NEWSLETTER

RETIRED CHARTERED ENGINEERS ASSOCIATION
WORTHING

Hon. Secretary: S. Oliver. Elphin, North Drive, Angmering, BN16 4JJ ☎ 01903 787116

FORTHCOMING EVENTS

28th Dec	Thursday	Coffee - with Ladies at Beach Hotel, Worthing
3rd Jan	Wednesday	Coffee - at Albion Inn, 110 Church Road, Hove
10th Jan	Wednesday	**Talk** - "Nuclear Safety, planning and development" by L.J. Nash, guest, 2.30 p.m. Durrington C.C.
17th Jan	Wednesday	**Visit** to Eurotherm Controls, Durrington at 2.30 p.m see page 9 for signing up
18th Jan	Thursday	Coffee - at Three Crowns, East Preston
24th Jan	Wednesday	Committee meeting, 2.15 p.m. Durrington C.C.
25th Jan	Thursday	Coffee - with Ladies at Beach Hotel, Worthing
7th Feb	Wednesday	Coffee - at Albion Inn, 110 Church Road, Hove
14th Feb	Wednesday	**Talk** - "Novel engine development" by S.M. Butler, member, 2.30 p.m. Durrington C.C.
15th Feb	Thursday	Coffee - at Three Crowns, East Preston
29th Feb	Thursday	Coffee - with Ladies at Beach Hotel, Worthing
6th Mar	Wednesday	Coffee - at Albion Inn, 110 Church Road, Hove
13th Mar	Wednesday	**Talk** - "Automobile Safety" by E.T. Besley member 2.30 p.m. Durrington C.C. Copy date for next Newsletter
21st Mar	Thursday	Coffee - at Three Crowns, East Preston Publication of next Newsletter
27th Mar	Wednesday	Committee meeting, 2.15 p.m. Durrington C.C.

28th Mar Thursday Coffee - with Ladies at Beach Hotel, Worthing

Every Monday Coffee at Laing's Arcade Cafe, Montague Street, Worthing

Coffee mornings commence at 10.30 a.m., except at The Beach, which is from 10.45 a.m.

Membership

We are sad to have to report the death of **J.A. Parry** and **D.C. Plyer.** We welcome the following new member:

1995 **MARSHALL, R.P.** B.Sc.(Eng.), F.I.M., Dipl. C.G.L.I. *28A Downview Road, Worthing, BN11 4QH* *(01903 248516)* Engineering Metallurgy to 1950, Powder Metallurgy UKAEA to 1957, Semiconductors Ltd (Plessey) Swindon & USA to1962, Tungstem Manufacturing Co. Technical Director to 1986, Consultant to 1992. *Interests:* Golf, Gardening, Photography, Travel, DIY, Reading, Freemasonry.	

Visit to ALLENWEST BRENTFORD Power Products,

Manor Royal, Crawley on Wednesday 8th November, 1995 at 2.30 p.m.

An interesting and informative visit was made by 15 members of the Association to the factory of Allenwest Brentford at Crawley on the above date. Our group was met by Mr Mays, Commercial Director who summarised the history of the company and outlined prime products made as under. Saying also the company was divided into two divisions, one for the electrical supply industry, manufacturing standard equipment in common use and the other for special items to suit individual customers requirements.

Typical products but not limited to:-

Linear Regulators

Hand; motor and automatically controlled units air or oil cooled.

AC Regulated Systems

Incorporating the linear regulator with associated power transformers.

AC Thyristor Control Systems

Using fully controlled thyristors.

DC Regulated Systems

With linear regulators, transformers and rectifier stacks.

Distribution Equipment

Transformers and static balancers.

Services

Onsite services including:- Emergency maintenance, repair and spares service site testing.

Shore to Ship Distribution

DC supply rectifiers and stabilised AC. Supplies for shore to ship distribution in both civil and MOD sectors world wide.

Electricity Distribution

Transformers, reactors, balancers and system transformers, switch gear for the electrical supply industry and for general industrial purposes. Pole mounted transformers units, AC/DC package substations.

Our party was split into two groups one with Michael the Works Manager and the other with Mr Mays. We toured around the transformer manufacturing section of the plant which assembles a range of industrial transformers up to 40 MVA at 66kV. Part by manual assembly; with steel core thin plate cutting etc. by machines. The plant production sequence was observed to be purpose designed from material reception and storage to step by step sequentially through the manufacturing process, with the required smaller materials for hand "pick-up" from tin boxes held in racks to be built into the transformer being assembled. After cutting to size the transformer core thin steel plates were accurately assembled by hand, and bench jigged into final position and frame fixed, to then pass on by hoist to the next assembly operation. Four overhead cranes up to 25T lift transferred the heavy assemblies.

