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PREM 19/1741

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Report on the B701 leak at Windscale

Incident (Leakage) at BNFL Sellafield (Windscale)

ENVIRONMENTAL AFFAIRS

July 1980

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PART 1 ends:-

DHSS to PS/UAC 22.7.87

PART 2 begins:-

SS/EDBRGH to SS/WALES 23.2.87

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Cabinet / Cabinet Committee Documents

Reference	Date
H(84)26	13/07/1984
H(84) 14th meeting, minutes	18/07/1984
CC(86) 10th meeting, item 1	13/03/1986

The documents listed above, which were enclosed on this file, have been removed and destroyed. Such documents are the responsibility of the Cabinet Office. When released they are available in the appropriate **CAB** (CABINET OFFICE) CLASSES

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PREM Records Team

Published Papers

The following published paper(s) enclosed on this file have been removed and destroyed. Copies may be found elsewhere in The National Archives.

Committee on Medical Aspects of Radiation in the Environment (COMARE)
First Report – The implications of the new data on the releases from Sellafield in the 1950's for the conclusions of the Report on the Investigation of the Possible Increased Incidence of Cancer in West Cumbria.
Chairman: Professor M Bobrow
Published by HMSO. ISBN 0 11 321066 3

Signed _____ Date 22/09/2014

PREM Records Team

CC PSG
(Letter only)

DEPARTMENT OF HEALTH AND SOCIAL SECURITY

Alexander Fleming House, Elephant & Castle, London SE1 6BY
Telephone 01-407 5522

From the Minister for Health

Joan MacNaughton
Lord President's Office

22 July 1986

WSPM

Dear Joan

COMARE REPORT ON SELLAFIELD

My Minister wrote to the Lord President on the 14th July at 11a.

As you know, there were further discussions between Departments yesterday in the light of the alternative answers suggested by the Lord President and the Secretary of State for Energy. The outcome was the attached answer which will be answered later today. The text was also agreed with the Department of the Environment and the Ministry of Agriculture, Fisheries and Food.

One remaining issue to be settled is whether the last sentence should include the words "the Government will take any necessary action". Lord Trefgarne has suggested that this be ommited but both my Minister and the No10 Press Office take the view that the Government can say no less. We will be working to resolve this matter in the course of the day.

I am copying this to Mark Addison (No10), Geoff Dart (Department of Energy), Colin Williams (Welsh Office), David Morris (Lord Privy Seal's Office), Andrew Lansley (Chancellor of the Duchy's Office), Jim Daniell (Northern Ireland Office), Ivor Llewellyn (MAFF), Robin Young (Department of the Environment), Robert Gordon (Scottish Office), Murdo Maclean (Chief Whip's Office) and Michael Stark (Sir Robert Armstrong's Office) and No10 Press Office.

Yours sincerely

M. O'Connor

M O'CONNOR
Private Secretary

NSN/DNo.17

Monday 21st July

Written Answer

Tuesday 22nd July

PQ 1985/86

Han Ref Vol:
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QUESTION

To ask the Secretary of State for Social Services when the Committee on the Medical Aspects of Radiation in the Environment (COMARE) will complete its reports on new information relating to discharges from Sellafield that has become available since publication of Sir Douglas Black's Report.

SUGGESTED ANSWER

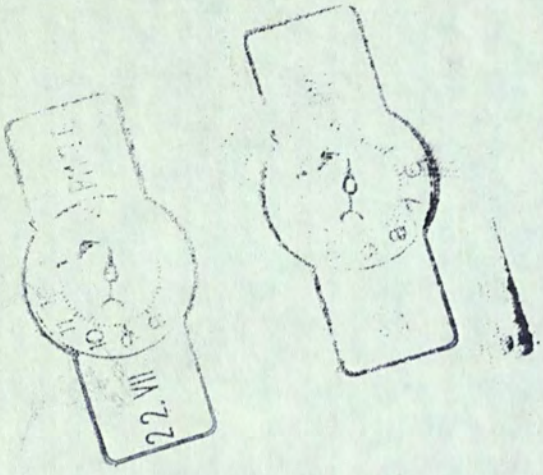
COMARE has now completed its report and it is being published today. I have arranged for copies to be placed in the library.

The Committee conclude that it is impossible to exclude environmental radiation or indeed any other factor as a contributory cause of the cases of leukaemia observed at Seascale although they stress that there is no firm evidence for the existence of any causal relationship between environmental radiation and these leukaemias.

Although the Committee express reservations about the adequacy and completeness of the available data and also about the conventional framework for estimating doses and risks, they conclude that the substance and essential conclusions of the Black Advisory Group Report remain unchanged.

Government is giving full and careful consideration to the report and will take any necessary action.

GNV AFFAIRS Sentafed July '80.



COMMITTEE ON MEDICAL ASPECTS

OF RADIATION IN THE

ENVIRONMENT

(COMARE)

FIRST REPORT

THE IMPLICATIONS OF THE NEW DATA ON THE RELEASES FROM SELLAFIELD IN THE 1950s FOR THE CONCLUSIONS OF THE REPORT ON THE POSSIBLE INCREASED INCIDENCE OF CANCER IN WEST CUMBRIA

CHAIRMAN: PROFESSOR M BOBROW

Frontispiece
County of Cumbria

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FOREWORD

(i) In recent years there has been increasing public concern about the possibility that low levels of environmental pollutants can adversely affect public health. This concern has often centred upon the possible health effects of radioactive discharges from nuclear sites.

(ii) The Government recognised this public concern when it asked Sir Douglas Black to chair the Independent Advisory Group which looked into the possible increased incidence of Cancer in West Cumbria in November 1983 The Group's Report 'Investigation of the possible Increased Incidence of Cancer in West Cumbria' which was published in July 1984 concluded, when considering the discharges from the site (paragraph 6.12) that 'these calculations do not support the view that the radiation released from Sellafield was responsible for the observed incidence of leukaemia in Seascale and its neighbourhood. However it is important to stress the unavoidable uncertainties on dose in this situation, and the model we have used does not exclude other possibilities.[1]

(iii) The Report made four recommendations for further epidemiological studies on the population resident around the Sellafield site:-

(a) a case control study of the records of cases of leukaemia and lymphoma diagnosed among young people up to the age of 25, resident in West Cumbria;

(b) a study of the medical records of all children born since 1950 to mothers resident in Seascale at the time of birth;

(c) a study of the medical records of school children who have attended schools in the area;

(d) a more detailed re-analysis of the electoral ward study already carried out in the Northern Region to include, among other things, analysis of the data by place of birth.

These studies have been commissioned by the Department of Health and Social Security, but have not yet been completed. In addition an extensive study of cancer incidence and mortality around nuclear installations (also mentioned in the Black Advisory Group Report) is nearing completion and the Office of Population Censuses and Surveys (OPCS) have initiated a follow up of the population in West Cumbria in 1940. No detailed reconsideration of the epidemiological data is justified until the results of at least some of these studies become available.

(iv) The Black Report also drew attention to the uncertainties in the assumptions made in the dose and risk estimation procedures. To improve knowledge in this area the group made further recommendations (6 and 7) concerning the desirability of direct measurements in humans whenever possible, and the need for more information on dose and risk assessment in children and in relation to High Linear Energy Transfer (LET) radiation (ie alpha particles from actinides such as plutonium which produce very intense but localised radiation).

(v) The Report's last recommendation was that there should be a designated body with significant health representation, to enable decisions on action with regard to the control of permitted radioactive discharges to take account of all relevant factors.

(vi) The Committee on Medical Aspects of Radiation in the Environment (COMARE) was established to implement this recommendation.

(vii) COMARE is an advisory committee with members appointed by the Chief Medical Officer for their medical and scientific expertise. It was set up to offer government independent medical and scientific advice on the health effects of ionising and non-ionising radiation in the environment whether natural or man-made.[1]

(viii) Its terms of reference are "to assess and advise Government on the health effects of natural and man-made radiation in the environment and to assess the adequacy of the available data and the need for further research". The Chairman and members are listed in Appendix A of this report.

(ix) The Committee held its first meeting on 25 November 1985 and has met three times since then. The limited time available to date has meant that it has yet to consider the topics outlined in paragraph (iv) in detail.

(x) This is its first Report to Government and deals with the implications of new information relating to the discharges from the Sellafield Site that have been provided by British Nuclear Fuels plc (BNFL) and others since the publication of Sir Douglas Black's Report.

I: INTRODUCTION

1. Over the last few years the possibility that unexpected clusters of cancer have occurred in those living near nuclear installations has been considered on several occasions[2-10]. Usually these have related to possible excesses of childhood leukaemia. The situation at Seascale, a village a few miles south of British Nuclear Fuels plc (BNFL) nuclear fuel reprocessing site at Sellafield has already been the subject of a report by the Independent Advisory Group chaired by Sir Douglas Black.[11]

2. Since publication of the Black Advisory Group Report new information has become available, mainly related to the releases of radioactivity from the Sellafield site in the 1950s. At our first meeting we were asked as our first priority to advise government on the implications of these new data for the conclusions drawn in the Black Report about the relationship between the discharges from the Sellafield site and the observed incidence of leukaemia in the village of Seascale.

3. This first report from COMARE therefore deals briefly with the background to the Black Advisory Group Report and the nature and sources of the new information that has become available; it considers how the new data affect the conclusions of the Black Advisory Group Report. It does not re-assess the epidemiological data, since that would be premature, but rather concentrates on how the new data affect the dose and risk estimates, following as far as possible the same methods as were used in the Black Advisory Group Report.

4. We emphasise that throughout this report we are chiefly concerned with estimates of dose which are based upon environmental monitoring data used in conjunction with complex biological and mathematical models. The risks resulting from the estimated doses are based on extrapolation from earlier studies on the effects of radiation. Each step in this process is invested with an element of uncertainty, which cannot always be quantified. The cumulative effects of these sequential uncertainties cannot be exactly estimated.

5. We also emphasise that in this report we are not in general concerned with the direct measurement of risk using morbidity and mortality data.

6. While we would like to thank all those who provided us with information for their assistance we should also make it clear that the report expresses the views of committee members and not necessarily those of the Secretariat or the Assessors. Those who contributed directly to the many helpful discussions are listed in Appendix B. To help explain some of the more technical terms necessarily used in this report there is also a Glossary at Appendix C, and words included in the Glossary are underlined the first time that they appear in the text.

II: BACKGROUND INFORMATION ON THE BLACK REPORT AND NRPB REPORT R 171

7. The Black Advisory Group asked NRPB to calculate the doses from the Sellafield discharges likely to have been received by young people resident in Seascale village since the 1950s. In order to do this the Group asked BNFL to make available to NRPB all relevant monitoring and discharge data. In addition the Group asked BNFL for a list of incidents leading to off-site consequences since Sellafield began its operations in 1952. This list formed Appendix 1 of NRPB R 171[12] the document specially prepared by NRPB for the Black Advisory Group. The estimation of doses in NRPB R 171 and their derived risks in the Black Advisory Group's Report (published in July 1984) were based on these data which were used in a series of mathematical models.

