

June 15, 2001

10 CFR Part 50  
Section 50.73

U S Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

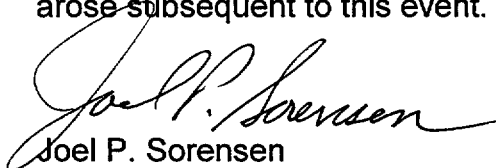
**PRAIRIE ISLAND NUCLEAR GENERATING PLANT**  
Docket Nos. 50-306 License Nos. DPR-60

**LER 2-01-02: Emergency Diesel Generator Out of Service  
Longer than Technical Specification Allowed Outage Time**

---

The Licensee Event Report for this occurrence is attached. In the report, we made no new NRC commitments. Please contact us if you require additional information related to this event.

Note that additional issues related to the D5 and D6 Emergency Diesel Generators arose subsequent to this event. These issues will be addressed in LER 2-01-03.



Joel P. Sorensen  
Site Vice President  
Prairie Island Nuclear Generating Plant

c: Regional Administrator - Region III, NRC  
NRR Project Manager, NRC  
Senior Resident Inspector, NRC  
James Bernstein, State of Minnesota

Attachment

IE22

<b>NRC FORM 366</b> (1-2001)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		<b>APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2001</b> Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.																					
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)																									
<b>FACILITY NAME (1)</b> Prairie Island Nuclear Generating Plant Unit 2			<b>DOCKET NUMBER (2)</b> 05000 306		<b>PAGE (3)</b> 1 OF 4																				
<b>TITLE (4)</b> Emergency Diesel Generator Out of Service Longer than Technical Specification Allowed Outage Time																									
<b>EVENT DATE (5)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">MO</td> <td style="width:33%;">DAY</td> <td style="width:33%;">YEAR</td> </tr> <tr> <td>04</td> <td>16</td> <td>01</td> </tr> </table>			MO	DAY	YEAR	04	16	01	<b>LER NUMBER (6)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">YEAR</td> <td style="width:33%;">SEQUENTIAL NUMBER</td> <td style="width:33%;">REV NO</td> </tr> <tr> <td>01</td> <td>02</td> <td>00</td> </tr> </table>		YEAR	SEQUENTIAL NUMBER	REV NO	01	02	00	<b>REPORT DATE (7)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">MO</td> <td style="width:33%;">DAY</td> <td style="width:33%;">YEAR</td> </tr> <tr> <td>06</td> <td>15</td> <td>01</td> </tr> </table>		MO	DAY	YEAR	06	15	01	
MO	DAY	YEAR																							
04	16	01																							
YEAR	SEQUENTIAL NUMBER	REV NO																							
01	02	00																							
MO	DAY	YEAR																							
06	15	01																							
			<b>OTHER FACILITIES INVOLVED (8)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;">FACILITY NAME</td> <td style="width:40%;">DOCKET NUMBER</td> </tr> <tr> <td> </td> <td> </td> </tr> </table>			FACILITY NAME	DOCKET NUMBER																		
FACILITY NAME	DOCKET NUMBER																								
<b>OPERATING MODE (9)</b> 1			<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)</b>																						
<b>POWER LEVEL (10)</b> 100			20.2201(b)      20.2203(a)(3)(ii)      50.73(a)(2)(ii)(B)      50.73(a)(2)(ix)(A)																						
			20.2201(d)      20.2203(a)(4)      50.73(a)(2)(iii)      50.73(a)(2)(x)																						
			20.2203(a)(1)      50.36(c)(1)(i)(A)      50.73(a)(2)(iv)(A)      73.71(a)(4)																						
			20.2203(a)(2)(i)      50.36(c)(1)(ii)(A)      50.73(a)(2)(v)(A)      73.71(a)(5)																						
			20.2203(a)(2)(ii)      50.36(c)(2)      50.73(a)(2)(v)(B)      OTHER																						
			20.2203(a)(2)(iii)      50.46(a)(3)(ii)      50.73(a)(2)(v)(C)      Specify in Abstract below or in NRC Form 366A																						
			20.2203(a)(2)(iv)      50.73(a)(2)(i)(A)      50.73(a)(2)(v)(D)																						
			20.2203(a)(2)(v)      ✓ 50.73(a)(2)(i)(B)      50.73(a)(2)(vii)																						
			20.2203(a)(2)(vi)      50.73(a)(2)(i)(C)      50.73(a)(2)(viii)(A)																						
			20.2203(a)(3)(i)      50.73(a)(2)(ii)(A)      50.73(a)(2)(viii)(B)																						
<b>LICENSEE CONTACT FOR THIS LER (12)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"> <b>NAME</b>          Jeff Kivi       </td> <td style="width:50%;"> <b>TELEPHONE NUMBER (Include Area Code)</b>          651-388-1121       </td> </tr> </table>						<b>NAME</b> Jeff Kivi	<b>TELEPHONE NUMBER (Include Area Code)</b> 651-388-1121																		
<b>NAME</b> Jeff Kivi	<b>TELEPHONE NUMBER (Include Area Code)</b> 651-388-1121																								
<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>CAUSE</th> <th>SYSTEM</th> <th>COMPONENT</th> <th>MANUFACTURER</th> <th>REPORTABLE TO EPIX</th> <th>CAUSE</th> <th>SYSTEM</th> <th>COMPONENT</th> <th>MANUFACTURER</th> <th>REPORTABLE TO EPIX</th> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>						CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX																
<b>SUPPLEMENTAL REPORT EXPECTED (14)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:40%;"> <b>YES (If yes, complete EXPECTED SUBMISSION DATE).</b> </td> <td style="width:10%;"> <input checked="" type="checkbox"/> </td> <td style="width:10%;"> <b>NO</b> </td> <td style="width:15%;"> <b>EXPECTED SUBMISSION DATE (15)</b> </td> <td style="width:10%;"> <b>MONTH</b> </td> <td style="width:10%;"> <b>DAY</b> </td> <td style="width:10%;"> <b>YEAR</b> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>						<b>YES (If yes, complete EXPECTED SUBMISSION DATE).</b>	<input checked="" type="checkbox"/>	<b>NO</b>	<b>EXPECTED SUBMISSION DATE (15)</b>	<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>													
<b>YES (If yes, complete EXPECTED SUBMISSION DATE).</b>	<input checked="" type="checkbox"/>	<b>NO</b>	<b>EXPECTED SUBMISSION DATE (15)</b>	<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>																			
<b>ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)</b> <p>On April 16, 2001, the Prairie Island D6 emergency diesel generator (EDG) exceeded the Allowed Outage Time (AOT) of Technical Specification 3.7.B.1, which allows one EDG to be inoperable for up to seven days. D6 was declared out of service on April 9, 2001, for a 24-hour surveillance run. That run was terminated by operators when D6 engine 2 developed high crankcase pressure.</p> <p>On April 16, 2001, Prairie Island requested a Notice of Enforcement Discretion (NOED) to extend the D6 AOT to ten days to allow completion of the necessary repair and testing to restore D6 operability. The NRC granted the NOED on April 16, 2001. D6 was repaired, tested, and declared operable on April 17, 2001.</p> <p>Subsequent events dealing with D6 (and D5) will be addressed in LER 2-01-03.</p>																									

