

# MIRACLE BOY



## CASE STUDY: MIRACLE BOY ON TURBINES

**CUSTOMER:** Japan Petroleum Co.

**APPLICATION:** Steam turbine generator

The customer is the largest oil refiner in Japan. Below are the test records for three years on their steam turbine generator. As a result of the MB keeping the oil clean and maintaining very low water and acids the customer benefited in the following ways:

1. Oil change was not required after three years.
2. Yearly bearing and mechanical repairs were 100% eliminated.
3. Overhaul was extended to five years.
4. Varnish was slowly eliminated though out the system.

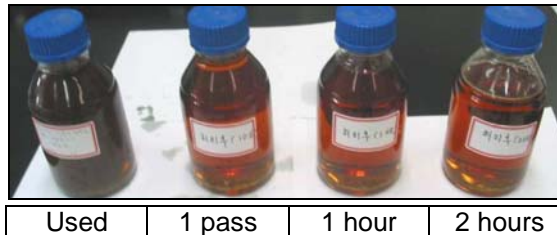
Sampling Date	24/7/1994 New oil	26/9/1994 1,560hrs	27/6/1995 1 year	24/4/1997 26,016hrs
Viscosity cSt at 40°C	50.53	45.16	45.31	45.74
Oxidization mgKOH/g	0.08	0.10	0.08	0.10
Water (KF method) ppm	49	30	54	14
Particles 0.8microns mm/100ml	0.8	0.2	2.2	1.0

**CUSTOMER:** Korean Nuclear Plant

**APPLICATION:** No. 2 Reactor GE Turbine

Below is picture showing the oil condition before MB, after 1 pass, 1 hour, and 2 hours. As a result of the MB keeping the oil clean and maintaining very low water and acids the customer benefited in the following ways:

1. Eliminated monthly inspections which released toxic materials.
2. Eliminated recurring servo valve repair and replacement.
3. Eliminated sludge and oil burning.
4. Eliminated oil changes.

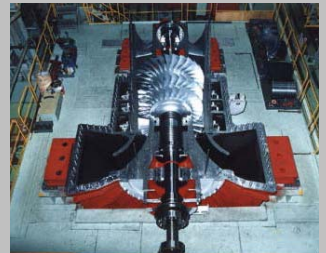


### MB INSTALLATIONS AND REFERENCES

Mitsubishi Turbines  
Hitachi Turbines  
All Korean Nuclear Plants  
Japan Nuclear Authority  
Nippon Steel  
Nippon Paper  
Mitsubishi Paper  
Japan Petroleum

### MB POWER GENERATION APPLICATIONS

Turbines   
Compressors   
Diesel Engines   
Tap Changers   
Transformers   
Gears, Bearings, Fans   
Wind Generation



Power Plant Turbine



Nippon Paper