

To whom it may concern;

October 12, 2012

In April 2012, I received a quantity of three Insight- Varnish Analysis testing results that all reported a Varnish Status of “CRITICAL”. Based on the UC (Ultra Centrifuge) Sediment Rating, MPC (Membrane Patch Colorimetry), Acid Number, and Antioxidant (phenolic & amine) depletion levels, my Mobil DTE-832 in all three (3) of my G.E. Frame 6B / Gas Turbines (1998), had reached condemnation levels. I realized that I needed to consider purchasing new turbine fluid very soon, and also pay for a Varnish Removal Flushing Service to be conducted on each of my three (3) Lube Systems, before re-filling with new turbine fluid. I decided to investigate the EcoSafe Revive / Premium Turbine Fluid Additive as an alternative.

Expectations:

After learning more about the EcoSafe Revive, In May 2012, I personally added 10% Revive into a sample jar of my existing Mobil DTE-832 turbine oil, and sent it off to an independent lab (Insight) for a varnish analysis, without telling the oil lab about the 10% addition of EcoSafe Revive. The results gave me the confidence to give the EcoSafe Revive a Performance Based Trial on one of my Frame 6B Gas Turbines (Unit #1). Based on the Product Information, and the nature of Polyalkylene Glycol (PAG) based EcoSafe Revive- Premium Turbine Fluid Additive, I had the following expectations:

- Shift the polarity and increase the solubility of the existing hydrocarbon base oil
- Regenerate, as well as adding new phenolic & aminic antioxidants to the turbine lube, increasing the turbine fluids remaining useful life.
- Resolubilize the existing products of oxidation (varnish) back into lubricant solution
- Clean up existing system’s varnish and eliminate need for varnish removal flush

Results:

The EcoSafe Revive (10% increment) was added to 6B / Unit #1, to replace 10% of the volume of Mobil DTE-832 currently in use. After adding EcoSafe Revive to the system fluid, the CRITICAL rating dropped to a MARGINAL rating with lab testing, and after 15 days of actual turbine operation, the varnish status dropped another level down to “AT-RISK”. After 30 days of Revive operation, sample results confirmed normal UC/Sediment Rating, improved Acid #, improved anti-oxidant (amine & phenolic) levels. The MPC had increased, as a function of the EcoSafe Revive re-solubilizing the varnish back into solution. The EcoSafe- Revive (polar fluid) was actively cleaning the lube system. This was confirmed by a significant increase in system hydraulic filters frequently becoming plugged, and requiring change outs, after the EcoSafe Revive conversion.

In addition to what was observed in lab testing of oil samples from the system, EcoSafe Revive resulted in a 2°F drop in bearing temperature, on a Unit 1 bearing #2, that was previously showing high temperature warnings. This drop in temperature is an indication of a decrease in the friction within the system (and bearing) and an increase in the efficiency of the operation of the system. After experiencing the changes in the Revive / Mobil DTE-823 performance in my Unit #1, we decided to purchase an Ecosafe Revive 10% conversion quantity for Unit #3.

Since then, Unit #3 has shown a similar pattern in Varnish Analysis Results, and evidence that the system is “cleaning up”. My Maintenance Staff, during their hydraulic filter change-outs, took the time to remove the last chance pencil filters (on the Gas Control Valves) for inspection, and have noted that there was no varnish formation, and the typical varnish stained pencil filters, currently looked brand new.

There is a tremendous potential for benefit to the power generation industry when using EcoSafe Revive technology. It is expected that fewer turbine trips due to varnish will occur over the life of the turbine fluid. A longer duration between lube change-outs, and extending the remaining useful life of the turbine lubricant is expected based upon the lab results. The cost of varnish removal by filtration is expected to be reduced during routine operation of the turbine resulting in longer filter life. The cost of a varnish removal flushing procedures, prior to considering a new turbine fluid change-out is expected to be significantly less, or completely unnecessary. The cost, convenient conversion procedure, and the unit’s operational and lab results, makes the EcoSafe Revive a valuable alternative to purchasing a new hydrocarbon based turbine oil.

Based on the progress of the EcoSafe Revive conversions on Units 1 & 3, I will be planning to conduct an EcoSafe Revive conversion on Unit #2, before the end of August, 2012.

Current System updates:

6B Unit #1:

- This unit was converted with Revive and went on-line on May 27th, which makes 139 days of service, with 7 days of downtime for maintenance, during that period. During the first few weeks, we changed-out only two (2) 10 micron, high pressure hydraulic filters.
- The unit was originally converted with a 10% Revive mixture. However, upon receiving the 10% Revive samples from Insight, after 75 days of operation, the high MPC of 78, and the black fluid color on the Ultra-Centrifuge, prompted us to increase the Revive content, and added an additional 5% Revive to Unit #1 on 9-19-12. Please note that although the Ultra Centrifuge was dark in color, the UC Sediment Rating was 1.

