



W0731

MR ADDISON - No. 10

30 October 1985

PRIME MINISTER'S VISIT TO BNFL AND CEGB SITES

Thank you for the opportunity to comment on the Department of Energy briefing. The only changes that I would like to suggest are to the speaking notes at Sellafield when the Prime Minister opens SIXEP and Pond 5. A proposed redraft is attached which emphasises the relationship between Sellafield and a successful nuclear power generator in the UK.

I am sending the Prime Minister a minute on the importance of environmental and safety standards at Sellafield.

RBN

SIR ROBIN NICHOLSON
Chief Scientific Adviser

REVISED SPEAKING NOTES FOR THE OPENING CEREMONY OF THE SITE ION EXCHANGE PLANT (SIXEP) AND THE FUEL HANDLING AND STORAGE PLANT (POND 5) AT SELLAFIELD

Chairman and fellow guests,

It is a great honour to be invited to open these two impressive plants, which are of ^{great} such importance to the development of Sellafield and, ^{They} indeed, to the future of nuclear power in the United Kingdom.

BNFL's industrial achievements have sometimes been obscured by controversy. You have not only to meet the most exacting safety and environmental standards, but to convince the public that you are doing so. I know that you attach the highest importance to both these tasks and I have been impressed, today, by the efforts that you are making to carry them out. And SIXEP and Pond 5 are not the end of the story: you are investing hundreds of millions of pounds on further equipment.

Sellafield is one of Britain's industrial success stories. I ~~only~~ wish we had more companies able to provide, as BNFL does, directly or indirectly, profitable employment for 60,000 people in and around the North West. I ~~also~~ wish we had more companies able to win export contracts running into many hundreds of millions of pounds in countries such as Japan and Germany. I congratulate you, particularly, on an increase of more than 40% in your exports this year.

Managing the job, I know the is a big job. You
A For the future, you are investing over a billion pounds in further reprocessing capacity both for UK and overseas customers, and have already won export business worth several billions of pounds. Sellafield is in consequence one of the largest and most important industrial sites in Europe. It places a tremendous premium on your skills and your efforts to ensure that the large and complex construction projects which you are undertaking can be completed to time and cost. The success of Sellafield is of great importance for the development of nuclear power in the UK. You face many challenges - managerial, technical and presentational. I am confident that BNFL will continue to meet those challenges.

This means it carries a heavy burden here.
There are many challenges ahead
rise of them



8W
cc Mr Wybren
Mr. Booth

10 DOWNING STREET

From the Private Secretary

25 October 1985

in att.
folder.

I have now received the briefing for this tour from the Department of Energy, and I enclose a copy. The Department of Energy have also supplied the BNFL booklet "General Briefing Notes" and the booklet "Heysham 2". If you or copy recipients would like to cast an eye over this material as well, please get in touch.

(MARK ADDISON)

Sir Robin Nicholson

su

PRINCIPAL STAFF TO BE INTRODUCED

CAPENHURST

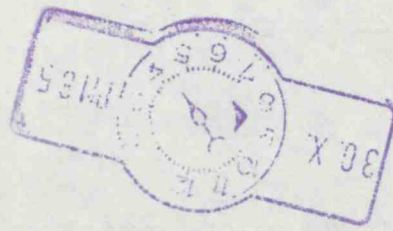
Mr Neville Chamberlain - Director of Enrichment Division
Mr Peter Roberts - General Manager, Capenhurst Works
Mr Joe Charnock - Deputy General Manager
Mr Trevor Edwards - Divisional Chief Engineer, Enrichment Division
Mr Greg Butler - Works Manager, URENCO Plant

SPRINGFIELDS

Dr Tony Stephens - Director of Fuel Division
Dr Mike Horsley - General Manager, Springfields Works
Dr Peter Manning - Deputy General Manager
Mr Ronald Jenkins - Works Manager, Oxide Fuels
Mr Doug Mitchell - Works Manager, Magnox Fuel & Components

SELLAFIELD

Mr Gordon Steele - Director of Reprocessing Operations Division
Mr Maurice Wyatt - General Manager, Calder Works
Mr Derek Bamber - Works Manager, Fuel Handling Plant
Mr Peter Riley - Project Manager, Fuel Handling Plant
Mr Steve Baxter - Works Manager, SIXEP
Mr Mike Howden - Project Manager, SIXEP
Dr John Clarke - Director of Reprocessing Engineering Division





File

NUCLEAR POWER IN THE UK

Nuclear contribution

In 1984 nuclear power contributed more than 18% of UK electricity supply. (In terms of energy consumption, this figure is equivalent to 6% of total UK energy consumption.) With completion and full operation of Heysham II and Torness by the end of the decade, the nuclear contribution could reach 25%.