8. Exposure from environmental radiation whether due to discharges from a nuclear site, nuclear weapons fallout or natural background radiation occurs via three routes:-

a. external exposure from gamma rays via airborne and deposited radionuclides;

b. internal exposure via radionuclides inhaled from the air;

c. internal exposure via radionuclides ingested in food and drink.

9. Various information is available from which doses from the Sellafield discharges received by members of the local population can be estimated. These include details of:-

a. quantities of radioactivity released; details of the radionuclides contained in the discharge; the route of release and physical and chemical form; meteorological conditions during the release;

b. measured levels of radionuclides on the ground and in the sea, rivers and air;

c. measured levels of radionuclides in food and drink produced in the area and consumed by the local population;

d. measured levels of radionuclides in human tissues.

10. This information can then be used in mathematical models together with statistics on population habits and food consumption patterns to estimate the quantity and types of radionuclides to which the local population are likely to have been exposed. While some of these 'habit' data will have been collected specifically in relation to the West Cumbrian population, others will come from nationally collected figures.

11. The relationship between the results of these calculations and actual exposures received by the population of interest will depend to a considerable extent upon the quantity and quality of the information that can be collected. Where little information is available (as is the case in the 1950s for the Seascale population) caution is required in interpreting the results of these estimates.

12. These data can then be used to derive an estimate of the dose received by any particular cells or tissue of interest using a range of metabolic parameters such as gut transfer factors, tissue distribution patterns and excretion rates for each radionuclide of interest.

13. From these estimated doses it is then possible to derive estimates of the risk of leukaemia (or other relevant disease of interest) using information on the relationship between radiation dose and risk of cancer.

14. As has already been mentioned in the Introduction (para 4) these calculations result in estimates of doses and risks rather than direct physical measurements of doses or biological measurements of risk. They depend on many assumptions, for example, the distribution of radionuclides in tissue; the relative biological effectiveness of different radionuclides, and the site of the sensitive stem cells for the induction of leukaemia. In NRPB R 171 this was assumed to be the red bone marrow, and the cells were assumed to be uniformly distributed through the marrow. While these were reasonable assumptions to make they are not the only assumptions that are possible in this context.

15. In NRPB R 171 estimates of doses to the red bone marrow from all three routes of exposure detailed in para 8 were considered and used to derive estimates of risks for the induction of leukaemia in young people resident in Seascale and under 20 years of age. In order to understand the way the new information on discharges affects these dose and risk estimates it is necessary to explain in more detail the way NRPB calculated the doses from internal exposures.

16. For the particular situation of the discharges from Sellafield and the doses and risks to the young people of Seascale, NRPB decided that the best estimate of internal dose from ingestion of radionuclides (8(c) above) would be derived from the use of measurements of radionuclides in soil and terrestrial and marine foods, ie environmental monitoring data.

17. For calculating the doses from inhalation (8(b) above) of radionuclides, measurement data were more limited. Information on atmospheric and marine discharges were therefore used to calculate intakes by inhalation from air and seaspray.

18. Routine environmental monitoring was rudimentary before 1957. NRPB therefore had to make many extrapolations from limited data in calculating the doses for the period 1952 to 1957. For estimation of the dose from ingestion they relied heavily upon a series of 40 measurements of levels

of Strontium 90 (Sr-90) in milk collected in 1958 from the two farms closest to Seascale (Figures 1 and 2). The levels of Sr-90 and other radionuclides in the total diet were derived from these milk measurements using food chain models.

19. In the list originally provided by BNFL there had not been any on-site incidents with off-site consequences before the Windscale Fire in 1957. However, included in the information provided to NRPB from BNFL on discharges of radionuclides from the Sellafield site were details of the release from the Windscale piles of about 400 g of irradiated fuel in 1954/55, with a further 40 g in the late 1950s. On the assumption that the irradiated fuel was released from the plant over a period of time, and that there would have been other routine releases from the plant, NRPB considered that the assumption of a constant level of Sr-90 in the diet up to and including 1958 would not underestimate the doses to the Seascale population (Figure 3). For other ingested, inhaled or external exposures from radionuclides levels in milk, other foods and the environment were derived either from the Sr-90 levels or from the discharge data.

20. For later years of operation of the plant the environmental monitoring data made available to NRPB progressively improved. Where appropriate measurements of levels in environmental materials were available, NRPB used them in the analysis, but where they were not available, estimates were again made from discharge data. Measurements of intakes of radionuclides in the later years were therefore more reliable than for earlier years.

21. The Seascale children were divided into a series of seven groups (cohorts) assumed to have been born in seven consecutive five year periods from 1945-1975. The 1950 cohort comprised those born between 1950 and 1954 in Seascale. The doses to the red bone marrow for each cohort were estimated from the available data for each cohort assuming a period of exposure lasting from birth to age 20 or to 1980, whichever was the earlier.

22. The Black Report drew attention to 'the unavoidable uncertainties on dose in this situation and the model we have used does not exclude other possibilities' in paragraph 6.12 of their report.

III: NEW INFORMATION ON DISCHARGES AND RELEASES FROM THE SELLAFIELD SITE IN THE 1950s

a. New Information on 1954/5 Episode leading to Releases of Uranium Oxide Particles from the Sellafield Site

23. In November 1984, NRPB informed DHSS that they had been approached on a personal basis by Dr D Jakeman who between 1954 and 1956 had been an employee of the Research and Development Branch of United Kingdom Atomic Energy Authority (UKAEA) at their Windscale (Sellafield) Site. He had then worked on development of the filters in the discharge stacks of the Windscale Piles. During the period when the Black Inquiry was collecting evidence Dr Jakeman was abroad. It was not until his return to a post at UKAEA Winfrith Heath in 1984 that he was able to inform UKAEA that he might have information of relevance to any further investigation. Dr Jakeman had a series of discussions with NRPB and BNFL and subsequently produced a Report[13] in April 1985 which contained his interpretation of the environmental and possible public health impact of a release of uranium oxide particles from the stack of the Windscale Piles during 1954 and 1955. This report was sent to NRPB, BNFL and DHSS, and has not been published. However we understand that UKAEA are intending to publish a report on this subject by Dr Jakeman, which we have not seen.[14]

24. The April 1985 report said that while working at Sellafield in 1954/5, Dr Jakeman and a colleague had detected unexpectedly high levels of radioactivity in their gardens. In 1955, UKAEA produced a report[15] stating that uranium oxide from spent fuel cartridges removed from the piles and inadvertently exposed to air, was being released to atmosphere. This report

concluded that a total of 100-200 g of uranium oxide had been released.[15] In 1955 UKAEA appointed a group of independent experts to assess the health implications of the available data.[16] Dr Jakeman told us that in July 1956 he submitted a report to the Research and Development branch of UKAEA which contained his findings and drew attention to the levels on the ground from his own observations. In 1957 more environmental monitoring data were considered by UKAEA and the figure of 100-200 g was revised up to 440 g total release.[17] These reports[15,17] were given to NRPB for incorporation into the calculations made for the Black Advisory Group Report and appeared in the NRPB Report R 171.[18]

25. Dr Jakeman questioned the reported magnitude of the release. Based on his knowledge of the efficiency of the filters at the time and his recollection of the environmental levels of radioactivity he had measured he believed that about 50 times more than the reported 440 g (ie around 20 kg) of uranium oxide had been released to the environment. Following discussions between Dr Jakeman, BNFL, UKAEA and NRPB, which took into account information on the number of spent fuel rods likely to have been oxidised,[15] the estimate of 20 kg was accepted by BNFL as more likely to be correct than the earlier estimate of 440 g. This value (20 kg) was used in Dr Jakeman's report of April 1985, where he also stressed that this figure was approximate and that a range of 10-50 kg was possible (see Footnote 1).

26. BNFL told us that the reassessment was based on the assumption that all the fission products (corrected for contribution from the Windscale Fire in 1957 and weapons fallout) measured in soil core samples after

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Footnote 1: We understand Dr Jakeman in his report,[14] has revised his estimate to 30 kg.

1957 in the vicinity of Sellafield, had originated from the uranium oxide particle release. BNFL's actual calculated figure for the release was about 12 kg but, given the uncertainties in the calculations, it was agreed that a figure of about 20 kg was a more realistic estimate of the actual release than the previous value of 440 g. BNFL believe this higher figure is more consistent with the performance of the filters in practice compared to their specification.

27. Dr Jakeman and others have suggested that the method of core sampling of the soil employed in 1957 was likely to result in an underestimate of the releases, because the larger particles would be sparsely deposited and would be likely to be missed by the sampling method employed.

28. Uranium metal fuel, after removal from the Pile, contains a spectrum of radionuclides including Caesium 137, Caesium 134, Strontium 90, Strontium 89, Zirconium 95/Niobium 95 together with small amounts of some alpha emitters (see glossary). Following any oxidation these will be contained in oxide fuel particles of varying size, which as they are released from the stack are transiently in the air (from which they may be inhaled) but will then be deposited on the ground and so enter the food chain, mainly in milk and meat over a period of time.

29. The revision of the magnitude of this release necessitated by the new information provided by Dr Jakeman and the fact that the bulk of the release was believed to have occurred over a relatively short time in 1954/5 meant that the previous extrapolation from the Sr-90 levels in

milk in 1958 used to estimate the doses from the ingestion route before 1957 (para 19 and Figure 3) was no longer appropriate. NRPB have therefore re-calculated the doses to take account of the 1954/5 incident and also of additional data subsequently received from BNFL (see III (b) below) in an Addendum to R 171.[18]

30. In the Addendum to R 171, NRPB have assumed that the entire release of uranium oxide fuel particles occurred in mid 1954 and that the levels of Strontium 90 in milk in 1958 represented the 'tail' of a curve of declining levels in milk since the 1954 release (Figure 3). As before, levels of other radionuclides in milk and other foods were then derived, using mathematical models, from the estimated milk levels of Sr-90. Since it was known that at least some uranium oxide was still being released in 1957, NRPB believe that this assumption will not underestimate the calculated doses from ingestion to the local population from the 1954/5 release.

31. Estimated doses via the inhalation route also needed to be revised upwards, although the inhalation route contributes a relatively small part (4.2%) of the overall estimated dose equivalent from the discharges (Table 2) to the 1950 cohort.

III: (b) BNFL MAJOR REVIEW OF SELLAFIELD DOCUMENTS

32. There had also been a Press Report[19] in February 1985 concerning a previously unknown release of radioactive iodine-131 to the atmosphere in 1952, based on a document recently deposited in the Public Record Office by UKAEA. The discovery of additional information on releases in the 1950s naturally raised the question of the completeness of the data provided for the Black Report.

