# PHOTOGRAPHIC HISTORICAL STUDY ON THE MAINTENANCE OF THE EXHAUST VALVES OF DEUTZ ENGINES INSTALLED AT THE *MYTA* (Orera) POWER PLANT

**rb bertomeu S.L.**
**Technical Department**
**March – 1998**
**Updated May-1999**

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# 1 - INTRODUCTION

The MYTA (Sociedad Anónima de Minería y Tecnología de Arcillas) power plant, located in Orera (Zaragoza), is equipped with two DEUTZ MWM engines, type TBD 645 L9, for a production of 7,040 MWe.

The commissioning was carried out in April 1996, using fuel oil as fuel.

From the start of commissioning, the two motors had malfunctioned causing mechanical modifications to be made between the revision of August-96 (3,000 hours of operation) and the revision of June-97 (10,000 hours of operation). .

After these mechanical modifications, a better operating regime was obtained, although it was observed that corrosion occurred in the exhaust valves of both engines. For this reason, MYTA decided to treat the fuel oil from September-97, when there were only 1 - 1.5 months left to carry out the general revision of the 12,000 / 13,000 hours. The additive used was **"rb bertomeu" beco F1/ASF**.

This photographic study reflects the evolution of the state of conservation of the exhaust valves of the two engines, detected in the reviews to which **rb bertomeu S.L.** has had access from the start of commissioning to date.

# 2 - PHOTO REPORT Number 1

**MYTA - POWER PLANT**

**Engine inspection of August - 1996**

| | Inspection date | Service hours |
|---|---|---|
| **Engine 1** | **19-08-96** | **3,116** |
| **Engine 2** | **12-08-96** | **3,052** |

**Fuel oil treatment:** Without additive

**Scale detected at the exhaust valves:** Not registered

**Corrosion detected at the exhaust valves:** Not registered

**Thermal fatigue of metal:** Not registered

# 3 - PHOTO REPORT Number 2

**MYTA - POWER PLANT**

**Engine inspection of June - 1997**

| | Inspection date | Service hours |
|---|---|---|
| **Engine 1** | **24-06-97** | **9,247** |
| **Engine 2** | **27-06-97** | **10,305** |

**Fuel oil treatment: Without additive**

**Scale detected at the exhaust valves:**
Engine 1 : 1.00 g/valve (average)
Engine 2 : 3.09 g/valve (average)

**Corrosion detected at the exhaust valves:**
Engine 1 : in 18 valves
Engine 2 : in 18 valves

**Thermal fatigue of metal:**
Engine 1 : Not detected
Engine 2 : Not detected

# 4 - PHOTO REPORT Number 3

**MYTA - POWER PLANT**

**Engine inspection of October - 1997**

| | Inspection date | Service hours |
|---|---|---|
| **Engine 1** | **23-10-97** | **12,046** |
| **Engine 2** | **21-10-97** | **13,029** |

**Fuel oil treatment:** It was treated during the last third of the period between inspections with **"rb bertomeu" beco F1/ASF**

**Scale detected at the exhaust valves:**

Engine 1 : 0.62 g/valve (average)
Engine 2 : 2.42 g/valve (average)

**Corrosion detected at the exhaust valves:**

Engine 1 : in 10 valves
Engine 2 : in 7 valves

**Thermal fatigue of metal:**

Engine 1 : Not detected
Engine 2 : Not detected

# 5 - PHOTO REPORT Number 4

**MYTA - POWER PLANT**

**Engine inspection of March - 1998**

| | **Inspection date** | **Service hours** |
|---|---|---|
| **Engine 1** | **5-03-98** | **15,098** |
| **Engine 2** | **3-03-98** | **16,053** |

**Fuel oil treatment:** All the period, with **"rb bertomeu" beco F1/ASF**

**Scale detected at the exhaust valves:**
Engine 1 : 3.46 g/valve (average)
Engine 2 : 5.17 g/valve (average)

**Corrosion detected at the exhaust valves:**
Engine 1 : in 3 valves
Engine 2 : in 2 valves

**Thermal fatigue of metal:**
Engine 1 : Not detected
Engine 2 : in 1 valve

# 6 - PHOTO REPORT Number 5

**MYTA - POWER PLANT**

**Engine inspection of June - 1998**

| | **Inspection date** | **Service hours** |
|---|---|---|
| **Engine 1** | **21-06-98** | **17,604** |
| **Engine 2** | **10-06-98** | **18,408** |

**Fuel oil treatment:** All the period, with **"rb bertomeu" beco F1/ASF**

**Scale detected at the exhaust valves:**

Engine 1 : Not available
Engine 2 : Not available

**Corrosion detected at the exhaust valves:**

Engine 1 : None, according to the Deutz Service personnel criteria
Engine 2 : Starting at 1 spindle and 2 baskets

**Thermal fatigue of metal:**

Engine 1 : Not detected
Engine 2 : Not detected

# 7 - PHOTO REPORT Number 6

**MYTA - POWER PLANT**

**Engine inspection of November - 1998**

| | Inspection date | Service hours |
|---|---|---|
| **Engine 1** | **20-11-98** | **20.900** |
| **Engine 2** | **18-11-98** | **21.200** |

**Fuel oil treatment:** All the period, with **"rb bertomeu" beco F1/ASF**

**Scale detected at the exhaust valves:**

Engine1 : 10.33 g/valve (average)
Engine2 : 4.67 g/valve (average)

**Corrosion detected at the exhaust valves:**

Engine1 : None
Engine2 : None

**Thermal fatigue of metal:**

Engine1 : Not detected
Engine2 : Not detected

# 8 - PHOTO REPORT Number 7

**MYTA - POWER PLANT**

**Engine inspection of May - 1999**

| | **Inspection date** | **Service hours** |
|---|---|---|
| **Engine 1** | **Not inspected** | **-------** |
| **Engine 2** | **10-05-99** | **24,718** |

**Fuel oil treatment:** All the period, with **"rb bertomeu" beco F1/ASF**

**Scale detected at the exhaust valves:**
Engine1 : Not inspected
Engine2 : 3.47 g/valve (average)

**Corrosion detected at the exhaust valves:**
Engine1 : Not inspected
Engine2 : None

**Thermal fatigue of metal:**
Engine1 : Not inspected
Engine2 : Not detected