The UK occupies a middle ranking in comparison to other OECD countries in terms of the percentage of electricity supplied from nuclear stations. The league table is headed by France where about 60% of electricity supply came from this energy source in 1984.

Nuclear Stations

Type	Total Capacity (MW)	Number	Operator
Magnox	4,000	8	CEGB
		1	SSEB
		2	BNFL
AGR	6,480*	4	CEGB
		1	SSEB
[Under construction	2,640	1	CEGB
		1	SSEB]
Total UK nuclear generating capacity	10,480	16	
Total UK nuclear generating capacity by end of the decade	13,120	18	

The CEGB has also placed an application to construct a 1,200 MW Pressurised Water Reactor (PWR) at Sizewell.

* including three stations commissioned in 1984 but not yet fully operational.



PROPOSAL FOR NNC-WESTINGHOUSE JOINT COMPANY

1 Proposals are under consideration by the Secretary of State for Energy that NNC and Westinghouse should form a joint company to carry out work on the Nuclear Steam Supply System of Sizewell B and replicate PWRs (provided consent is forthcoming).

2 NNC consider that by working alongside Westinghouse - the CEGB's chosen licensor, an experienced PWR constructor and holder of the main primary circuit contract for Sizewell B - the transfer of PWR technology to the UK will be most effectively achieved.



CAPENHURST

POINTS TO MAKE

- 1 Congratulate BNFL on the success of its centrifuge enrichment programme and the part it has played in establishing URENCO, a first class international collaboration.
- 2 Welcome URENCO's recent export achievements; it has recently won major contracts in the USA and Sweden.
- 3 Note that URENCO's technology is the most efficient process in the world, ahead of the USA and France.

BACKGROUND

- 4 The fissile content (U_{235}) of uranium is enriched from natural levels (0.7%) to about 3% to improve the efficiency of reactors. Enriched uranium is used in the UK's AGR programme and abroad in light water reactors such as the PWR.
- 5 BNFL enriches uranium by passing uranium hexafluoride gas (UF_6) through a series of centrifuges which separates the lighter U_{235} isotope from the remainder. The centrifuges are designed and built to the highest standards using advanced techniques and will work continuously at high speed for 10 years.
- 6 The centrifuge programme was developed jointly within URENCO the UK, German, Netherlands partnership. BNFL has a one-third stake. Research and Development is still jointly funded and URENCO is also responsible for all marketing.
- 7 The partnership is only concerned with civil nuclear power. However, BNFL is separately building a centrifuge plant for the Ministry of Defence at Capenhurst.
- 8 The Divisional Director is Mr Neville Chamberlain and the the plant manager Mr Peter Roberts.



SPRINGFIELDS

POINTS TO MAKE

- 1 Springfields has a key role in the fuel cycle, supplying fuel for all our nuclear power stations.
- 2 Recognise the efforts of all concerned to meet the demands of the AGR stations and, in particular, to ensure that fuel for the new stations at Torness and Heysham II is on time.

BACKGROUND

- 3 At Springfields BNFL first processes raw uranium to make it suitable for enrichment or fabrication into finished fuel. It also carries out fabrication of all the fuel for the UK's Magnox and AGR stations and two Magnox stations in Japan and Italy.
- 4 The site is working at full capacity to produce AGR fuel for existing stations and to meet accelerated deadlines for the first fuel loads for Heysham and Torness.
- 5 Springfields has a monopoly of AGR and Magnox business and has, in addition, won significant export business in the competitive market for uranium processing. The Company has recently built a new light water reactor (LWR) fuel plant but has yet to obtain overseas orders because of the difficulty of breaking into an oversupplied market without a proven track record.
- 6 The Divisional Director is Mr Tony Stephens and the plant manager Mr Michael Horsley.



HEYSHAM 2 AGR NUCLEAR POWER STATION

Introduction

1. Heysham 2 has 2 x 660MW generating units and is based on a development of the Hinkley Point 'B' AGR design. Construction of main foundations commenced in August 1980 and after five years, the project has maintained its original programme and budget.

Construction Arrangements and Responsibilities

2. The CEGB's Generation Development and Construction Division (GDCD) based at Barnwood, provides overall project management and is also directly responsible for work outside the nuclear island. The National Nuclear Corporation (NNC) supplied the overall station design and is responsible for the systems engineering of the nuclear island, for which it manages contracts as the CEGB's agent.

