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NEWS RELEASE

MOV LONG LIFE QUALIFIED FOR STEMS

Reference: Guérout, F., 'MOV Stem/Stem Nut Lubrication: Assessment of MOV Long Life grease', 2008 MUG Meeting, Orlando, FL.

Introduction: Esso/Exxon Mobil Unirex* EP1 was used by most CANDU stations for the stems but in 2004 Exxon Mobil decided to reformulate the product. This is a lithium complex grease. Testing reportedly showed that the new formulation is less thermally stable and MOV Long Life becomes the "targeted replacement candidate".

Testing: The work was undertaken at AECL to qualify MOV Long Life by comparison with Unirex EP1 in thermal and radiation exposures simulating service and loss of coolant accident (LOCA) conditions. Aging and the grease analytical testing was done at Kinectrics Laboratories and full scale testing using a Limitorque SMB-0 were performed by AECL in Chalk River, Ontario. Grease preparation included;

- Bulk oven aging vertical plates at 120°C (248°F) for 1344 hours,
- Irradiation to 10 Mrad, and
- Irradiation to 85 Mrad to simulate 5 years service plus post LOCA conditions.

The testing also included mixing 80% MOV Long Life and 20% Unirex EP1 on the stems to duplicate in-service regreasing.

Results:

- Rheological Analysis – MOV Long Life very shear stable.
- Acid Build-up – MOV Long Life is very stable
- Slumping, Bleeding and Dropping Point – MOV Long Life had no slumping, <10% bleed and a high dropping point for aged and irradiated samples.
- Infrared Analysis – MOV Long Life was well below rejection criteria.
- Stem testing – MOV Long Life gave repeatable and consistent coefficients of friction and showed lower wear metals than the new Unirex EP1.

Conclusions: It was said that MOV Long Life can be used for MOV Stem lubrication. Further when replacing Unirex EP1 that MOV Long Life can be used without dismantling the valve.

* Unirex is a Trademark of Exxon Mobil.