

POWER STATION

Aghada, Whitegate



Date Of Survey: 6th February 2004
19th March 2004

Surveyors Name: Andrea Fox
Photographer: Andrea Fox
Field Controller: Judith Doherty
O.S. Ref: 6474/C + 6474/D+1806 ESB Ref: C-PG-6474/C + 6474/D+1806

Architectural Heritage Evaluation:

Record Only

Local

District

Regional

National

International

Categories of Special Interest:

Archaeological (AG)

Architectural (A)

Artistic (AR)

Cultural (C)

Historical (H)

Scientific (SC)

Social (SO)

Technical (T)



6th February 2004
19th March 2004



6th February 2004
19th March 2004

Summary

Aghada Station is one of the largest natural gas-fuelled power stations in Ireland. The total station capacity is 593MW.

Aghada is strategically located on a 64 ha (158 acre) site close to the entrance of Cork Harbour. It is adjacent to Irish Refinery Plc and Haulbowline Island, home to the Irish Naval Service and formerly Irish Steel. Sited to take advantage of the natural gas resource off the coast of Cork, it comprises two separate parts divided by the main Midleton/Whitegate Road and linked by a bridge.

The building was constructed in 1978. The thermal unit was commissioned in 1980 and the three combustion turbine units in 1981/82.

Description & Materials

The Power Station consists of a large concrete chimney stack, generating hall with attached administration building, a concrete pier for water intake, three combustion turbines, a water treatment building, a large store, a canteen and a fire pump building. A pumphouse at the foreshore pumps water via a large

concrete culvert to the turbine condenser for the 270MW unit. The water is routed from the condenser via an outlet culvert back to the estuary. As of 2004, the workforce at the Station is approximately 80 people; 30% are shift workers, the remainder in engineering, maintenance, administration and ancillary services.

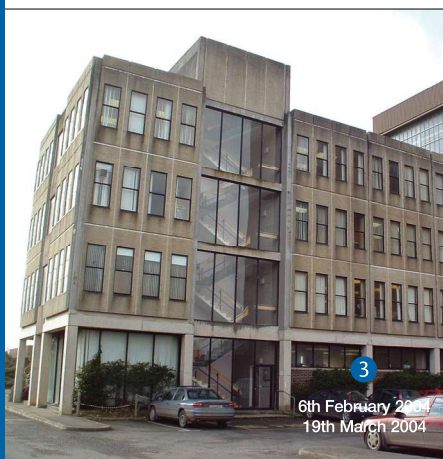
Sea water is pumped in through two pumps built in a pumphouse on the foreshore. The height of each of the combustion turbines is 65 metres and they are housed in the large steel framed, profiled metal clad generating hall.

The Power Station site comprises two separate parts divided by the main Midleton/Whitegate Road and linked by a fly-over bridge. The site has views westwards across the water towards Cobh. The surrounding landscape is largely rural except for views of an oil refinery in the distance.

In 1971, Marathon discovered substantial reserves of natural gas in the Celtic Sea about 33 miles south of Cork Harbour, in the seabed below. As there was no natural gas infrastructure in place at that time, Aghada Power Station was built close to where the gas came ashore in 1980.



County CORK



6th February 2004
19th March 2004

1. Aerial View of Aghada Power Station 2. View of Power Station from Cork Harbour 3. Administration Building



4
6th February 2004
19th March 2004



5
6th February 2004
19th March 2004

POWER STATION

Aghada, Whitegate

Date Of Survey: 6th February 2004
19th March 2004



Future natural gas supplies in Ireland have been ensured by an undersea pipeline from Scotland which comes ashore in North County Dublin.

Attached to the station lies the generator transformer, with workshops to the rear. Other buildings on site include the ESB store, water treatment plant and fire pump, and a canteen building. The pumphouse is a reinforced concrete box structure with a deep basement for water intake through a screening system. The site stretches out to a pier which is where the water is sucked in through two alternating pumps. The hollow concrete pier contains the pump room below deck and is reinforced by steel trusses.

Administration Building

On entering the site a security building is located in front of the canteen. To the right is the administration building. It is attached to the generating hall by a glass stairwell. This four-storey building is of concrete frame construction and sits on a rectangular plan. The elevational treatment consists of precast concrete panels to the upper storeys with floor to ceiling glazing and brick to the ground floor.

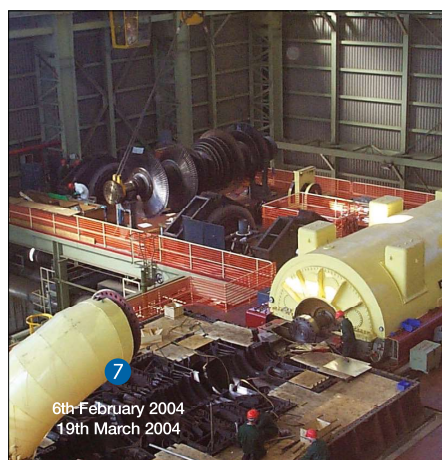
Generating Hall (270MW unit)

The main Power Station is made from a steel frame with lattice trusses and has huge steel stanchions supporting water tanks and turbines. Various gangways and gantries allow access for maintenance and repair. At a high level natural light is provided through glazing. Two permanent cranes span the width of the main generating hall. The control room is located centrally on plan. The boiler house element is twelve storeys in height. The generating hall is seven, both are flat roofed with prominent projecting parapets, high level clere-storey glazing bands and large areas of translucent curtain wall glazing.