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Prairie Island Nuclear Generating Plant Unit 2	05000 306	01 - 02 - 00			2 OF 4

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

**EVENT DESCRIPTION**

On April 16, 2001, the Prairie Island D6 emergency diesel generator<sup>1</sup> (EDG) exceeded the Allowed Outage Time (AOT) of Technical Specification 3.7.B.1, which allows one EDG to be inoperable for up to seven days. D6 was declared out of service at 0930 on April 9, 2001, for a 24-hour surveillance run. That run was terminated by operators when D6 engine<sup>2</sup> 2 developed high crankcase pressure.

On April 16, 2001, Prairie Island requested a Notice of Enforcement Discretion (NOED) to extend the D6 AOT to ten days to allow completion of the necessary repair and testing to restore D6 operability. The NRC gave verbal approval of the NOED at about 0800 on April 16, 2001.

The D6 Engine 2 Cylinder B1 piston, piston rings, and cylinder liner were replaced. Following a post-maintenance break-in run and a 24-hour post-maintenance test, another borescopic investigation of Cylinder B1 and Cylinder A1 was performed. Some unusual indications were identified by the second borescopic inspection of Cylinder B1. D6 was operated for another 12 hours and a third borescopic inspection was performed. This inspection indicated that Cylinder B1 did not show indication that the unusual indications were signs of degradation. A fast-start test was conducted and D6 was declared operable at 2331 on April 17, 2001.