33. BNFL therefore instituted a major review of information relating to Sellafield discharges and environmental monitoring in early years. This included a search of all documents (some 10,000) relating to any aspects of the Sellafield site which had been reviewed by UKAEA before deposition in the Public Records Office under the 30 year rule. They scrutinised these documents for any additional data relating to releases from the Sellafield site in the 1950s. Similar files containing documents dated later than 1957/8 could not be searched because of the timing of the UKAEA review procedures under the thirty year rule for the release of public documents. Special attention (by examining specifically relevant documents) was also given to the period up to 1964 because routine monitoring of atmospheric discharges was not possible before then.[20]

34. BNFL also told us that the search of the archives included all classified documents falling within the limits outlined in paragraph 33 above, that the files were sequentially numbered within defined sub-classes and that none of the numbered files was missing. They are therefore confident that they have made all reasonable efforts to ensure that the data within the classes searched by them are complete. They also told us that where routine measurements of discharges had not taken place, best estimates were obtained by detailed examination of plant operations compared wherever possible with environmental monitoring data. Where there was doubt an attempt was made to identify reasonable upper limits.[20]

35. Details concerning about 20 items of new or reassessed data on discharges were identified. Further details of these releases are given

in the Addendum to NRPB R 171. The archival search produced evidence that UKAEA had appointed, in 1955, a group of independent experts to assess the health implications of the available data on the uranium oxide particle releases at that time. We noted however, that the record searching did not produce the personal report provided by Dr Jakeman to UKAEA in 1955 in relation to the 1954/5 releases.

36. BNFL inform us that this report was left by Dr Jakeman with his line management on his resignation from UKAEA and was not included in the official files. Investigations by the UKAEA concluded that it was most likely to have been destroyed with other papers in his personal file following the then normal procedures after his resignation. Thus Dr Jakeman's approach to NRPB in 1984 depended entirely on his personal knowledge of the local situation in the 1950s.

37. NRPB calculated that the majority of the additional information result in only minor modifications of their estimates of doses.[18] A few, such as the 1954/5 release of irradiated fuel particles, changes in the Argon 41 discharges from the Windscale Piles and a plutonium release in 1952 did have more significant effects on their estimates of doses to the red bone marrow.

38. Any releases which could be added on to previous estimates, or which were revisions of previous estimates, were included in the revised dose calculations. In addition, any release which contributed about 1% or more of the dose equivalent to the red bone marrow from Sellafield discharges in that year, as calculated in R 171, was included in the calculations.

39. Based on the information available, NRPB believe that this procedure ensures that over 95% of the total dose from the Sellafield discharges had been taken account of in their calculations.

III: (c) EFFECTS OF ALL ADDITIONAL RELEASES ON RED BONE MARROW DOSES AND LEUKAEMIA RISK CALCULATIONS

40. In this section we consider some of the different ways that the available discharge data and environmental monitoring data have been used to calculate estimated dose equivalents and to make assessments of risks of leukaemia.

i. NRPB Report: Addendum to R 171

41. The 50-fold increase in the estimate of the quantity of uranium oxide released from the stack, plus the other additional data discovered by BNFL, result in a two-fold increase in the estimated dose equivalent from the Sellafield discharges to the red bone marrow for young people born in Seascale in 1950-54 (the 1950 cohort) and resident there until 1970. In the revised NRPB calculations children born in the 1960s and later received smaller increases from these discharges as the levels of radionuclides from this release entering the food chain declined.

42. According to NRPB the relatively small increase in the calculated dose to the 1950 cohort (compared to the 50-fold increase in the estimated release of uranium oxide in 1954/5) results from the fact that in the original NRPB R 171, the dose estimates were wherever

possible based on environmental monitoring data, which already partly reflected the effects of the 1954/5 release, rather than solely on discharge data (ie the figure of 440 g of uranium oxide that is now accepted to be an underestimate).

43. The dose and risk estimates in the Addendum to R 171 are higher because the environmental data (ie the milk levels of Sr-90) are now interpreted as the decaying tail of an earlier peak, whereas in NRPB R 171 they are interpreted as part of a steady-state level of Sr-90 in milk (Figure 3). NRPB did not extrapolate back from environmental levels to calculate an estimate of the emissions from the stack; they did however use the 20 kg estimate for uranium oxide release as the basis of their inhalation dose estimates in the Addendum to R 171.

44. There is a larger contribution from the inhalation route in the Addendum to R 171 to reflect the now accepted larger discharges. However, since the particles were available in the air for inhalation for a relatively short period of time compared to the time they were available on the ground for incorporation into food, the inhalation route makes a relatively small contribution to the total dose equivalent to the 1950 cohort (Table 2). In the case of the 1950 cohort only 4.2% of the total dose equivalent to the red bone marrow is derived from the inhalation route in the revised dose estimates in the Addendum to R 171.

45. The increase in estimated dose equivalent from the discharges in the 1950s has affected both the densely ionising and high LET radiation (eg alpha rays) and the less biologically effective less densely ionising

low LET radiation (eg X-rays) (Table 3). However the effect on the high LET component has been greater than the effect on the low LET component. The children born in the early 1950s who received the maximal additional exposure experienced a four-fold increase in the high LET dose from the Sellafield discharges and up to a two-fold increase in the low LET dose component, depending upon the duration of residence and the time of residence of the cohort in Seascale while for most cohorts the additional dose was much less (Table 3).

46. However, it should be realised that part of the increase in the estimated high LET component is because NRPB now consider that actinides are transferred twice as efficiently from the gut into the body than was previously thought to be the case (ie the gut transfer factor has been changed from 5×10^{-4} to 1×10^{-3}). This is in line with an anticipated recommendation from the International Commission on Radiological Protection.

47. This increase should also be seen in the context of the estimated dose to the red bone marrow from natural background radiation. For comparison for the 1950 cohort, the total revised dose to the red bone marrow up to the age of 20 years from the Sellafield discharges including doses from the Windscale Fire is now 6.3 millisievert (mSv) compared with 22 mSv from natural background (Table 4). Therefore, these increased dose estimates are still much less than those that have been calculated as being received during the same period from nuclear weapons testing fallout plus natural background radiation. However, the dose from the Sellafield Discharges and the Windscale Fire contains a greater percentage of high LET component than does the dose from all background

radiation. Table 2 shows the estimated contribution of high and low LET dose equivalents to the three pathways of exposure from the Sellafield Discharges for the 1950 cohort.

48. We noted that the NRPB mathematical models used above in the dose estimation procedure relied heavily on the levels of Strontium 90 recorded in 1958 in milk from two farms, one adjacent to Seascale village, the other 1.5 km from Seascale village (Figures 1, 2 and 3). Although the levels in milk from each farm varied throughout the year over a fairly narrow range, there was almost a 10-fold difference between the average level detected at the two farms (after assuming and subtracting an identical contribution from nuclear weapons fallout).

49. Differences in farming practices could lead to differences in uptake of deposited radionuclides from both nuclear weapons fallout and the Sellafield Discharges and so result in different levels of Sr-90 in milk from the two farms. In this case subtracting the same estimated contribution from background radiation from the measured levels would tend to increase the observed difference between the levels in milk from the two farms and ideally separate levels for background radiation should be calculated for each farm. However, NRPB inform us that there are insufficient data available to justify deriving such specific figures for the background radiation contribution, and they used national background levels corrected for local rainfall rates.

50. Such variability in milk levels from two farms in the same area; the problems in allowing for other factors such as nuclear weapons

fallout and the fact that no measurements were available for the time of the release of uranium oxide in 1954/5 emphasise the uncertainties in this all important environmental monitoring data, which formed the basis of NRPB's dose estimates for the early years both in NRPB R 171 and in their Addendum. These uncertainties are underlined and confirmed by the new information that several incidents involving off-site releases occurred in the 1950s.

ii. Dr Jakeman's Reports

51. Dr Jakeman in his Reports[13] used mathematical models designed to assess atomic weapons fallout, information on the number of particles released from the stacks and the NRPB uptake model to calculate the doses likely to be received by the Seascale young people. In his second report he estimated a risk of death from leukaemia due to radiation exposure of one per 2500 children born and living in Seascale between 1950 and 1955. Since he estimated there were probably about 200 children in Seascale at that time he concluded that this was equal to 0.08 deaths. Dr Jakeman stressed the uncertainties in this estimate (but see Footnote 2).

Footnote 2: (a) In his reports[13] Dr Jakeman suggests that measurements of Sr-90 and Cs-137 levels made after 1957, and used in his estimates of risks, may have been inaccurate because of the sampling method employed. He believed levels of radioactivity at Seascale were four times higher than those implied by NRPB for their risk assessment. After our Report had been completed we understand NRPB have recalculated (in Appendix E to the Addendum to R 171[18]) their risk assessment using these higher levels but still making the same assumptions as were made in the main report (eg that models designed to assess exposures from atomic weapons fallout are applicable to estimating doses from this incident).

Footnote 2 continued

(b) NRPB's results using Dr Jakeman's assumptions on environmental levels indicate that children born in 1954-5 and living within a few kilometres of the Sellafield site would have been at the greatest risk. They estimate that the Sellafield discharges would have produced a risk of death of 1 in 14000 for children born in Seascale in 1954 and resident there for 20 years compared with the risk of death of 1 in 33000 children reported by NRPB in their own calculations in the Addendum to R 171. Dr Jakeman pointed out to us that these calculations do not include a factor to represent what he considers to be the uncertainties in the assumptions made in the models.

(c) We understand that Dr Jakeman will be publishing a report based on his interpretation of the data and including the NRPB's risk calculations based on his environmental assumptions.[14] We have not seen this report but we welcome its publication.

iii. Dr Chamberlain's Reports

52. Dr Chamberlain, a retired employee at UKAEA and a consultant to them, also produced several documents[21] for us on the implications of the 1954/5 release. In his calculations he placed more weight on other environmental monitoring data which were available largely as part of a programme of monitoring of atmospheric fallout from nuclear weapons tests in the 1950s and did not rely on the Sr-90 levels in milk alone. He suggested that the doses likely to have been received by the Seascale young people are, if anything, overestimated by NRPB.

iv. Recalculation of estimates of risk of leukaemia using the same methods as were employed in the Black Advisory Group Report

53. We can repeat the calculation of the risk of leukaemia from the Sellafield discharges and the Windscale Fire carried out in para 4.47 of the Black Advisory Group report. This was based on the assumption (almost certainly producing an over-estimate) that all deaths from leukaemia in England and Wales in the under 20 year olds are due to exposure to background radiation. The additional dose equivalent of 6.3 mSv received by the 1950 cohort (ie 175 children born 1950-54) (para 21 Section II) from the Sellafield discharges and the Windscale Fire up to the age of 20 years would be expected to give rise to a further 0.02 cases of leukaemia for the entire under 20 population of Seascale up to 1980 (ie the seven cohorts taken together) the expected number of cases would be $\frac{0.1 \times 6.3}{28.1} \times 7$ = approximately 0.16 cases (compared with 0.09 cases expected in para 4.47 of Black Report), thus increasing the risk of leukaemia due to the discharges to the young people of Seascale by about 80%.

