

General Information or Other (PAR)

Event # 42637

<b>Rep Org:</b> NAK ENGINEERING INC	<b>Notification Date / Time:</b> 06/13/2006 15:29 (EDT)
<b>Supplier:</b> NORDBERG	<b>Event Date / Time:</b> 06/13/2006 (PDT)
	<b>Last Modification:</b> 06/13/2006
<b>Region:</b> 4	<b>Docket #:</b>
<b>City:</b> WINDSOR	<b>Agreement State:</b> Yes
<b>County:</b>	<b>License #:</b>
<b>State:</b> CA	
<b>NRC Notified by:</b> NAK ENGINEERING	<b>Notifications:</b> DAVID AYRES R2
<b>HQ Ops Officer:</b> MARK ABRAMOVITZ	THOMAS BLOUNT IRD
<b>Emergency Class:</b> NON EMERGENCY	IAN JUNG NRR
<b>10 CFR Section:</b> 21.21 UNSPECIFIED PARAGRAPH	

10 CFR PART 21 NOTIFICATION - DEFECTIVE NORDBERG EMERGENCY DIESEL GENERATOR VALVE SEAT INSERTS

The manufacturer provided the following information via facsimile:

"Significant Safety Hazard regarding the potential of Nordberg Valve Seat Inserts (VSI) to 'drop' from the bore of the cylinder head into the cylinder with probable resulting damage to the cylinder head, power valves, piston, cylinder liner, exhaust manifold and turbocharger which could result in the loss of the intended 'Safety Function' of the EDG.

"There exists a potential problem with the original specification for the specified value of interference fit of the inlet and exhaust Valve Seat Insert (VSI) in the area between the cylinder head bore and the VSI."

Two sites, Brunswick and McGuire, had the defective parts with Brunswick already having changed out the affected parts.

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**NAK Engineering Inc.**  
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Document Control Desk  
Nuclear Regulatory Commission  
Operations Center  
Washington, DC 20555  
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June 13, 2006

### 10 CFR Part 21 Reporting

Re: Nordberg Diesel Emergency Diesel Generators

**Subject:** Significant Safety Hazard regarding the potential of Nordberg Valve Seat Inserts (VSI) to "drop" from the bore of the cylinder head into the cylinder with probable resulting damage to the cylinder head, power valves, piston, cylinder liner, exhaust manifold and turbocharger which could result in the loss of the intended "Safety Function" of the EDG

In accordance with the requirements of Title 10, Chapter 1, Code of Federal Regulations, Part 21, NAK Engineering, Inc. hereby notifies the commission of a potential defect or condition in a component of the Nordberg Diesel Emergency Diesel Generator (EDG)

There exists a potential problem with the original specification for the specified value of interference fit of the inlet and exhaust Valve Seat Insert (VSI) in the area between the cylinder head bore and the VSI.

<u>Utility</u>	<u>Site</u>	<u>Serial Number(s)</u>	<u>Model</u>
Progress Energy	Brunswick Nuclear Project***	1030-1328/1331	FS 1316HSC

\*\*\*Note: Progress Energy has completed the change out of all VSI's with the new interference fit requirements in all the Brunswick Nordberg units after experiencing a "dropped" VSI several years ago.

Duke Energy	McGuire Nuclear Station	1030-1270/1273	FS 1316HSC
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#### Valve Seat Insert Interference Fit Upgrade and Recommendation

Part Numbers: All 8477-27XX Series Valve Seat Inserts with Counter-bored cylinder heads (Insert Part Number(s): 8477-2740, 8477-2772, 8477-2779, 8477-2782 etc.... ) for use on Nordberg Cylinder Heads 4262-6907 and 4262-6908.

**Problem:** Nordberg Manufacturing Company originally specified the Valve Seat Insert interference fit of .0015" to .003" from the seat bores on cylinder heads to the Valve Seat Insert. There have been noted failures both on Nuclear (Brunswick EDG's) and various commercial of the Nordberg Valve Seat Inserts dropping into the cylinder resulting in damage. This "dropping" is due to insufficient interference fit.

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Page 2 of 2

NAK Engineering, Inc., the current Nordberg OEM has revised the Original Nordberg Specification for the required interference fit. The recommendation is that all Valve Seat Inserts have an interference fit of .0025" to .004" into the cylinder head bore. The expanded interference will allow the seat to be held more securely within the seat bore of the head, but not so tight as to induce potential cylinder head cracking.

**Recommendation:** It is recommended that seats be fitted to the cylinder head bore with the new specification during maintenance. Machining of the cylinder head is sometimes required to true up the bore. For this, Valve Seat Inserts are available in various oversized dimensions should the cylinder head valve seat bores require such machining.

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