AQUALECTRA DIESEL POWER STATION

ISLA SITE-CURAÇAO

BUILT IN 2003 FOR

AQUALECTRA PRODUCTION

REFINERIA ISLA

BY

MAN B&W

BWSC

Burmeister & Wain Scandinavian Contractor A/S

PROJECT BACKGROUND

Aqualectra decided based on its Utility Plan 2020 to upgrade the generating infrastructure of Curacao in order to comply with the demand for more dependable electric power and to support economic development of the island.

A number of technical options were considered, including rehabilitation of the aging steam plant at the ISLA refinery.

Aqualectra and ISLA eventually decided to construct a new diesel power plant at the existing ISLA site. Negotiations commenced in 2001 and the contract was signed on 8 August 2002 between Aqualectra, ISLA, and the engine supplier MAN B&W Diesel AG (MBD), Germany with Burmeister & Wain Scandinavian Contractor A/S (BWSC) as principal subcontractor.

PROJECT EXECUTION

BWSC was the overall turnkey construction contractor being responsible for overall plant design, engineering, supply of balance of plant and test and commissioning of the complete plant.

Modularised standard concepts were utilised for design, manufacture, logistics, and construction in order to complete the plant within the contractual time limit of 13 months.

Prefabrication and modularization concepts were used wherever possible to achieve fast construction and efficient installation. These techniques significantly shortened the time required for on-site erection. Experienced local contractors, supervised by BWSC supervisors and specialists, carried out all civil work including building construction, as well as erection of mechanical and electrical equipment.

Engine Hall

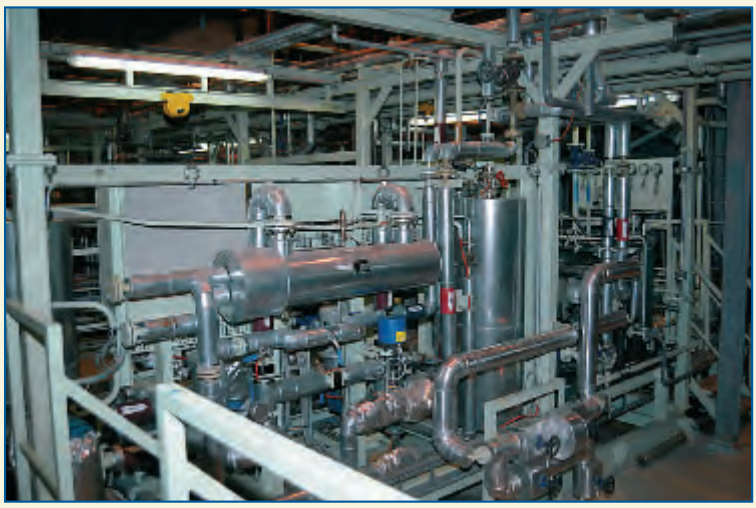
In order to minimise electrical and mechanical erection work on-site, the modular concept included a common modular Main Unit. This unit comprised all the auxiliary equipment for cooling, lubrication, and fuel oil supplies for the diesel engines, together with the low voltage switchboard. The Main Unit was manufactured and pre-tested in the factory, with all piping and cabling completed before shipment.

SAFETY ISSUES

The Aqualectra construction site is located within the ISLA oil refinery premises, so stringent safety rules applied to all members of the BWSC and MBD on-site project team. Prior to entering the refinery each member had to attend the mandatory ISLA safety course and to pass a medical check-up (no drugs or alcohol) before they could be issued with a temporary pass.

Once on the power plant construction site, Aqualectra's and BWSC's own safety rules applied and these were rigidly enforced.

Main Unit



Summary

Contract

Type . . . . . Turnkey
Contract effective . . . . . September 2002
Handing over . . . . . September 2003
Plant generation . . . . . 33.6 MW

Tecnical Data

Diesel Engines

Make . . . . . MAN B&W, Augsburg Germany
Type . . . . . 4 x 18V 32/40, 4-Stroke
Speed . . . . . 750 rpm

Alternators

Make . . . . . Leroy Somer, France
Type . . . . . 4 x LSA 60-105/8P
Rating . . . . . 10508 KVA
Voltage/Frequency . . . . . 11 kV / 50 Hz
Output at 100% load . . . . . 4 x 8,402 MW at pf 0.8

Main Unit

Supplier . . . . . Aura Marine – Finland

Radiator Cooler

Make . . . . . GEA, France
Type . . . . . Induced draught
Cooling capacity HT+LT. . 4 x 3,427 kW+4 x 2,327 kW

Fuel Oil Treatment

Make . . . . . Westfalia, Germany
Type . . . . . 2 x OSD 60-0136-067/50
Rated capacity . . . . . 3 x 7.8 m^3/h

Lube Oil Treatment

Make . . . . . Westfalia, Germany
Type . . . . . 4 x OSD 18-0196-067/15
Rated capacity . . . . . 4 x 2.7 m^3/h

11 kV Switchgear

Make . . . . . Siemens
Type . . . . . NXAirM
Voltage/Frequency . . . . . 12 kV / 50 Hz
Current . . . . . 2500 A

Powerhouse Building and Stack

Supplier . . . . . Rambøll, Denmark
Length . . . . . 41.5 m
Width . . . . . 24 m
Height . . . . . 12.5 m
Overhead crane . . . . . 3.2 ton
Stack . . . . . 60 m

Major Local Sub-Contractors

Civil work construction . . . . . N.V. Betonbouw
Mechanical erection . . . . . Nederex N.V.
Electrical erection . . . . . MESC N.V.

POWERHOUSE DESIGN

As a consequence of the ever-increasing demand for shorter delivery times, BWSC has developed a standardized powerhouse design enabling the extremely fast construction of complete power plants.

The powerhouse consists of a steel structure with soundproofing cladding housing the diesel generators and principal auxiliary equipment. This system enables building design to commence immediately after signing the contract and determining the critical site conditions, such as earthquake and wind factor criterias.

BWSC's standardized design has enabled the manufacture, supply, and erection of the building to be carried out in record time, greatly contributing to the successful and timely completion of the overall project.

Powerhouse Structure

The Palm Tree

THE PALM TREE

One of the key landmarks of the Aqualectra power plant site is an old palm tree situated in the middle of the site entrance. BWSC decided to preserve this landmark and even considered relocating it. However, relocation was too risky and the palm tree has been preserved in its original position. Preserving the tree is an example of BWSC's commitment to constructing power plant in environmentally sensitive areas.

MAN B&W Diesel AG
Stadtbachstrasse 1, 86224 Augsburg, Germany
Phone:+49 821 322 0, Fax:+49 821 322 3382
E-mail:po werplants@manbw.de
Homepage:www .manbw.com

Burmeister & Wain Scandinavian Contractor A/S
Gydevang 35, P.O. Box 235, DK-3450 Allerød, Denmark
Phone:+45 48 14 00 22, Fax:+45 48 14 01 50
E-mail:sales@bwsc .dk
Homepage:www .bwsc.dk