54. However, because the 1954/5 release has its major impact on the 1950 cohort (who were the only cohort who would have been in Seascale throughout the entire period of the release) and this cohort was, by chance, chosen as the reference cohort in the Black Advisory Group Report, simply repeating the calculation in para 4.47 overestimates the impact of the new data on the estimated dose equivalents to Seascale young people over the period 1945-80. If, instead, the calculated dose equivalents received by each of the seven cohorts (5.0 + 6.3 + 6.8 + 3.3 + 3.5 + 3.2 + 1.5 mSv) (see Table 4) are summed, then the total risk is 0.08 compared to 0.09 calculated in the Black Advisory Group Report.

v. Summary of estimated consequences of additional information

55. We spoke to Dr Jakeman, Dr Chamberlain and NRPB on several occasions and noted that although each approached the dose and risk estimation procedure from different points of view and gave emphasis to different aspects of the available data there was general agreement on the data available. All accepted that there were considerable uncertainties in the estimates produced, although the degree of emphasis placed on these uncertainties varied. We were impressed that, although differences between the three approaches and the approach of the Black Advisory Group did exist, nevertheless the dose and risk estimates from these sources to the total population of Seascale children between 1950 and 1980 did not, in the final analysis, differ by a large factor, when due account was taken of the inherent uncertainties in the calculations being undertaken. Assuming the data to be reasonably complete none of

them suggests that the doses received by the relevant population groups were sufficient to explain the observed excess of leukaemia using current models although there are many uncertainties and assumptions made in all of the dose and risk estimates suggested.

56. We also noted that the five years between 1952 and 1957, when the new information had its major impact on the estimated doses, formed a relatively small part of the total period under consideration in the Black Report; none of the reported cases of leukaemia were born in Seascale before 1957 and therefore the uncertainties in the exposure data in this early period, when routine site discharges were relatively low compared to later years, is unlikely to affect the overall model-based estimates of doses and risks to any significant degree, or to reconcile them any any more effectively with the leukaemia observations.

IV: DISCUSSION

57. In this report, we address two questions of public concern. First, does the new information on discharges from the Sellafield site markedly affect the previous estimates of risk given in the Black Report? Secondly, is it possible that there have been other still undetected discharges of radioactivity to the environment in that geographical area which would have had a noteworthy effect on risk?

58. As regards the first of these concerns, we note that NRPB's revised dose and risk estimates, taking the additional data on releases into account but using a method based primarily on environmental monitoring data, and using essentially the same models as previously still do not yield results that could account for the cases of leukaemia observed at Seascale.[18]

59. We have received two other interpretations of the new data[13,21] and the effect that they might have had on the estimated doses. If we were to assume the data to be reasonably complete neither of these suggests that the doses received by the relevant population group were sufficient to explain and excess of leukaemia using dose/risk estimates currently used in the field of radiation protection.

60. Furthermore, direct comparison with possible risks from background radiation for leukaemia induction using the assumptions employed in the Black Advisory Group Report, do not suggest that the estimated doses are sufficient to explain the leukaemia rate observed at Seascale.

61. Turning to our second concern, regarding the completeness of the data, we would reiterate para 6.10 of the Black Report, "one cannot completely exclude the possibility of unplanned dishcarges which were not detected by the monitoring programmes and yet delivered a significant dose to humans via an unsuspected route." The incident brought to light by Dr Jakeman is a compelling example of the inadequacies of both the discharge records and the environmental monitoring data from the 1950s. We have to stress that we cannot exclude the possibility that other significant releases from the plant could have occurred and not been detected during the period when controls and monitoring were more rudimentary than they are at present.

62. Given the large number of agencies involved in the nuclear industry in relation to the Sellafield site over the years it is impossible to be certain that all possible classes and sources of records have been searched. Relevant material may have been lost or destroyed in the intervening period. We note, for example, that the record searching carried out by the relevant authorities did not produce

the 1955 report provided by Dr Jakeman to UKAEA in relation to the 1954/5 releases which BNFL believe was destroyed along with Dr Jakeman's other personal records when he left UKAEAs employment. We understand that this was the usual procedure at that time.

63. The way in which the new data came to light inevitably undermines confidence in the adequacy of the information available upon which a judgment has to be formed and underlines the difficulty in making any estimate of possible population effects for this period. Even though the data is obviously more complete than it was, the fact that knowledge of an emission of 20 kg of uranium oxide can depend solely upon the evidence of one individual with personal experience of the situation at that time must suggest a real possibility that other emissions might have been unrecorded. The fact that routine monitoring also failed to detect the release underlines the rudimentary nature of these procedures at that time. Other data subsequently came to light from information in the Public Records Office. We are concerned that so many additional releases could be discovered so soon after the assessment made by NRPB and the Black Advisory Group.

64. It is most important to ensure that calculations in relation to future emissions are not again hindered by lack of adequate monitoring data. We have been assured that both on-site and off-site controls are now much more stringent, and make such episodes unlikely to occur in the future.

65. In addition to the uncertainties regarding releases noted above, we are concerned about the uncertainties inherent in the dose and risk estimation procedure used. These include uncertainties in:-

i. estimation of environmental pathways;

ii. estimation of doses to the local population;

iii. estimation of risks.

These uncertainties relate to the field of radiation protection and the dose estimation procedure as a whole. These uncertainties were identified in the Black Report and some of these led to Recommendations 6 and 7 (para iv; Foreword). We wish to draw attention to two points in particular. Firstly, in the light of the increased exposure to actinides which has resulted from recalculation of the doses from the Sellafield discharges (due partly to the new data and partly to the changed gut transfer factor for actinides) there is a need for further investigation and consideration of the uncertainties attached to the risk assessment of low dose exposures, given at low dose rates from radionuclides such as plutonium and americium emitting high LET radiation. Secondly, there is a need to consider further the selection of organs and target cells in dose estimation, especially in the context of lymphatic leukaemia. The emphasis that has been given to the red bone marrow may not be entirely appropriate. However, it will be one of the Committee's future tasks to address these and other uncertainties. For the purposes of the present report we have used the established dose and risk estimation procedures based on mathematical models

66. The recorded group of childhood leukaemia cases in Seascale which was documented in the Black Report, is only one example of reports of the occurrence of malignancies in children and adults in the vicinity of nuclear installations. Much still remains to be established about the

Seascale population, and the three studies currently underway in that area as well as other national and local epidemiological studies (see para iii in Foreword) will contribute further to our knowledge in this area. This report deals only with the limited information on leukaemia used in the Black Advisory Group Report.

67. Taking the evidence presented in the Black Advisory Group Report, there is an apparent excess incidence of leukaemia in Seascale and there continue to be four possible explanations for this apparent excess:-

a. it is due to chance;

b. it is due to exposure to environmental radiation;

c. it is due to a high sensitivity to leukaemia induction of members of the population of Seascale (we know of no evidence for this and in view of the mobile nature of this population this seems unlikely);

d. it is due to some as yet undetected environmental agent such as a chemical or a virus.

It is quite likely that the excess was caused by some combination of two or more of the above factors.

68. Although there is no straightforward explanation of the leukaemia cases in terms of the radiation exposure data available to us, it is equally true that there is no straightforward explanation in any other terms. It is impossible, in these circumstances, to exclude any specific

potential contribution towards the causation of the excess of leukaemias, including the possibility of a radiation effect.

V: CONCLUSIONS

69. The new information from Dr Jakeman and from BNFL shows that there were substantial releases of radioactivity from Sellafield in the early 1950s of which the Black Advisory Group were not aware (III(a) and III(b)). In particular a release of the order of 20 kg of Uranium oxide to atmosphere and starting in 1954/5.

70. The way in which these data came to light is unsatisfactory and undermines our confidence in the adequacy and completeness of the available data. Although we accept that every reasonable effort has been made to ensure completeness of the information now available to us we feel that the monitoring programme and record keeping for the 1950s were such that we cannot be certain that all releases have now been recognised.

71. We therefore consider that the level of uncertainty about the information available and about the risk to the population from the Sellafield discharges is now greater than at the time of publication of the Black Report.

72. We would like to thank Dr Jakeman for his valuable contribution in correcting the available information relating to these early discharges and in bringing this information to our notice.

73. We believe that the dose and risk estimates presented by NRPB represent a reasonable picture based on conventional assumptions in the

field of radiation protection. However we have reservations about this conventional framework. A very complex chain of reasoning, involving many uncertainties, is necessary to go from the release data and the sparse environmental monitoring data to a prediction of any possible adverse health effects.

74. The multitude and complexity of assumptions needed in order to make the dose and risk assessments are topics to which we wish to return at a later date.

75. Notwithstanding the above complexity, we note that the increased doses during the thirty year period between 1950-1980 are still well below the doses that are estimated to have been received, during this period, by the population from natural background and from nuclear weapons testing fallout combined.

76. The NRPB analysis[18] concludes that 0.1 additional cases of leukaemia would be expected from all sources of radiation in the Seascale study population; Dr Jakeman[13] suggests 0.08 cases in the 200 children born in Seascale during 1950-55; Dr Chamberlain[21] suggests the NRPB calculations tend to overestimate the risk, while calculations using the risk estimates employed in the Black Advisory Group Report based on assumptions with regard to the effects of background radiation suggest 0.16 additional cases of leukaemia due to the Sellafield discharges in all those born in Seascale between 1945-1980 and resident there until 1980 or their 20th birthday. It should be noted that these calculations of risks do not refer to comparable populations and therefore cannot be

directly compared (but see Footnote 2). However none of them are sufficient alone to explain the observed leukaemia rate in Seascale village.

77. The NRPB calculations show that the new data on releases and the change in the gut transfer factor for actinides, increases the dose from the Sellafield discharges to the population in the vicinity of Sellafield from high and low LET radiation by different amounts: up to two-fold for low LET radiation and up to four-fold for high LET radiation depending upon the time and duration of residence in Seascale.

78. These increased doses are still well below those that would readily explain the observed cases of leukaemia in Seascale using conventional risk estimates. Thus the substance and essential conclusions of the Black Advisory Group Report remain unchanged. In order to reach different conclusions it would be necessary to assume either that the calculated doses received or the tissue sensitivity of young persons are at present radically underestimated.