**CAUSE OF THE EVENT**

The root cause evaluation of the event (exceeding the AOT of Technical Specification 3.7.B.1) is ongoing, however, the root cause team has identified a number of time delays, that if eliminated, could have prevented this event from exceeding the 7-day AOT, these include:

1. A delay in performing the first borescope inspection – there were not enough engineering resources available and the plant staff did not think there was a major engine problem and, thus, did not immediately increase staffing levels and isolate D6 for borescoping.
2. O-ring availability – warehouse inventory system did not accurately reflect stock level.
3. During maintenance, plant staff experienced difficulties installing the connecting rod for one cylinder – plant staff elected to wait for the SACM technical representative to arrive before completing the installation.
4. SACM Technical Representative availability – Prairie Island maintenance personnel have limited experience with these types of repairs and elected to wait for the SACM technical representative to arrive from France.
5. The sequence of post-maintenance testing (including borescoping) could have been more efficient.

<sup>1</sup> (EIS Component Identifier: DG)

<sup>2</sup> (EIS Component Identifier: EMG)

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Prairie Island Nuclear Generating Plant Unit 2	05000 306	01 - 02 - 00			3 OF 4

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

The cause of the high crankcase pressure was blow-by in one cylinder of one of D6's two diesel engines. Subsequent events on D5 and D6 determined the cause of the blow-by. This root cause will be described in detail in LER 2-01-03.

### ANALYSIS OF THE EVENT

Prairie Island requested and received a NOED from the NRC to get enforcement discretion for extending the Allowed Outage Time for the D6 EDG from seven to ten days. Prairie Island did not request a Technical Specification change. The D6 EDG was out of service for longer than allowed by the AOT of Prairie Island Technical Specification 3.7.B.1. Thus, this event is reportable per 10CFR 50.73(a)(2)(i)(B), operation prohibited by Technical Specifications.

#### Loss Of Safety Function and Other Performance Indicator Impact

Because subsequent events have a bearing on the discussion of loss of safety function, whether this event represents a loss of safety function will be discussed in LER 2-01-03.

This event did affect the Safety System Unavailability Performance Indicator for Unit 2 Emergency AC Power. The impact on planned and unplanned unavailability of this event is the amount of time the D6 was unavailable beginning on April 9, 2001 when D6 was removed from service for the 24-hour surveillance and ending on April 17, 2001 when D6 was declared operable (approximately 200 hours of unavailability for D6). Also included is about one hour of unavailability on D5 for Technical Specification required testing.

Because subsequent events have a bearing on the discussion of fault exposure time, the impact this event had on fault exposure time will be discussed in LER 2-01-03.

#### Significance Determination

To support the request for NOED, Prairie Island completed a risk assessment for allowing the AOT of Technical Specification 3.7.B.1 to be extended from seven days to ten days. The risk assessment determined the risk to be very low. Prairie Island did not use the entire additional three days that were granted in the NOED, thus, the NOED risk assessment bounds the risk associated with this event (specifically, the exceeding of the 7-day AOT of Technical Specification 3.7.B.1).

#### Subsequent Issues with D5 and D6

Following the restoration of D6 operability, subsequent issues arose which called the operability of D5 and D6 into question. The analysis of these issues will be included in LER 2-01-03.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Prairie Island Nuclear Generating Plant Unit 2	05000 306	01 - 02 - 00			4 OF 4

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

**CORRECTIVE ACTION**

1. The D6 EDG has been repaired and tested. D6 was declared operable on April 17, 2001.
2. The exceeding of the 7-day AOT is being evaluated in a Condition Report (GEN 20013515) in the Prairie Island Corrective Action process. Corrective actions to prevent recurrence will be identified by the Condition Report.

**FAILED COMPONENT IDENTIFICATION**

One of the diesel engines on the D6 EDG exhibited high crankcase pressure during a 24-hour surveillance run. The high crankcase pressure was attributed to blow-by in Cylinder B1 of Engine 2 of the D6 EDG. The cylinder liner, piston, and rings were replaced. D6 was manufactured by SACM.

Additional investigation of the blow-by will be discussed in LER 2-01-03.

**PREVIOUS SIMILAR EVENTS**

No previous similar EDG issues have been reported in the last three years.