3. Construction progress has benefited from a series of measures taken by GDCD to promote good construction performance. These include:

- (a) Definition of all significant design features before commencement of construction.
- (b) The establishment of the Heysham 2 Management Group (membership of which is a contractual commitment for main contractors) which has considerably influenced the harmonisation of site employment policies and practices.
- (c) Extensive use of double day-shift working to secure programmed rates of completion.

4. The Director responsible is Mr Brian Powell, Director of Station Design, GDCD. The Project Manager is Mr S F Newey and the Site Manager, Mr A R Kershaw.

Contractors and Site Workforce

5. Main contractors include:

Civil engineering	Taylor Woodrow
Turbine-generators	NEI Parsons
Cabling	Matthew Hall
Control & Instrumentation systems	NEI Electronics
Pressure vessel liners and gas baffles	Whessoe
Boiler systems	NEI Nuclear Systems
High pressure pipework	Aiton
Gas circulators	Howden
Fuelling machine	Strachan & Henshaw
Graphite core	Union Carbide/Fairey Engineering



6. The site workforce peaked in mid 1985 at just under 6,500 (1500 staff and 5,000 industrial employees).

Construction Progress

7. The project is on target to begin supplying substantial commercial output in the first part of 1987 from the first unit and one year later from the second unit.

8. Progress and industrial relations have been good, although in 1982 problems arose on the first reactor from industrial action by Whessoe workforce against the principle of double day-shift working. These difficulties were successfully resolved and a recovery programme was implemented to bring the first reactor back on target.

9. The second reactor continues to progress ahead of programme.

Commissioning Progress

10. Good progress has been made in setting to work various auxiliary systems including electrical power supplies, auxiliary boilers, water treatment plant and the circulating water system. All eight gas circulators in the first reactor have been run and commencement of full reactor combined engineering tests on the first unit is imminent.

Costs

11. The estimated cost to completion remains within the original sanction of £1251M (including initial fuel). Including cost escalation to September 1985, the estimate becomes £1680M.

Operational Benefits

12. When completed, Heysham 2 will bring immediate operational cost savings through displacing fossil fuel up to the equivalent of some 2.5 million tonnes of coal a year. By contributing to the diversification of the fuel sources of the CEGB, which is reliant on coal for over 80% of its output, Heysham 2 will also assist the security of supply and provide some insurance against future real increases in the cost of fossil fuels. In addition, Heysham 2 will contribute materially to maintaining the nuclear share of generation as the earlier (Magnox) nuclear stations begin to reach the end of their useful lives in the 1990s.

Implications for Sizewell 'B'

13. The progress of Heysham 2 and Drax Completion within programme and budget reinforces the Board's case that Sizewell 'B' can be built to time and cost. The Board's approach to construction of Sizewell 'B' builds on the strategies which have proved successful at Heysham 2 and Drax, particularly the arrangements for site management and industrial relations.



HEYSHAM I

14. Initial operation of Heysham I and Hartlepool AGRs during the miners' strike disclosed technical problems which limit availability and output. To rectify these problems will involve significant capital expenditure. The latest estimate for the two stations is £119 million over the next 3 years. Without this output would be 5 Terawatt hours lower by 1988/89, and because some of the problems are safety related means that some of the expenditure may be necessary in order to ensure that the Nuclear Installations Inspectorate can allow continued operation of the stations. Heysham 2 has a different design and there are no implications for its cost or performance.



SELLAFIELD

POINTS TO MAKE

- 1 Welcome the high priority BNFL are giving to environmental matters (SIXEP £130m, POND 5 £315m, Waste Treatment Plants £700m).
- 2 Congratulate BNFL on its export record. The Company has won over £2.5 billion of reprocessing business from Japan, W Germany and others).
- 3 Recognise BNFL's major contribution to employment in the North West.

BACKGROUND

4 Sellafield is BNFL's largest site. Here the Company reprocess spent nuclear fuel from the UK's Magnox power stations and those in Japan and Italy. A major construction programme is well underway to build the THORP reprocessing plant, at a cost of £1.3 billion, for AGR and overseas PWR fuel and to extend facilities for processing and reducing nuclear wastes. Construction of THORP to time and cost is a key objective for the Company.

5 The two plants to be opened by the Prime Minister, POND 5 and SIXEP will make a significant contribution to environmental protection.

- i) POND 5, which cost over £315m will provide facilities for the receipt, storage and decanning of Magnox and AGR fuel prior to reprocessing. Care has been taken to control fuel corrosion in the Pond and hence reduce radioactive contamination and there are improved methods of decontaminating and remotely maintaining equipment.
- ii) SIXEP (the Site Ion Exchange Plant) built at a cost of £150m started operation earlier this year. The plant removes radioactivity from discharges of water from the spent fuel storage ponds.