79. It is possible that important releases occurred in the past but went unrecorded or undetected by the rudimentary monitoring carried out in the early years. The events since the publication of the Black Report increase our concern with this possibility, although it cannot be quantified. This emphasises and underlines our concern regarding the uncertainty with regard to the validity of any conclusions.

80. It is impossible within this broad band of uncertainty, to exclude environmental radiation or indeed any other factor as a contributory

Footnote 2: We understand that more comparable risk estimates for the 1950 cohort will shortly be published by Dr Jakeman[14] and in appendix E of the NRPB addendum to R 171, which we have not seen. For the 1950 cohort the risk of developing radiation-induced leukaemia from the discharges is calculated as 1: 33000 by NRPB[18] and 1: 14000 by Dr Jakeman[14]. The calculations we have repeated based on the Black Report lead to an estimated risk for the same cohort of 1: 8000 from the Sellafield discharges plus the Windscale Fire

cause of the cases of leukaemia observed at Seascale, although we stress that there is no firm evidence for the existence of any causal relationship between environmental radiation and these leukaemias

81. It is most important to ensure that in calculations of dose and risk in relation to future emissions are not hindered by lack of adequate monitoring data or lack of appropriate epidemiological data.

82. We are informed that great improvements have been made in monitoring programmes, and that such improved methods have been employed for a long time. We advise government, however, that they should satisfy themselves as to the adequacy of the current monitoring programme at or near all such installations.

83. While we hope that the additional epidemiological data being obtained will clarify the situation further; we must also say that since we shall never know the actual average doses received by the population that the cases are drawn from and, as was pointed out in the Black Report, since we shall never know the actual doses received by those children who contracted leukaemia (para 6.10), it is likely that we shall never be able to establish with certainty whether there is any relationship between the cases of leukaemia in Seascale and the radioactive discharges from the Sellafield site.

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APPENDIX A

COMMITTEE ON THE MEDICAL ASPECTS OF RADIATION IN THE ENVIRONMENT

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APPENDIX B

Those giving oral evidence

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Miss J Dionion	NRPB	Chilton
Dr D Jakeman	UKAEA	Winfrith
Dr A C Chamberlain	UKAEA (Consultant)	Harwell
Mr P Mummery	BNFL	Risley
Dr D Anderson	BNFL	Risley

APPENDIX C

GLOSSARY OF TERMS AND ACRONYMS

Absorbed dose

The amount of energy absorbed per unit mass of a given tissue. It is measured in grays (or, in the old units, rads).

Actinides

The group of 15 elements with atomic number from that of actinium (89) to lawrencium (103) inclusive. All are radioactive. The group includes uranium, plutonium, americium and curium.

Alpha emitter (α)

A radionuclide that emits alpha particles.

Alpha particle (or alpha radiation)

A positively charged particle emitted during the radioactive decay of some radionuclides eg certain of the actinides. It consists of 2 protons and 2 neutrons and has a net charge of +2 (it is thus identical with a helium nucleus). It is the least penetrating of the 3 common types of radiation, viz alpha particles, beta particles and gamma (or x-) rays, being stopped by a sheet of paper, about 40 μm of body tissue or a few cm of air. It is a high Linear Energy Transfer (LET) type of radiation.

Americium (Am-241)

An actinide. It is an alpha and gamma emitter with a half-life of about 460 years. It is formed as a decay product of plutonium-241.

Argon 41 (Ar)

This is a beta emitting radionuclide with a half-life of about two hours: it is a gas.

BNFL

British Nuclear Fuels PLC.

Bequerel (Bq)

The Standard International (SI) Unit for the number of nuclear disintegrations taking place per second in a quantity of radionuclide containing matter.

$$1 \text{ Bq} = 1 \text{ radioactive disintegration per second}$$
$$= 27 \times 10^{-12} \text{ curies.}$$

Beta emitter (B)

A radionuclide that emits beta particles.

Beta particles (or beta radiation)

A particle emitted during radioactive decay of some radionuclides. It can be positively or negatively charged and is similar to a positron or an electron. Such particles are more penetrating than alpha particles (up to 40 mm in body tissue or a few metres in air or a few mm in plastics). It is a low Linear Energy Transfer (LET) type of radiation.

COMARE

The Committee on Medical Aspects of Radiation in the Environment.

Caesium-134 (Cs-134)

This is a beta and gamma emitting radionuclide with a half-life of about 2 years.

Caesium 137 (Cs)

This is a beta emitting radionuclide with a half-life of about 30 years.

Cohort

A term commonly used in epidemiological studies to denote a group of subjects with some common feature such as place of residence or place of work. In this report the term refers to groups of children born in specific 5 year periods in Seascale and resident in the area until 20 years of age (or until 1980). The '1950 cohort' is thus the group of children born in Seascale during the period 1950-4 inclusive and resident in Seascale until age 20.

Curie (Ci)

The old unit of radioactivity (the number of nuclear disintegrations per second occurring in one gram of radium - 226).

$$1 \text{ Ci} = 3.7 \times 10^{10} \text{ disintegrations per second}$$
$$27 \text{ Ci} = 10^{12} \text{ Bq.}$$

DHSS

The Department of Health and Social Security.

Decay

The process by which radionuclides emit ionising radiation (usually alpha, beta or gamma radiation) often changing from one element to another as they do so.

Dose equivalent

The quantity obtained for radiological protection purposes by multiplying the absorbed dose by a quality factor to allow for estimated differences in effectiveness of the various ionising radiations in causing harm to humans. The quality factor currently used for gamma rays, X-rays and beta particles is 1, for neutrons is 10 and for alpha particles is 20. The dose equivalent is measured in sieverts (or, in old units, rem).

Gamma emitter (γ)

A radionuclide that emits gamma radiation.

Gamma rays (or gamma radiation)

A high energy photon (a discrete particle of energy that is propagated as an electromagnetic wave having short wavelength) emitted from the nucleus of a radionuclide during radioactive decay. Such radiation is usually very penetrating, only being shielded by several metres of concrete or other dense material. It is a low Linear Energy Transfer (LET) type of radiation.

Gut Transfer Factor

This is a measure of the extent to which a radionuclide is absorbed from the gut into the bloodstream following ingestion.

Lymphoid tissue and lymphatic organs

The organs and tissues of the body containing appreciable numbers of lymphocytes, for example lymph nodes, thymus, spleen, tonsils.

Lymphoma

A tumour of the lymphoid tissue.

NRPB

The National Radiological Protection Board.

Natural Radiation (background radiation)

Natural radiation pervades the whole environment. Radiation reaches the earth from outer space. The earth itself contains radionuclides and natural radionuclides are present in the food we eat and in some of the elements contained in our body. Everyone is exposed to such radiation, which is frequently referred to as background radiation. The principal sources of background radiation are as follows:-

a. Cosmic rays: High energy ionising radiations from outer space. Most of such radiation is absorbed as it penetrates the earth's atmosphere, and thus the resulting dose decreases as the altitude decreases. The average annual effective dose equivalent for the UK population from this source is about 0.30 mSv.

b. Terresterial gamma rays: All materials in the earth's crust contain radionuclides (eg potassium-40 and radionuclides in the uranium-238 and thorium-232 series) and the population is continuously exposed externally to gamma radiation resulting from this decay. The average annual effective dose equivalent for the UK population from this source is about 0.4 mSv.

c. Radon decay products: The decay of the naturally occurring radionuclides thorium-232 and uranium-238 results in the production of radon gas which can move through rocks, soils or building material in which it is generated and be released from the surface. Out of doors radon is soon dispersed but indoors it can accumulate due to limited ventilation, the concentrations varying widely and being dependent on such factors as local geology and the degree of ventilation. The average annual effective dose equivalent for the UK population from this source is about 0.80 mSv.

d. Internal radiation: There are a variety of radionuclides naturally present in air, food and water which irradiate the body internally after ingestion or inhalation. The principal radionuclide is potassium-40, which is always present in natural potassium. Other contributions to internal dose are from Lead-210, Polonium-210 and Radium-226. The average annual effective dose equivalent for the UK population from this source is about 0.37 mSv.

Niobium 95 (Nb)

This is a beta emitting radionuclide with a half-life of about 35 days (it is formed during the decay of zirconium 95).

OPCS

The Office of Population Censuses and Surveys.

Pile

The part of a nuclear reactor which contains the fuel and its moderating system.

Plutonium

An actinide that can exist in several different isotopic forms. The principal isotopes, together with their main decay pathways, are listed below.

Plutonium-238, an alpha emitting radionuclide with a half-life of about 86 years.

Plutonium-239, an alpha emitting radionuclide with a half-life of about 24,000 years.

Plutonium-240, an alpha emitting radionuclide with a half-life of about 6,600 years.

Plutonium-241, a beta emitting radionuclide with a half-life of about 13 years, and which decays to an alpha emitter, americium 241.

Plutonium-242, an alpha emitting radionuclide with a half-life of 379,000 years.

Quality Factor

The factor by which absorbed dose of a given radiation is mutiplied in order to obtain its dose equivalent for radiation protection purposes.

Rad

The old unit of absorbed dose of ionising radiation.

100 rad = 1 gray.

Radionuclide

A type of atomic nucleus which is unstable and can spontaneously decay by emission of ionising radiation (usually alpha, beta or gamma).

Relative Biological Effectiveness (RBE)

The ratio of absorbed dose of reference low LET radiation to the absorbed dose of given radiation which produces the same level of biological effect. It allows compensation to be made for the different effectiveness of the various types of radiation in producing a particular biological effect.

Rem

The old unit of dose equivalent. The absorbed dose (rad) is multiplied by the Quality Factor for the particular type of radiation.

100 rem = 1 sievert.

Sellafield site

The composite name given to the BNFL site in West Cumbria which includes the Windscale nuclear fuel reprocessing facility and the Calder Hall nuclear reactor.

Sievert (Sv)

The Standard International (SI) unit of dose equivalent. The absorbed dose (in grays) is multiplied by the Quality Factor of the particular type of radiation.

1 Sievert = 100 rem.

Stacks

Tall ventilation chimneys from the Windscale piles; they contain filters to remove particulates.

Stem cells

The bone marrow contains immature cells that can divide and give rise to the different types of cells seen in circulating blood; these cells are known as stem cells.

Strontium-89 (Sr-89)

A beta emitting radionuclide with a half-life of about 50 days. It is chemically similar to calcium and tends to concentrate in bone.

Strontium-90 (Sr-90)

A beta emitting radionuclide with a half-life of about 28 years. It is chemically similar to calcium and tends to concentrate in bone.

UKAEA

The United Kingdom Atomic Energy Authority.