The building provides for the temporary removal of and checking the turbine and equipment during periods of overhaul. The turbine is lifted from its position by the permanent crane and carried over to the full height space at the end of the building for inspection and repair. Translucent glazing lights the side wing areas which are utilised as vital extra space during overhauls. It is clad with profiled metal cladding over a brown brick base with clerestory glazing of translucent glass above.



6
6th February 2004
19th March 2004



7
6th February 2004
19th March 2004



9
6th February 2004
19th March 2004



8
6th February 2004
19th March 2004

4. Aghada Chimney Stack 5. Main Façade to Administration Building 6. Interior of Generating Hall
7. View of Turbine Overhaul in Generating Hall 8. View of Aerator within Generating Hall 9. View of Store Building

POWER STATION

Aghada, Whitegate
(continued)



Date Of Survey: 6th February 2004
19th March 2004



The steam boiler was provided by M.A.N. of Germany while Alstom Atlantique of France provided the steam turbine generator and the three combustion turbine generators.

Generating Units

The in-filled harbour site, where Unit 1 stands, was enlarged by excavating over 500,000m³ of material from the hillside opposite, and the three combustion turbines (CT11, CT12, CT14) were situated in the large arena thus created. Unit 1 is a conventional steam turbine plant of 270MW capacity. CT11, CT12 and CT14 are three open cycle gas turbines, with a combined capacity of 270MW each has a stack 65m high.

There is a 53MW peaking plant supplied by Pratt Whitney USA. Total station capacity is therefore 593MW.

Chimney Stack

The chimney stack lies next to the generating hall of the 270 MW unit and is made of reinforced concrete. It is 152m high.

Canteen

The canteen is located behind the entrance to the Station and consists of a

steel frame with floor to ceiling glazing. This is a bright open-plan building with high ceilings and sits around a central courtyard with glazing to all sides.

Water Treatment and Store Buildings

Also located on the site are other buildings such as the water treatment building, the store, the pump house and the security office at the gate. These are of steel framed construction and clad with brown brick and brown profiled metal cladding and have clerestory lighting.

Special Interest - Historical

Aghada derives its name from the Irish expression *Ath Fhada*, meaning the long ford or Long point, a rocky finger of land projecting into Cork Harbour on which the Station is built. Because of its strategic location, close to the harbour entrance, Aghada is an area rich in history.

In 1690 a fort in the harbour was the first stronghold taken by John Churchill, Earl of Marlborough and ancestor of the Churchill family, when his forces attacked and captured Cork in a campaign which culminated in the Battle of the Boyne.



10. View of Original and New Chimney Stacks 11. Interior of Canteen 12. Generating Building 13. View of Former Turbine During Overhaul



14
6th February 2004
19th March 2004

POWER STATION

Aghada, Whitegate
(continued)

Date Of Survey: 6th February 2004
19th March 2004



During the First World War the United States Navy built an air-base in the nearby village of Lower Aghada where the Tennis Club is today.

The harbour, between the Power Station and Cobh, was the main assembly point for the West Indies Fleet which annually sailed in a convoy of several hundred sailing craft to trade with the New World.

Spike Island, a mile distant, has operated as both prison and a military fort for more than 150 years.

The United States Navy built its naval air operations headquarters in Aghada during the First World War to counter the threat posed by German U-boat activity. The nearby coastline has witnessed many maritime disasters most notably the wrecking of *The Celtic*, one of the truly great ships of the 1920s. In more recent times, a cluster of industries ranging from oil refining and steel making to ship construction grew up in this area. The Irish Steel facility, now closed and demolished, is just across the water while the nearby oil refinery, Irish Refining plc passed into state ownership during the 1980s.

Built in an era of deep recession and trade union activity, the construction of the Power Station at Aghada was remarkably trouble-free. An extract from the Cork Examiner at the time provides a reminder of the construction period: "It is good, in these gloomy days, economically and weatherwise, to be able to note quiet progress in an area where there had hitherto been much controversy. We refer to the coming on stream of the giant ESB plant at Aghada, Co. Cork, where electricity is now being generated from the natural gas field off Kinsale."



15
6th February 2004
19th March 2004



16
6th February 2004
19th March 2004



18
6th February 2004
19th March 2004



17
6th February 2004
19th March 2004

14. View of Canteen Building 15. Water Intake from the Pumphouse 16. Store Building 17. Water Treatment Building 18. Image of Overhaul of Turbine.