Transformer construction is designed to achieve minimum I^2R loss or equivalent and to give best operating efficiency.

Brentford offer a standard range of oil filled distribution and power transformers for all applications and environments and supply Home and Export markets world wide.

Incoming orders are analysed in the drawing office by graduate electrical engineers and draughtsmen supported by a computer based network management system. All required features and options are scheduled to ensure their availability at the right time and in the right place during production.

The transformers are assembled "one-off" to avoid "queuing" and batch production delays. Engineering information is recorded on computer, and all drawings are originated and stored on a CAD system.

Standard features include manufacture to BS 171/1978 and are post production tested to BS 5750 part 1 1987 & ISO 9001 at all stages; and or, any customer specification or required National Standard.

History of Allenwest - Brentford

Founded in 1936. The company started operating in a basement in Brentford manufacturing custom built equipment. The strength of the company developed successfully based on a very experienced team of professionals willing and able to tackle new problems.

One in five of employees having now been with the company for more than 20 years and one in two for more than 10 years.

Two of the early developments pioneered, consisted of a stepless welding transformer providing a wider current range than any other on the market at the time, and a rolling contact regulator, the first of its kind in the UK. During 1939/45 these regulators were required for essential work in larger quantities than could be manufactured in the basement factory. As a result of the intervention of the Ministry of Aircraft Production the Company moved to a requisitioned factory in Windmill Road, Brentford. In 1947 the Company moved once more, to Kidbrooke in South East London a Ministry of Works site.

In 1956 the whole area was to be developed as a new housing estate. On this occasion the Company decided to look for a permanent home and found a 4.5 acre site in Crawley, West Sussex. The Company outgrew it and as a result took over an adjacent factory, and formed a subsidiary at Edenbridge, Roscoe & Howard Limited, (which was subsequently sold during the management buy-out operational period).

Company products are mainly used for controlling electrical processes by converting power, to suit the load, or stabilising the input to equipment to a greater degree than is available on public supplies.

The rolling contact regulator forms an essential part for many such systems, but now the product range has since been widened to deal with all forms of electric power control. Some equipment consist of power control elements with their associated electronic control systems. Amongst these products developed, are very highly stabilised power supplies, mainly used for nuclear particle research. In 1971 as a result of this development AWB were presented with the Queen's Award for Technological Innovation.

Products are exported to most countries and made in the Allenwest Brentford Crawley Works.

In 1961 the company became a member of the GHP Group and in 1977 a member of the Low & Bonar Group.

In May 1988 Low & Bonar sold all its companies in the Electrical Division to concentrate on Paper, Packaging and Textile areas. Brentford Electric Limited was the subject of a management buy-out by a consortium of new and existing managers.

In May 1990 Brentford Electric moved to an adjacent site and acquired a new modern factory to manufacture both its existing and new products.

In January 1992 Brentford Electric Limited was purchased by M & C Switchgear Limited of Glasgow who are continuing to manufacture Brentford's traditional products and to introduce new products to the Crawley site.

In May 1994 The Company's name became ALLENWEST BRENTFORD with the alliance of Brentford Electric and Allenwest Electrical.

Bernard Knight

Cooch Memorial Lecture - "North Sea Gas" by Borg Juren at the Worthing Library Lecture Theatre on Friday, 25th November, 2.30 p.m.

The 1995 Cooch Memorial Lecture on North Sea Gas from the North Morecombe Field was presented by Mr Borg Juren of British Global Gas. Mr Juren graduated in Chemical Engineering from Imperial College, London University. Joining British Gas Research & Development working on aspects of natural gas production: including processing, reception, transmission and storage. Also gas quality issues for supply contracts. As Senior Project Manager he was responsible for the development of Salt Cavity Storage at Hornsea, liquid natural gas development at the Isle of Grain; and all construction and installation activities of two offshore platforms and associated pipe lines. In 1990 Mr Juren joined British Global Gas as Development Manager Power Generation Directorate to negotiate and develop new business opportunities, and in 1991 to manage and complete all North Morecombe Developments, offshore and onshore, to completion.