Uranium metal fuel (irradiated) : uranium oxide fuel

Uranium metal fuel oxidises in air to uranium oxide; the approximate radionuclide composition of 20 kg of irradiated uranium oxide fuel is as follows:-

2.06×10^{10} Bq	Plutonium-239
2.95×10^{13} Bq	Strontium-89
1.04×10^{12} Bq	Strontium-90
6.98×10^{10} Bq	Caesium-134
1.18×10^{12} Bq	Caesium-137
3.04×10^{7} Bq	Americium-241
1.16×10^{14} Bq	Zirconium-95 Niobium-95

(From Table 3-17 in Addendum)

Windscale Plant

The nuclear fuel reprocessing facility situated within the Sellafield site.

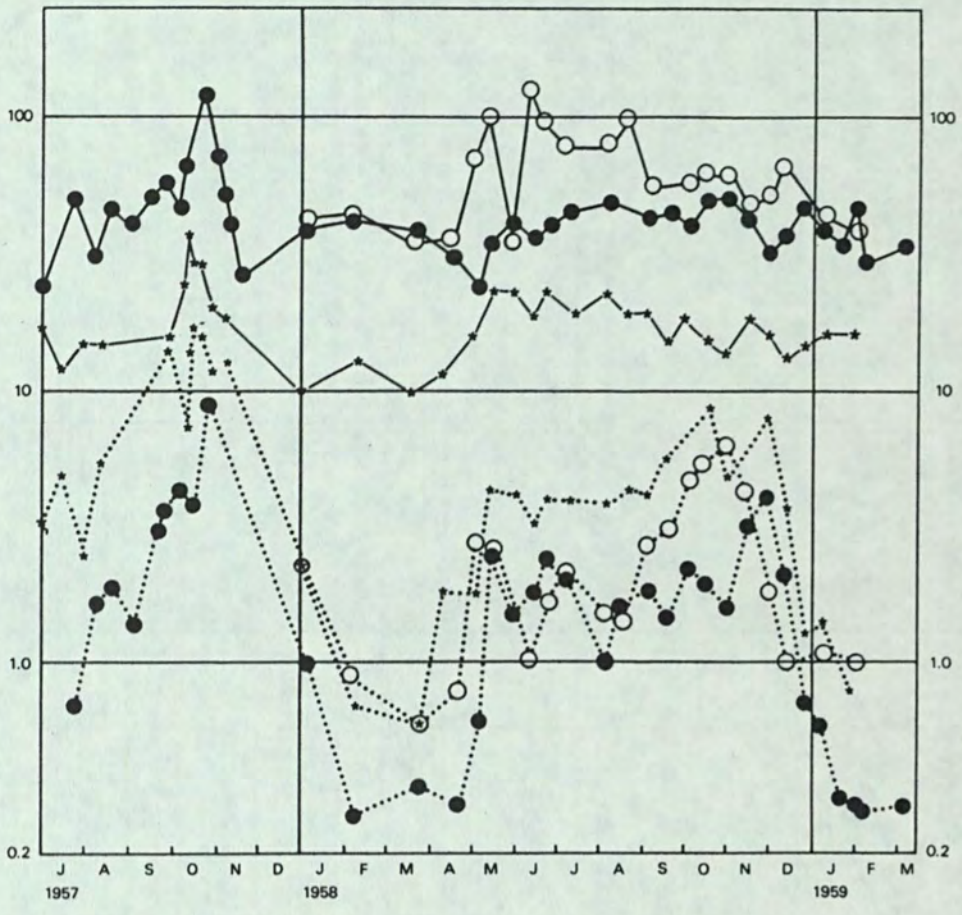
X-ray

Photons with energy greater than about 100 electron volts usually emitted by an X-ray machine or an excited atom. They are similar to gamma rays but usually of lower energy and lower penetration. They are a low Linear Energy Transfer (LET) type of radiation.

Zirconium 95 (Zr)

This is a beta emitting radionuclide with a half-life of about 65 days. It decays to niobium-95.

Figure 1 Strontium-90 and Sr-89/Sr-90 ratio in milk from the near-in farms A, B and C.[20]



Key:

——— μμ Ci Sr-90/g Ca in milk
····· Ratio Sr-89/Sr-90 in milk

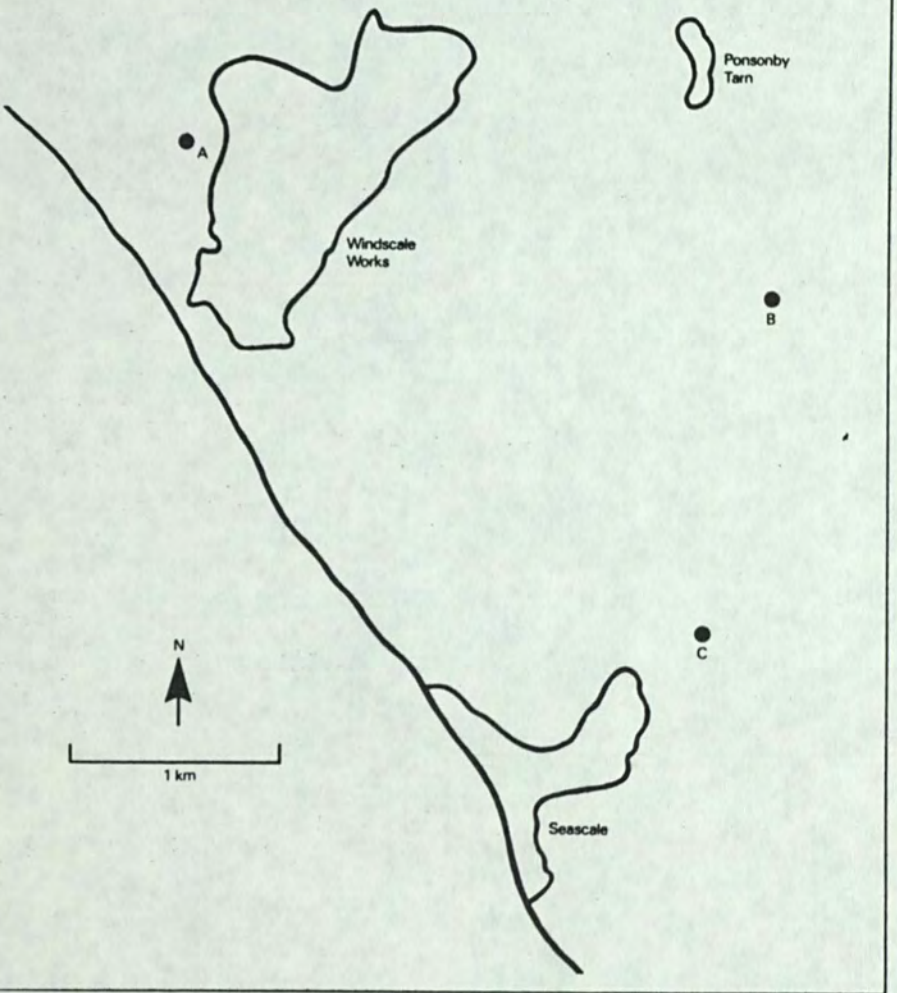
1 μμ Ci = 0.037 Bq

● Farm A
○ Farm B
★ Farm C

Notes:

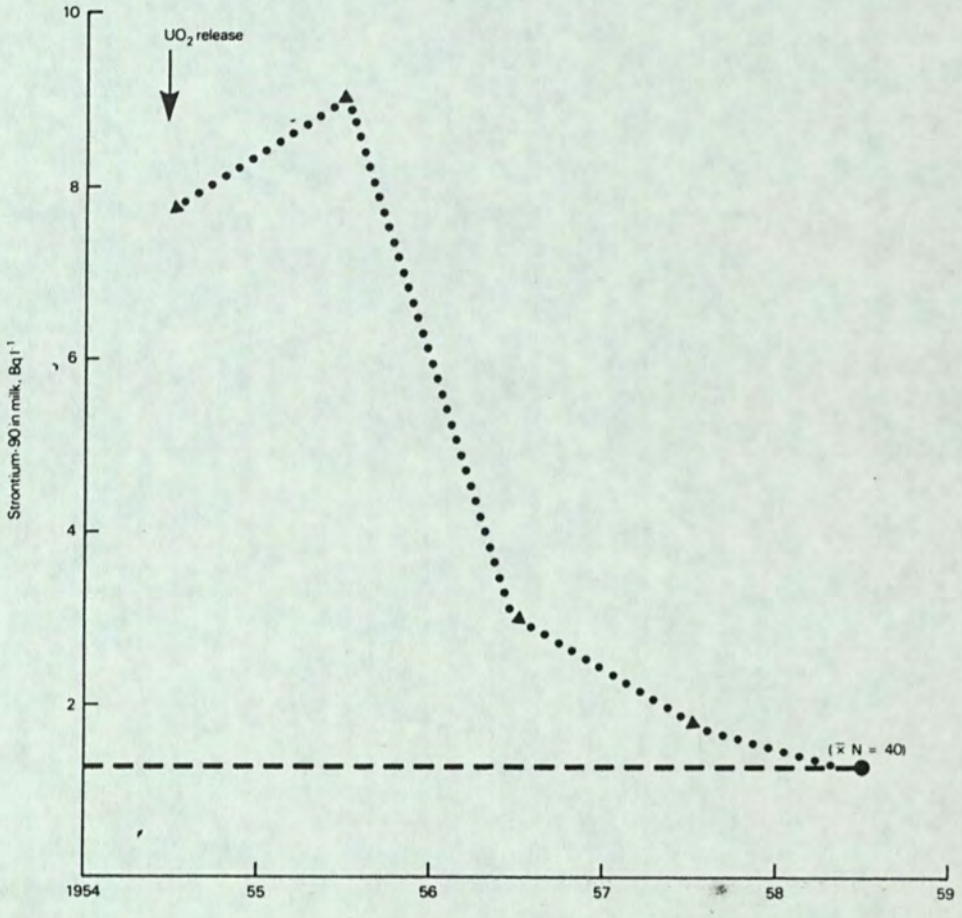
Farm B: 1958 average = 2.71 Bq/l (2.29 Bq/l without fallout)
Farm C: 1958 average = 0.71 Bq/l (0.29 Bq/l without fallout)

Figure 2 Location of farms near to the Windscale Works
(Farms B and C are referred to in the text)



(Prepared by NRPB)

Figure 3 Assumptions about Strontium-90 in milk at Seascale village
(Note: Soil and milk values corrected for weapons fallout)



Soil deposition of Sr-90 Bq m^{-2}

Measured — — — — this extrapolation was used in NRPB-R 171

Model predicted • • • • this extrapolation was used in NRPB-R 171 Addendum (since the total emission was assumed to take place in mid 54, the average value for the year 54 – 55 was less than for 55 – 56.)

