Date Written Report was submitted to the NRC: 08/02/2022</p> <p>Written Report included all required information: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Document confirmation the NRC received the Written Report</p>		
Decision Summary			
<p>We, the undersigned, have evaluated the information provided and have made the following determination(s):</p>			
<input type="checkbox"/>	A substantial safety hazard does not exist		
<input type="checkbox"/>	DRS does not have the capability to determine if a substantial safety hazard exists		
<input checked="" type="checkbox"/>	A substantial safety hazard exists (Begin Notification Process)		
SIGNATURES			
Department	Name	Title	Date
Engineering	Mena, James <small>Digitally signed by Mena, James DN: cn=Mena, James ou=Employee Reason: I am approving this document Location: Date: 2022.06.20 11:45-04:00</small> <hr/> James Mena	Principal Electrical Engineer	<hr/> 06/20/2022
Quality Assurance:	Brooks, Harry <small>Digitally signed by Brooks, Harry DN: email=Harry.Brooks@drs.com, cn=Brooks, Harry, o=DRS Technologies, Inc Date: 2022.06.20 11:53:25 -04'00'</small> <hr/> Harry Brooks	Senior Quality Engineer	<hr/> 06/20/2022
Program Management	Mastronardi, Robert <small>Digitally signed by Mastronardi, Robert DN: cn=Mastronardi, Robert ou=DRS Technologies, Inc o=DRS Technologies, Inc Reason: I am approving this document Location: Date: 2022-06-20 14:10-03:00</small> <hr/> Robert Mastronardi	Senior Director, Program Management	<hr/>



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Safety Evaluation:

Wolf Creek identified instances of abnormal activity on the DRS Part Number 16-AAT907B, installed in host assemblies 8N25-12, 8N28-12, 8N26-13 and 8N26-14.

Extent of Condition:

Wolf Creek is the only affected Power Plant that is subject to this notice.

The abnormal conditions reported were abnormal fan noise (3 total) and fan failure (2 total) as indicated by the Fan Failure LED present on host assembly 8N power supply assembly.

Fan Noise:

1. Occurred 09/28/2019
 - a. Ran for approximately 2 months prior to abnormal fan noise
2. Occurred 06/08/2021
 - a. Ran for approximately 2 months prior to abnormal fan noise
3. Occurred 01/20/2022
 - a. Ran for approximately 9 months prior to abnormal fan noise

Fan Failure:

1. Occurred 12/14/2021
 - a. Ran for approximately 8 months prior to fan failure
2. Occurred 02/05/2022
 - a. Ran for approximately 9 months prior to fan failure

It was noted that voltage output was not significantly affected as such did not lose its safety related function but were replaced with spare units as a precaution.

After further investigation, the manufacturer of the 16-AAT907B power supply identified varying degrees of issues with cooling fan (FAN1). The power supply vendor has decided to discontinue the use of the suspect cooling fans and replace them with fans from another fan supplier that show an increase in the reliability of the cooling fan. Returned 16-AAT907B power supplies are being updated with the new cooling fans (FAN2).

DRS began providing new 16-AAT907B power supplies in 3/2021 which utilized the new fan FAN2 described above. DRS has evaluated FAN2 as acceptable in maintaining the previous qualification of the 16-AAT907B.

It is concluded that this condition is a deviation in a basic component as

1. Cooling fan is a necessary part of the design of the power supply.
 - a. It was not seen to have degraded the voltage output of the power supply at the site when noise and loss of cooling was found.
2. Due to the nature of the FAN1 failures, DRS cannot provide reasonable assurance that the power supply will perform its safety related function for the intended life of design.

Therefore, all instances of the 16-AAT907B power supply using FAN1 need to be updated with a 16-AAT907B power supply with FAN2.