The Gas Field was discovered by Hydrocarbons Great Britain Limited in 1976 and further appraised between 1978 and 1983. The North Morecombe gas is trapped in sandstone between 800 and 1400m below sea level. The area of specific interested being approximately 300m and the gas gap is underlaid by water over the whole field area, the gas composition being largely as follows:

CH_4	81-82%
CO_2	6%
N_2	6.9%

and other Hydro Carbons in the chemical series; with H_2S 3ppmv and mercaptans 102ppmv.

The conceptual design development showed that methanol as a carrier medium for corrosion inhibitor allowed specific equipment to be located onshore. Thus reducing manning and maintenance requirements allowing the platform to be considered as "not normally manned". The North Morecombe Platform also acts as a gathering platform for production from two satellites with a combined estimated maximum gas production of 588 x 10^6 scfd. All the well fluids including injected methanol are fed to the onshore terminal at Barrow via a 36 inch pipeline. Electrical power to the platform being supplied from the onshore terminal by a subsea cable. A temporary 10 man refuge is at the rig housing an emergency shelter and the control centre operated from the Field Management and Support Base at Heysham or the South Morecombe Offshore complex. Simplifying offshore design and locating equipment wherever possible to the onshore facility gave the optimum lowest project cost.

Jacket

4 leg steel construction
1920 tons
57m high
25m x 25m at top
38m x 29m at base
8 x 2.1m dia. piles 60m long
1 x 36 inch plus 2 x 12 inch gas risers
4 x 3 inch methanol risers
5 x J tubes electrical cable

Topsides

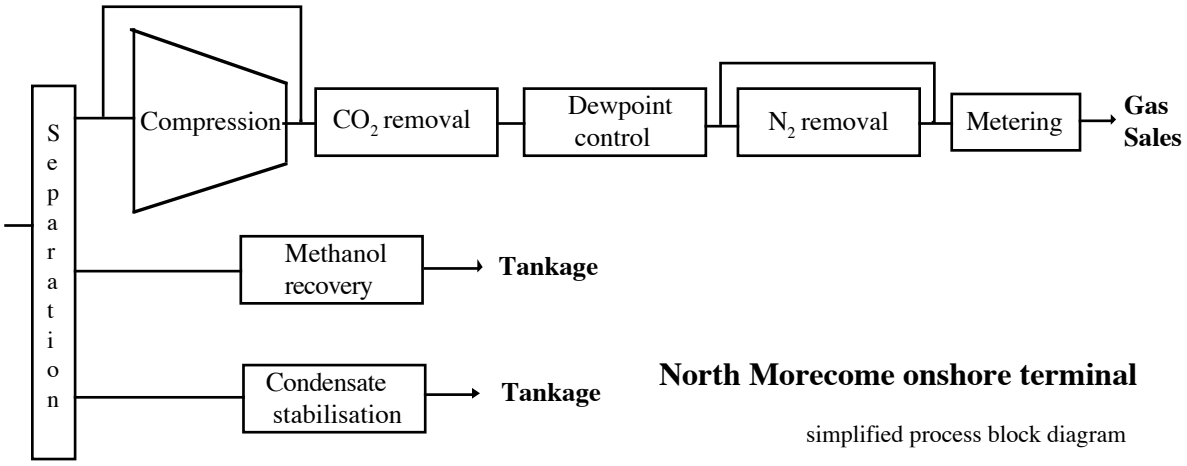
5 level integrated deck
2300 tonnes
39m x 25m x 13m high
16 well slots
588 x 106 scfd throughput
40 year life
Helideck
10 man temporary shelter

Pipeline details

	Gas Trunk Line	Methanol Line
Length (km)	38	38
Grade	5L x 65	5L Gr B
Design Pressure (bar)	114	148
Corrosion Protection	Sacrificial Anodes	Sacrificial Anodes
Diameter	36 inch	4 inch
Coating	Epoxy & Concrete	Epoxy

