

Safety Alert

MMS

U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

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Contact: Glynn T. Breaux
(504) 736 2560

Dresser-Rand D-VIP Compressor Cylinder Head Replacement for Acorn Nut Part Number TEVM0001

Recently, a Field Gas Compressor (FGC) suffered a fracture and ejection of the 3rd stage compressor cylinder head. The ejected head struck an adjacent gas turbine air inlet housing approximately 35 feet away, with no report of personnel injury or environmental pollution. The FGC was immediately secured and locked-out of service.

A MMS investigation into the incident revealed the following:

- Chloride corrosion and pitting of the acorn nut on the FGC's 3rd stage compressor cylinder head, believed to be caused by salt water entrained in the ambient air or in the process gas stream, resulted in failure and ejection of the acorn nut;
- When corrosion inside the cylinder head was noted during a compressor overhaul in February 2008, corrosion on the interior surface of the acorn nut was machined and a layer of chrome was applied to the machined surface. The post-incident examination revealed that all of the corrosion had not been removed from acorn nut bore during the repair process. Had the repair procedure been properly executed, the incident may have been averted.
- Dresser-Rand issued a Product Safety Warning notifying customers of reported instances of corrosion leading to the separation of the "acorn nut" of the Variable Volume Clearance Pocket Assembly. This assembly was utilized in production between 1997 and 2000. A naked eye visual inspection of the acorn nut will not reveal to what extent corrosion has occurred.

Therefore, the MMS recommends the following:

- All operators possessing Dresser-Rand D-VIP compressors should consult with their maintenance personnel and manufacturer's representative to determine any action to be taken.

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