- Unit #1, we recently (9-26-12) changed out a qty of twelve (12) 6”x 18” particulate filter elements (6 micron, absolute) in the main lube filtration system, that were just changed out, nine weeks prior. This short filter life is unusual, the units typically get 12 months of life out of these filters, and even then, they have not reached full loading and differential pressure. We are confident that the Revive (10 to 15%) conversion procedure, and the increased filter change outs, is proof that the Revive’s shift in polarity to our existing mineral based turbine oil, is cleaning the system. We sent a filter out to a 3rd Party Lab, and will be conducting a filter debris analysis to help us better understand the EcoSafe-Revive cleaning process.

To date, I am currently satisfied with the progress of the Revive conversion on Unit#1. The dark MPC patch results concerns me slightly, however, the Ultra-Centrifuge results show the UC-Sediment Rating is at 1, which is the lowest rating. The facility feels confident that the Revive continues to resolubilize the products of oxidation, while cleaning a very dirty system. Unit #1, continues to be operating quite well, bearing temperatures are normal, and there are no lubrication performance or operational concerns at this time.

6B Unit #2: The EcoSafe Revive (10%) has already been purchased, but we have had to put off the Revive conversion until the first week of November.

6B Unit #3:

- This unit was converted with a 10% Revive on July 3rd, and was online for 70 days with the 10% Revive/ Mobil DTE-832 Mixture. During this time, the system required frequent change outs on the high pressure hydraulic filters (10 micron) during the 70 day run. In retrospect, we feel that utilizing a tighter micron (6 micron, absolute) in the main lube filtration vessels, will result in minimizing the frequency of the 10 micron hydraulic system filter usage (as shown in Unit #1), and the burden of cleaning up the system will shift to the much larger filter vessel and the 6 micron, absolute rated particulate filters.
- This reservoir also had a previous history of internal coatings flaking off the floor of the reservoir, and a filter debris analysis determined that there was no paint coatings found in the filter debris. The station had already budgeted for a new turbine lube purchase this year and therefore we decided that after 70 days of the EcoSafe Revive conversion, the frequent filter change-outs cleaning up the turbine lube and system, that this amount of time would be an adequate preparation for the new EcoSafe TF-25 conversion. The EcoSafe TF-25 is a full PAG (polyalkylene glycol) Fully Synthetic (Group V) Non Varnishing Turbine Lubricant.
- On September 11th, Morris-CoGen employees, drained, and vacuumed the sludge filled reservoir floor in preparation for the TF-25 fill. The sludge was ½” deep throughout most of the floor of the reservoir, this was sludge was unexpected. In the summer of 2010, we had to drain that reservoir to remove a hydraulic filter vessel bowl that was



accidentally dropped into the reservoir during an on-line filter change. At that time, I personally made the observation, that the floor of the reservoir was clean and free of any sludge at all. This observation confirms that the EcoSafe Revive was responsible for cleaning this lubrication system, and bringing these deposits back to the reservoir, in which they eventually settled down to the floor of the reservoir.

- We decided to drain and clean the reservoir, utilizing plant personal and traditional methods, therefore eliminating the need for a high cost (\$30K), and time consuming varnish removal flush. The reservoir drain and cleaning project was a success, and was completed by three plant maintenance members, in one day. The 70 days of Revive “cleansing” this turbine lube system, had all but removed the varnish residue marks on the walls of the reservoir, and we feel that if we had been able to allow more time for the Revive conversion to work on cleaning the system, the varnish residue removal from the reservoir walls would have been complete. The Morris CoGen management team, were confident that the TF-25 new fill, and the high detergency of the PAGs would finish the job, and resolubilize the remaining varnish residues, into solution, without any issues.
- The Unit #3 is running better than ever, and we are currently trending current bearing temperatures, and will be conducting a sample analysis on 30 days from start-up, and will be conducting sample analysis every month in order to monitor the condition of the EcoSafe TF-25.

As previously noted, we are planning another EcoSafe Revive (10%) conversion on Unit #2, during an outage this coming November 2012. Our expectations will be similar to the process on Unit #1, and we will be better prepared for increased filter change-outs, and have made arrangements to upgrade the main lube system filters to a 6 micron, absolute rated particulate filters, which should take the burden of pre-mature loading from the hydraulic filters, and assist the EcoSafe Revive in the cleaning of the turbine lubrication system.

At the present time, we will continue to monitor the performance of the Unit #1 Gas Turbine, and the overall condition of the Revive (15%) / Mobil DTE-832’s lube condition, while monitoring the “stability” of the new phenol and amine antioxidant levels, and the turbine lubricant’s “new” remaining useful life.

Sincerely,

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