(Prepared by NRPB)

TABLE 1

STAGES IN DEVELOPMENT OF SELLAFIELD SITE

Stages in Plant Development	Date Operational	Date Shut Down	Ownership of Site
Site Available July 1947	Work Commenced September 1947	-	Ministry of Supply 1947-54
1st and 2nd Pipeline to Sea	Laid June 1950	-	
No 1. Pile Critical	October 1950	October 1957	
No 2. Pile Critical	June 1951	October 1957	UKAEA 1954-71
First Re-processing Plant and associated facilities	January 1952 et seq	1969	
Re-processing Plant converted to Head End Plant for oxide fuel	1969	1973	BNFL 1971-Present
First Calder Hall Reactors	August 1956	-	
All Calder Hall Reactors	1958	-	
Prototype Advanced Gas Cooled Reactor	1963	April 1981	
Second Re-processing Plant and Associated Facilities (Magnox)	1964 et seq	-	
Spent Oxide Fuel Storage Plant	1968 et seq	-	
Prototype Fast Reactor Fuel Fabrication Plant	1970		
Third Pipeline to sea	Laid 1976	-	

TABLE 2

Integrated dose equivalent to the red bone marrow for children born in Seascale in 1950, and resident in Seascale up to age 20, from inhalation, ingestion and external exposures from the Sellafield discharges. (Adapted from Table C1 of NRPB Addendum to R-171.)

Route	High LET		Low LET		High + Low LET
	μGy	μSv*	μGy	μSv*	μSv*
Inhalation	11	220	6	6	226 (4.2% of total dose equivalent is via inhalation route)
Ingestion	4	84	1700	1700	1784 (34% of total dose equivalent is via ingestion route)
Inhalation and Ingestion Sub-total	15	304	1706	1706	2010 (38% of total dose equivalent is via internal exposure)
External	-	-	3400	3400	3400 (62% of total dose equivalent is via external exposure)
Total (Inhalation and Ingestion and External)	15	304	5106	5106	5410

* Quality factor for high LET radiation = 20
Quality factor for low LET radiation = 1

TABLE 3

Comparison of the integrated doses to the red bone marrow from the Sellafield discharges for the average child born in 1950 as determined in NRPB Report R-171 and in the Addendum*

Radionuclide or type of radiation	Dose to age 20 (μGy)	
	NRPB R-171	Addendum to R-171
Low LET		
Sr^{89}	-	$1.1\ 10^2$
Sr^{90}	3.2×10^2	$8.1\ 10^2$
Cs^{137}	3.2×10^2	$4.9\ 10^2$
S^{35}	1.2	$1.7\ 10^2$
Other	$2.6\ 10^2$	$2.2\ 10^2$
External	$1.7\ 10^3$	$3.4\ 10^3$
Total	$2.6\ 10^3$	$5.2\ 10^3$
High LET		
Total	3.7	$1.6\ 10^1$

(* from Table 4.7 in NRPB Addendum to R-171)

TABLE 4

Contribution of low and high LET radiation by source to the radiation dose to the red bone marrow received by young people in Seascale; doses estimated to age 20 or 1980 whichever is earlier*

Dose in μSv

Date of birth		1945	1950	1955	1960	1965	1970	1975
Source								
Sellafield discharge	Low LET	$4.4\ 10^{3}$	$5.2\ 10^{3}$	$4.6\ 10^{3}$	$2.1\ 10^{3}$	$2.2\ 10^{3}$	$2.3\ 10^{3}$	$1.4\ 10^{3}$
	High LET	$2.2\ 10^{2}$	$3.2\ 10^{2}$	$5.4\ 10^{2}$	$1.1\ 10^{3}$	$1.2\ 10^{3}$	$8.4\ 10^{2}$	$9.2\ 10^{1}$
Windscale Fire	Low LET	$4.8\ 10^{2}$	$5.6\ 10^{2}$	$5.2\ 10^{2}$	$7.8\ 10^{1}$	$4.0\ 10^{1}$	$2.2\ 10^{1}$	$9.4\ 10^{0}$
	High LET	$1.7\ 10^{2}$	$2.8\ 10^{2}$	$1.6\ 10^{2}$	$2.8\ 10^{-4}$	$3.0\ 10^{-8}$	$3.2\ 10^{-12}$	$3.4\ 10^{-16}$
Weapons Fallout	Low LET	$1.3\ 10^{3}$	$2.3\ 10^{3}$	$3.5\ 10^{3}$	$4.0\ 10^{3}$	$2.2\ 10^{3}$	$8.4\ 10^{2}$	$2.9\ 10^{2}$
	High LET	$1.9\ 10^{1}$	$4.4\ 10^{1}$	$6.6\ 10^{1}$	$5.2\ 10^{1}$	$8.4\ 10^{0}$	$1.9\ 10^{0}$	$3.2\ 10^{-1}$
Medical	Low LET	$3.9\ 10^{3}$	$3.9\ 10^{3}$	$3.9\ 10^{3}$	$3.9\ 10^{3}$	$1.8\ 10^{3}$	$1.1\ 10^{3}$	$6.0\ 10^{2}$
Natural Background	Low LET	$2.0\ 10^{4}$	$2.0\ 10^{4}$	$2.0\ 10^{4}$	$2.0\ 10^{4}$	$1.5\ 10^{4}$	$1.0\ 10^{4}$	$5.6\ 10^{3}$
	High LET	$1.9\ 10^{3}$	$1.9\ 10^{3}$	$1.9\ 10^{3}$	$1.9\ 10^{3}$	$1.4\ 10^{3}$	$9.8\ 10^{2}$	$4.6\ 10^{2}$
Total	Low LET	$3.0\ 10^{4}$	$3.2\ 10^{4}$	$3.3\ 10^{4}$	$3.0\ 10^{4}$	$2.1\ 10^{4}$	$1.5\ 10^{4}$	$7.9\ 10^{3}$
	High LET	$2.2\ 10^{3}$	$2.6\ 10^{3}$	$2.6\ 10^{3}$	$3.0\ 10^{3}$	$2.6\ 10^{3}$	$1.8\ 10^{3}$	$5.6\ 10^{2}$

(* Derived from Table 4.8 in the NRPB Addendum to R-171)

ENV. AFFAIRS: Leakage at Sellafield:

July 1980

THE Right Hon

SRWAGP

PRIME MINISTER

COMARE

The report of the Committee on Medical Aspects of Radiation in the Environment, on new information on discharges from Sellafield in the 1950s not available to the Black Advisory Group, is planned for publication on Tuesday. The report is attached, but you do not need to read it unless you wish to.

COMARE was set up following a Black report (1984) recommendation. This will be its first report. Black, which looked at the increased incidence of cancer in West Cumbria, concluded that the radiation released from Sellafield/Windscale was not responsible for the observed incidence of leukaemia in Seascale. Since then new information on discharges from the plant has come to light.

The main new evidence comes from Dr. Jakeman, and stems from his detection of high radiation levels in his garden in 1954/5. BNFL have also reviewed their information on discharges.

The report notes

- There were substantial releases of radioactivity from Sellafield in the early 1950s, of which the Black Group were not aware.

- It is still not possible to be sure that all releases have now been recognised.

- The doses between 1950 and 1980 are still well below the doses estimated to have been received by the population from natural background radiation and nuclear weapons testing fallout combined.

- None of the estimates of the increased leukemia risk arising out of discharges is sufficient to explain the observed leukaemia rate.

- The substance and essential conclusions of the Black report therefore remain unchanged.

- It is unlikely to be possible to establish whether there is a relationship between leukaemia in Seascale and discharges from Sellafield.

- The report also advises that Government should satisfy itself as to the adequacy of the current monitoring programme.

The report comes at an unfortunate time, after Chernobyl. It will be helpful to those wishing to scare people about nuclear power and about Sellafield in particular. They will be able to point to the fact that discharges have been more than were admitted to, and that monitoring was loose. But of course all this is 30 years ago, since when the inspection and monitoring of nuclear sites has been significantly improved. The Government has reacted openly and promptly to the Jakeman evidence by asking COMARE for advice on the implications of the new data, and will be publishing it without delay. The announcement will make clear that the Government will be considering the report urgently and any necessary action taken.

MEA

(MARK ADDISON)
18 July 1986

CONFIDENTIAL

PRIVY COUNCIL OFFICE
WHITEHALL, LONDON SW1A 2AT

18 July 1986

Dear Michael

COMARE REPORT ON SELLAFIELD

The Lord President has seen Mr Hayhoe's letter of 14 July proposing that the Comare report should be published on 22 July. He has also seen Tony Laurance's letter to Geoff Dart of 16 July about the arrangements for handling and co-ordinating the presentation of the Government's response to the report.

Following consultations with No 10, the Lord President is content that the report be published as planned on 22 July. He is also content that the announcement of its publication should be by way of written answer to an arranged Question. The Lord President believes, however, that the draft answer should be somewhat fuller, perhaps including a passage along the following lines:

> "The report shows there were substantial releases of radioactivity from Sellafield in the early 1950s of which the Black Inquiry on the possible increased incidence of cancer in West Cumbria was not aware. But it notes that the increased doses during the 30 year period between 1950-80 are still well below the doses that are estimated to have been received during this period by the population from natural background and from nuclear weapons testing fall-out combined. These increased doses are still well below those that would readily explain the observed cases of leukaemia in Seascale. Thus, the report says, the substance and essential conclusions of the Black Advisory Group remain unchanged. The report adds that it is likely it will never be possible to establish with certainty whether there is any relationship between the leukaemia cases at Seascale and radioactive discharges from the Sellafield site."

Without some such passage, there is an increased risk of the media putting an unnecessarily negative gloss on the conclusions of the report.

The Lord President also believes it would be helpful if the last sentence could be amended to read:

> "The Government is giving urgent consideration to the report, and in particular the implications for monitoring radiation. Any necessary action will be taken."

Michael O'Connor Esq
Private Secretary to the Rt Hon Barney Hayhoe MP

CONFIDENTIAL

The Lord President very much supports the point that one Minister from the Departments most concerned should answer for the Government as a whole. It would be helpful therefore if you and Tony Laurance could liaise with Geoff Dart and Robin Young and let the No 10 Press Office know who will be doing that.

I am sending a copy of this letter to Mark Addison (No 10), Geoff Dart (Department of Energy), Colin Williams (Welsh Office), David Morris (Lord Privy Seal's Office), Tony Laurance (DHSS), Andrew Lansley (Chancellor of the Duchy's Office), Jim Daniell (Northern Ireland Office), Ivor Llewellyn (MAFF), Robin Young (Department of the Envronment), Robert Gordon (Scottish Office), Murdo Maclean (Chief Whip's Office) and Michael Stark (Sir Robert Armstrong's Office).

Yours sincerely
Nick Gibbons

JOAN MACNAUGHTON
Private Secretary

LORD PRESIDENT

HANDLING OF THE COMARE REPORT

If it is accepted that the report should be published before the Recess - and I think that is right since to publish afterwards is likely to maximise publicity - there is much to be said for publication, as planned on Tuesday, July 22 or alternatively July 23. On balance I would go for July 22.