Jacket Installation

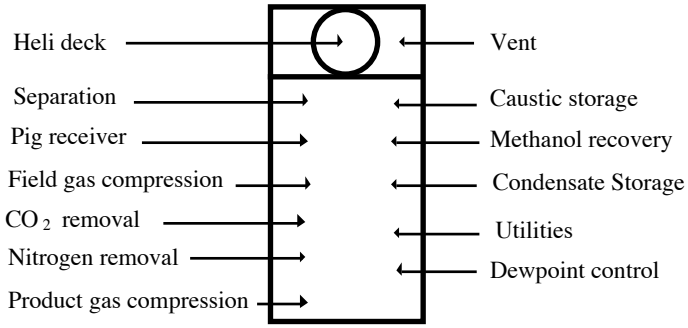
Development Platform



North Morecome onshore terminal

simplified process block diagram

To meet the North Terminal Sales Specification, the gas requires the removal of all the carbon dioxide (CO 2) and some of the nitrogen, as well as the conditioning requirements of separation, condensate stabilisation, water and hydrocarbon, dewpoint control and compression. After processing the gas is filtered odorised and metered prior to export to the North Terminal Sales at 75 bar.Collected condensate passes to condensate stabilisation and sweetening units to remove light ends and sulphur compounds. The stabilised, sweetened product flows on to site storage tanks prior to metering and transfer to the tank farm at Barrow Docks.Power is generated onshore and fed offshore via a 11kV cable. Full safety fail safe conditions apply to the plant where corrective action is taken automatically or by plant operations.



Site Conditions

It was necessary for the foundation design to provide for selected earthquake criteria a 1 in 500 year event, and a one in 10,000 year event.The 50 acre onsite plant area was derelict land used for 30 years to dump pulverised fuel ash from the coal fired Rooscote power station. The solution adopted was the combination of vibro replacement with driven piles to support the plant loads.A modular construction strategy where possible, reduced manpower at the site.

Piles: 2,000 precast piles
1,500 cast in place piles
6,000 stone columns

Concrete: 30,000 m^3

Outlook

It was judged by the speaker that North Sea Gas would be coming ashore well into the 21st century. Looking further into the future and still at the bottom of the sea there is believed to be huge quantities of methane trapped in the form of hydrates which could be the greatest untapped sources of natural gas left in the world. The Hydrates looking like irregular balls of ice, disintegrate when brought to the surface releasing their gas. They were first discovered in the late 1970's by drilling crews looking for oil beneath the sea bed in the Arctic and other places. The Hydrates are formed when the water molecules bind together to form 3 dimensional traps which capture molecules of methane; produced by the decay of organic materials in the ocean sediments. The gas is extracted by heating. Geologists have found Hydrates at more than 80 locations in the Arctic and Western Atlantic regions. The Hydrates are normally formed at depths greater than 600ft.It has been suggested that there may be 1000 times as much methane in this form as there is in known conventional gas traps in rock cavities. Potentially there could be several 100 years of natural gas supply given the means of economic recovery and extraction.

Bernard Knight

After the lecture the R.C.E.A. prize was presented to Mr Gary Jones, who is studying for an M.Eng. at the University of Brighton.

Visit to EUROTHERM CONTROLS Ltd, Faraday Close, Durrington on Wednesday 17th January, 1996 at 2.30 p.m.

Outing with Ladies to The Body Shop, Watersmead, Littlehampton on Wednesday, 8th May 1996 at 1.00 p.m.

The entrance fee is £2.50 per person based based on 20 to 26 participants (less than 20 the entrance fee is £2.95). The Body Shop require a deposit of £1.25 per person the balance being paid at the visit. Numbers are limited to 26 and will be allocated on a first come first served basis. A cream tea has been booked for 2.45 p.m. in the staff dining hall costing £3.50 per head for over 20 persons (less than 20 persons will cost £4.00 per head). The tour will start at 1.20 p.m. Meet at "Trading Post".

Spring Break to Norwich 19th - 23rd May 1996

We still have a few places available for the "Spring Break" so it has been agreed by the committee to offer some of these places to members relatives or friends. If you are interested and wish to extend an invitation please contact " Woods Travel" direct who will arrange the booking. You should also let John Fowler know who has arrived.

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To: E.B. Trotter, 34 The Marlinspike, Shoreham by Sea, BN43 5RD
Tel: 01273 453088

I wish to participate in the visit to **Eurotherm Controls Ltd** on Wednesday, 17th January 1996 at 2.30 p.m.

Full Name .....(Block capitals)

Address .....

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..... Phone No.....

Applications by 28th December, 1995

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To: E.B. Trotter, 34 The Marlinspike, Shoreham by Sea, BN43 5RD
Tel: 01273 453088

I wish to participate in the outing to **The Bodyshop** on Wednesday, 8th May 1996 at 1.00 p.m.

Full Name .....(Block capitals)

Address .....

.....

..... Phone No.....

Number of entrants to tour.....

Number of cream teas required.....

I enclose deposit of £1.25 per person - please make cheques payable to RCEA

Applications by 28th December, 1995