



CAUSE DESCRIPTION (CONTINUED)

Inspection of the engine prior to starting permitted detection of the water and prevented further damage to the engine.

This is the sixth cylinder head on this engine to be found with a crack, in a time frame of just over three months. USRE S1-76-07 listed the other incidents and indicated the probable cause as either a cylinder heat imbalance or a heat stress as a result of an engine overheat condition at some previous time.

The location of #7 head on the engine does not conform to the previous pattern and tends to eliminate a cylinder heat imbalance as the probable cause. It appears that a previous engine overheat condition has heat stressed the cylinder heads to such a point that premature metal fatigue from vibration is causing the cracks to appear between the exhaust valve seats. This is an area of high heat and vibration stress.

To ensure the reliability of this engine, the weekly testing of this engine as outlined in USRE S1-76-07 will continue. New cylinder heads have been ordered and total replacement should preclude any additional failure. This course of action has been thoroughly discussed with the manufacturer's representative who concurs with this procedure.

ADDITIONAL FACTORS (CONTINUED)

Accordingly, no hazard to the safety or health of the general public existed.