6 Control of the environmental impact of Sellafield is a key task for the Company and an essential element in recovering public confidence. The site has been under close public scrutiny for the last two years. In November 1983 a discharge of radioactive liquid to sea caused some contamination of the local beaches. BNFL were prosecuted earlier this year by the Crown and found guilty on four counts; however, in his summing up, the judge praised the quality of BNFL's management and stressed that nobody had in fact been harmed by the incident. The Company was fined £10000.

7 An independent inquiry by Sir Douglas Black into claims about an increased incidence of cancer in the vicinity of Sellafield found no evidence of any general risk to health for children or adults living near the plant when compared to the rest of Cumbria and gave a 'qualified reassurance' to the local people.

8 Sellafield directly employs 6,200 and, indirectly, supports around 60,000 jobs in the UK, particularly in the North West.

9. To provide a forum for the representation of local interests the Company participates with DoE, MAFF, NII and local bodies on the Sellafield Local Liaison Committee. A recent move by Copeland Borough Council for the Committee to have a direct line to a Government Minister is being rejected as unnecessary by DoE.

10. The Divisional Director is Mr Gordon Steele, the General Manager of Calder Works Mr Maurice Wyatt, and of Windscale Works Mr Graham Smith. The Director of Reprocessing Engineering is Mr Jack Clarke.



BNFL: GENERAL ISSUES

POINTS TO MAKE IF RAISED

Privatisation

We have no plans at present to sell shares in BNFL. [Mr Walker in answer to Mr Orme, 17.12.84].

The need to reprocess

Surely there are positive reasons for reprocessing.

Only Magnox fuel is reprocessed at present. Since none of the stations except Wylfa have stores capable of holding fuel for more than a limited period, reprocessing is a technical necessity. Cessation would entail closing the Magnox stations at significant cost to the electricity consumer. Oxide fuel (such as AGR fuel) will be reprocessed in THORP. This was decided following the Windscale public inquiry. [PM in answer to Mr Deakins, 18.1.85]. [Background : The Select Committee on the Environment are looking at this issue.]

Civil/Military Interface

No plutonium from the reactors of the CEGB and SSEB has been used for weapons purposes. The Government has no plans to use plutonium from the Generating Boards' reactors in weapons.

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AGR v PWR DEBATE

Line to take (only if raised)

- Supporters of the PWR and of AGR have had a full opportunity to put their cases to Sizewell Inquiry. Inspector is now weighing all the evidence. Must await his report. Cannot comment at this stage.

Background

1 The Prime Minister will be aware of support for the AGR by members of the Lords (eg Lord McAlpine); she has also had recent correspondence with a PWR supporter (Lord Weir). The Chairman of the SSEB (Mr Don Miller) is also mounting a pro-AGR campaign following his evidence to the Sizewell Inquiry. The main strands of the AGR v PWR debate are set out below. To a large extent the arguments hinge on differing technical judgements and the Prime Minister is recommended to avoid being drawn into discussion as the matter is under consideration by the Sizewell Inspector.

2 In December 1979 the Government endorsed, as had the Labour Government in 1978, the CEGB's intention to establish the PWR as a valid option for the UK; and made clear its wish that, subject to the necessary consents and safety clearances, the next power station order should be for a PWR.

3 The CEGB subsequently sought consent to construct a PWR of a Westinghouse design at Sizewell B. Their application has received wide-ranging scrutiny at a Public Inquiry. The Department of Energy, in its evidence to the Inquiry reiterated HMG's support, in principle, for the PWR as the next power station order. The CEGB have expressed their hope, should they receive consent for Sizewell B, of building a "minimum family" of 4 replicate stations so as to spread the launching costs of the new system. They have not ruled out the possibility of constructing further AGR stations but this is clearly not their preferred option. They have, however, stated that they would ensure that the AGR option was kept open at least until the end of the decade (eg through funding of design work).

4 The CEGB's preference for the PWR rests primarily on their assessment that:

- (a) it has substantially lower capital costs per unit of electricity than the AGR and is capable of generating cheaper electricity;

/(b)

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- (b) it is the proven mainstream worldwide technology, with some 150 reactors in operation worldwide, compared to 5 AGR stations exclusively in the UK.

5 The SSEB have, however, argued in evidence to the Sizewell Inquiry that the CEGB have under-rated the AGR and that despite problems with other AGR designs (eg that at Heysham I, which has different boilers) performance of the AGRs at Hunterston and Hinkley Point, together with encouraging progress at Heysham II and Torness, have proved the worth of the system.

