National Transportation Safety Board

Washington, D.C. 20594
Office of Marine Safety

Date: 11/2&4/05

Place: NTSB HQ

Person Interviewed: Dave McInnes, Marine Service Supervisor, Ring Power Corp.

Interview Conducted By: Brian Curtis,
Marine Engineering Investigator
National Transportation Safety Board

INTRODUCTION

Mr. Dave McInnes was interviewed regarding the investigation of the fire onboard the *Express Shuttle II,* which occurred on Oct. 17, 2004. I spoke to him telephonically from his office at Ring Power, Inc., in Riverview, Florida. Mr. McInnes is the Marine Service Supervisor for Ring Power Corporation, the local Caterpillar engine service provider for the operator of the Express Shuttle II. The text that follows is not a verbatim record of the conversation. It has been developed from my handwritten notes of the conversation and is correct and complete to the best of my knowledge and recollection. These notes have been reviewed by Mr. McInnes for his concurrence in their accuracy.

INTERVIEW

Mr. McInnes told me that on this Caterpillar 3408 engine's turbocharger housing, if the engine did not have a water-cooled turbocharger housing and exhaust manifolds, you would expect to see those components to have surface temperatures of approximately 1100 degrees F when the engine was under a loaded condition. However, this particular engine was equipped with water-cooled turbocharger housings and exhaust manifolds,

thus you would expect to encounter surface temperatures in the 400 degree F range.

I further asked him, if the exhaust gas piping manifold leading from the cylinders to the turbochargers were water-cooled, is there any point along the piping that is not water-cooled, where leaking, partially atomized fuel, as was present on the Express Shuttle II, may find a heat source with a high enough temperature to auto-ignite the fuel. He told me there was such a piece along the engine's exhaust manifold piping. He indicated that the elbow-shaped section of manifold exhaust gas piping, the piece that connects directly to the turbocharger inlet (neck piece), is a section which does not have a water-cooled jacket around it. Mr. McInnes said that this section would have surface temperatures hot enough for the partially-atomized, or misted, fuel to auto-ignite, given that gases in excess of 1000 degrees Fahrenheit pass through this pipe as they enter the turbocharger, when the engine is under a considerable load, as was the case that day on the Express Shuttle II.

Mr. McInnes stated that most of the engine's external surface temperatures were approximately 180 degrees F due to the fact that the engine's cooling system is regulated by a thermostat that keeps the cooling water at this temperature.

Regarding the erratic starboard engine speeds the captain stated he encountered just before the engine stopped, Mr. McInnes said that this engine speed erratic fluctuation would be a resultant if the engine were to encounter the ingestion of raw fuel into the turbocharger fresh air inlet.

Mr. McInnes also gave us a description of the path of the raw cooling water once it exits the raw water pump. That would be as follows: from the raw water pump, the water would then flow through engine's main heat exchanger, on to the transmission and fuel oil coolers, to the turbocharger housings, at which point it exits the engine and leaves the vessel after it is mixed into the vessel's wet exhaust system.

END OF INTERVIEW

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Brian Curtis