6 The SSEB argue in particular that the CEGB's assessments of the capital cost, capacity, availability and lifetime of the AGR are unreasonably pessimistic and that if "reasonable" values were taken the PWR would lose its advantage over the AGR. (For example, they consider that the AGR's economic lifetime should be taken as 35 years, as for the PWR, rather than the 25 years currently proposed by the CEGB). They fear that the CEGB's adoption of the PWR would inevitably lead to the withering away of the AGR option, given the limited scale of future nuclear orders. They see merit in sticking with a familiar system and believe it would be imprudent to change technologies at this stage.

7 The CEGB do not accept the SSEB's technical judgement. They regard the AGR record to date as uncertain and lay stress on the international track record of the PWR, which they believe can be successfully transferred to this country. Over 90% of the work content of Sizewell B would be placed with the UK firms.

8 Moreover, if a further family of AGRs were to be proposed, the system might need modification to meet today's safety requirements. Although the protagonists of the AGR stress its useful intrinsic safety characteristic - the low power density of the core means that changes take place at a slow pace, giving time to respond in the face of any unexpected incident - the Nuclear Installations Inspectorate (NII) would expect to re-examine the system's robustness to certain external hazards - with consequent uncertainties both for the timescales and costs of construction. The PWR, in contrast, with higher power density in the core, relies upon automatic systems to control the reactor in the face of unexpected incidents. A number of additional control systems have been introduced into the Sizewell B design and it has been subjected to close scrutiny by the NII.

9 The Sizewell Inspector, with the assistance of his technical assessors, is currently weighing up the CEGB's case for Sizewell B, and the extensive evidence put before him by both sides of the AGR/PWR debate. His report to the Secretary of State for Energy is awaited. *not expected until early 1986.*

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09.45

Arrive Capenhurst

Proceed to Centrifuge Assembly Building, Building 258

Welcome

Introductions and brief discussion

Tour of Assembly Plant

Proceed to Enrichment Plant E22

Brief description of process followed by Tour of Plant

11.15

Depart Capenhurst

11.30

Arrive Springfields

Introductions and brief presentation of Springfields activities

Tour of Magnox Canning Plant, Building 331

Tour of AGR Canning and Assembly Plant, Building 331

Tour of Uranium Casting

Tour of Pressurised Water Reactor Fuel Assembly Plant, Building 670

13.00

Depart Springfields

13.15

Arrive Heysham II by helicopter within site perimeter fence. Met by Lord Marshall, Chairman of CEGB. Transfer by site bus to CEGB site office.

13.20

Light lunch at CEGB site office. During lunch, briefing by Lord Marshall on CEGB nuclear power stations and performance, and by Mr S Newey (Heysham II Project Manager) on Heysham II construction site.

14.00

Leave site office for walking tour of Heysham II construction, conducted by Mr S Newey. Tour itinerary to include:

14.05 - 14.15 reactor charge hall

14.20 - 14.30 control room

14.35 - 14.45 turbine house

14.45 - 14.55 diesels/diesel control gallery

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14.55

Return to helicopter by site bus

15.00

Depart Heysham II by helicopter

15.15

Arrive Sellafield

Proceed to Training Centre

Introductions followed by Tour of Apprentice and general worker training facilities

Proceed to Magnox Receipt Storage and Decanning Plant Administration Building 333

Tour Magnox Receipt Storage and Decanning Plant, Building 331 including visits to Fuel Receipt Facilities and Inlet Cell, Storage Ponds, and Magnox Fuel Decanning Cells

Proceed to Site Ion Exchange Effluent Plant (SIXEP), Building 331

Tour of Control Room and Main Hall

Proceed to Magnox Receipt Storage and Decanning Plant Administration Building 333

(No formal speech say a few words)

Unveil Commemorative Plaque

Proceed to Assembly Hall, Building 111

Visit Exhibition Centre

17.30

Depart Sellafield

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15/7/0

BRIEFS

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SPEAKING NOTES FOR THE OPENING CEREMONY OF THE SITE ION EXCHANGE PLANT (SIXEP)
AND THE FUEL HANDLING AND STORAGE PLANT (POND 5) AT SELLAFIELD

Chairman and fellow guests,

It is a great honour to be invited to open these two impressive plants which are of such importance to the development of Sellafield. They reflect high standards for the protection of the environment and I know that further similar plant costing hundreds of millions of pounds is on the way.

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Sellafield is one of Britain's industrial success stories. I only wish we had more companies able to provide, as BNFL does, directly or indirectly, profitable employment for 60,000 people in and around the North West. I also wish we had more companies able to win export contracts running into many hundreds of millions of pounds in countries such as Japan and Germany. I congratulate you, particularly, on an increase of more than 40% in your exports this year.

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