If there is no Oral Statement it is all the more important that there should be a fuller Written Answer. The present Written Answer as drafted is entirely inadequate for the Government's purpose.

I believe that between the second and third sentences there should be a summary of the conclusions of the report on these lines:

> "The report shows there were substantial releases of radioactivity from Sellafield in the early 1950s of which the Black Inquiry on the possible increased incidence of cancer in West Cumbria was not aware. But it notes that the increased doses during the 30 year period between 1950-80 are still well below the doses that are estimated to have been received during this period by the population from natural background and from nuclear weapons testing fall-out combined. These increased doses are still well below those that would readily explain the observed cases of leukaemia in Seascale. Thus, the report says, the substance and essential conclusions of the Black Advisory Group remain unchanged. The report adds that it is likely it will never be possible to establish with certainty whether there is any relationship between the leukaemia cases at Seascale and radioactive discharges from the Sellafield site."

In my view it is extremely important to put this summary on the record in the Written Answer and to use that summary in a Press Notice. Otherwise, without this steer, the media will almost certainly put a negative gloss on what is a reassuring report.

In addition, I think the last sentence of the current draft Answer should say: "The Government is giving urgent consideration to the report, and in particular the implications for monitoring radiation. Any necessary action will be taken."

To Summarise

I recommend:

- publication July 22, with CFRs issued early (9am) that day (and not the day before);

- a Written Answer which summarises the report on the lines set out above and which provides the basis for a press notice; both this form of Written Answer and Press Notice are necessary.

BERNARD INGHAM
17 July 1986

CONFIDENTIAL

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ccBG

DEPARTMENT OF HEALTH AND SOCIAL SECURITY

Alexander Fleming House, Elephant & Castle, London SE1 6BY

Telephone 01-407 5522

From the Secretary of State for Social Services

G S Dart Esq
Private Secretary to
The Rt Hon Peter Walker MBE MP
Secretary of State for Energy
Department of Energy
Thames House South
Millbank
LONDON
SW1P 4QJ

Awaiting Secretary of State's reply.

16 July 1986

Dear Geoff

COMARE REPORT ON SELLAFIELD

(see also attached flap) att.

The Minister for Health wrote to the Lord President on 14 July proposing that this report should be published on 22 July. Ministers considered that it was most important to publish the report as soon as possible following its receipt so that there could be no accusations of delay. On this basis, the suggested line for the Parliamentary Answer announcing publication was that the Government was considering the report's findings.

However, the report may well attract media interest and the Government cannot remain entirely silent in response to the questions that may ensue. My Secretary of State considers that it is very important that the Government as a whole has an agreed line on the report, that the briefing on it is properly coordinated across Departments and that there are agreed arrangements for handling media enquiries.

Officials here will coordinate the preparation of a brief for this purpose and our Ministers will of course field any questions on the health implications. But the report on the whole is reassuring on the health effects and it seems more likely that attention will focus on issues which are the responsibility of your Secretary of State and of the Secretary of State for the Environment. For example, why environmental monitoring in the 1950s failed to detect the releases and the implications of this for the adequacy of monitoring then and now; why this new information did not come to light earlier and whether confidence can now be placed in the record-keeping and management of Sellafield.

E.R.

My Secretary of State recognises that Ministers in charge of Departments must be prepared to field questions within their area of responsibilities but hopes that, as with the response to the Chernobyl incident, a Minister in charge of one of the Departments most centrally concerned will answer for the Government as a whole.

I am copying this letter to David Norgrove (No 10), Joan MacNaughton (Lord President's office), Robin Young (Department of the Environment), Ivor Llewelyn (Ministry of Agriculture, Fisheries and Food), Robert Gordon (Scottish Office), Colin Williams (Welsh Office), Jim Daniell (Northern Ireland Office), Andrew Lansley (Chancellor of the Duchy's office), David Morris (Lord Privy Seal's office), Murdo MacLean (Chief Whip's office) and to Michael Stark (Sir Robert Armstrong's office).

Yours ever

A Laurance
Private Secretary

ENV. AFFAIRS: Leakage at Sellafield:
July 1980

CONFIDENTIAL

cc BG

DEPARTMENT OF HEALTH AND SOCIAL SECURITY

Alexander Fleming House, Elephant & Castle, London SE1 6BY
Telephone 01-407 5522

From the Minister for Health

The Rt Hon The Viscount Whitelaw CH MC
Lord President of the Council
Privy Council Office
68 Whitehall
LONDON
SW1A 2AT

14 July 1986

Dear Willie,

COMARE REPORT ON SELLAFIELD

The Chairman of the Committee on Medical Aspects of Radiation in the Environment (COMARE) has now approved the final version of their report about the new information on discharges from Sellafield in the 1950s which was not available to the Black Advisory Group. I enclose a copy.

Officials here have been in touch with most of the Departments concerned about publication of the report and circulated an earlier draft. I understand there has been no dissent from the view that the report should be published before the Recess. I therefore propose to announce publication on Tuesday 22 July by way of a written PQ on the lines of the attached draft. I should be grateful for any comments by Friday 18 July.

I am copying this letter to John Biffen, Norman Tebbit, John Wakeham, William Waldegrave, John Selwyn Gummer, Alastair Goodlad, John MacKay, Mark Robinson, Rhodes Boyson, David Trefgarne and David Trippier and also, in view of the sensitivities of Eire and the Isle of Man, to Timothy Renton and Giles Shaw.

Yours ever

Barney

BARNEY HAYHOE

CONFIDENTIAL

DRAFT INSPIRED QUESTION

To ask the Secretary of State for Social Services when the Committee on the Medical Aspects of Radiation in the Environment (COMARE) will complete its report on new information relating to discharges from Sellafield that has become available since publication of Sir Douglas Black's Report.

SUGGESTED ANSWER

COMARE has submitted this report to me and it is being published today.

I have arranged for copies to be placed in the library.

The Government is giving urgent consideration to the report and any necessary action will be taken.

ENV. AFFAIRS: Leakage at Sellafield:
July 1980

Foreign and Commonwealth Office

London SW1A 2AH

17 April 1986

From The Minister of State

Dear Alastair.

SELLAFIELD: GRANADA TV PROGRAMME AND POSSIBLE VISIT BY IRISH POLITICIAN

Thank you for your letter of 14 April about Granada TV's request to BNF to film Mr Haughey inside the Sellafield plant.

I agree that it would be preferable if Granada could be persuaded to invite an Irish Minister to visit Sellafield instead of Mr Haughey. The Taoiseach himself is, as you pointed out, very closely interested in the question of Sellafield discharges. It seems likely that Mr Haughey would seek to embarrass the Irish Government by suggesting that they were not sufficiently active in protecting the Republic against nuclear discharges from Sellafield.

If however BNF feel that because of their "open door" policy, they cannot dissuade Granada from inviting Mr Haughey, I suggest that it should be put to them that on grounds of courtesy and balance, they should invite a representative of the Irish Government to appear with him. I am copying this letter to the recipients of yours.

Yours

Tim

Tim Renton

Alastair Goodlad Esq MP
Parliamentary Under Secretary of State
Department of Energy
Thames House South
Millbank
LONDON SW1P 4QJ

Env. Affairs: Look at
Sellafield
July '85

OW

cc t/BT

DEPARTMENT OF ENERGY
THAMES HOUSE SOUTH
MILLBANK
LONDON SW1P 4QJ

Direct Line 01-211 3390
Switchboard 01-211 3000

PARLIAMENTARY UNDER
SECRETARY OF STATE

nbpm
CDP 15/4

Tim Renton Esq MP
Minister of State
Foreign & Commonwealth Office
King Charles Street
LONDON SW1

14 April 1986

Dear Tim.

SELLAFIELD: POSSIBLE VISIT BY IRISH POLITICIAN

You will wish to be aware that Granada TV has approached BNF plc with a suggestion that Mr Haughey, the Leader of the Irish Opposition, should visit Sellafield with a view to making a programme for broadcasting on 22 April.

BNF are aware of the sensitivity of the suggestion in the light of Mr Fitzgerald's interest in discharges from Sellafield and the Prime Minister's recent letter to him. They have therefore decided not to respond to Granada before receiving guidance from HMG. They are not anxious to allow Granda to make the running on this but they are also conscious, as I am, that it would be detrimental to their "open door" posture to stall Granada without good reason. I therefore hope you will be able to give me a quick response.

An alternative to inviting Mr Haughey which appears to me attractive would be for BNF to invite an Irish Minister to visit Sellafield. This would reinforce the point that BNF have no reason to hide their civil activities from the public. I hope you would agree that, in principle, such an invitation would be helpful to relations between the UK and Ireland, and in the spirit of the Prime Minister's recent letter to the Taoiseach; and we would, of course, be glad to convey to BNF any advice you might have on how such an invitation might best be offered.

Subject to this, I shall arrange that BNF plc is advised to invite the Irish Government to send a representative at Ministerial level to visit Sellafield and that, while this matter is under consideration, it does not seem appropriate to invite Mr Haughey. If Mr Haughey himself makes an approach we may, of course, be forced to respond.

I am copying this letter to the Prime Minister, William Waldegrave, Richard Needham and Sir Robert Armstrong.

Yours ever,
Alastair

ALASTAIR GOODLAD


15. IV.
AM 8 6

CCPC

Foreign and Commonwealth Office

London SW1A 2AH

10 April 1986

CDP
10/4.

Dear Charles,

Letter from the Taoiseach about Sellafield

Thank you for your letter of 26 March about the Taoiseach's reply to the Prime Minister's letter about Sellafield. We and other Departments concerned are content to let the correspondence rest without a further response from the Prime Minister.

I am copying this letter to Geoff Dart (Department of Energy), Robin Young (Department of the Environment), John Mogg (Department of Trade and Industry) and Jim Daniell (Northern Ireland Office).

Yours ever,

Tony Galsworthy.

(A C Galsworthy)
Private Secretary

C D Powell Esq
10 Downing Street

Env Affairs:
Sellafield
July '80

file BM.

10 DOWNING STREET

From the Private Secretary

26 March 1986

in box 26/3

I enclose a copy of a reply from the Taoiseach to the Prime Minister's recent message about Sellafield. You will wish to consider with departments concerned whether any further response is necessary.

I am copying this letter and enclosure to Geoff Dart (Department of Energy), Robin Young (Department of the Environment), John Mogg (Department of Trade and Industry) and Jim Daniell (Northern Ireland Office).

(C.D. Powell)

Colin Budd, Esq.,
Foreign and Commonwealth Office

PA

AMBASÁID NA hÉIREANN, LONDAIN.

IRISH EMBASSY, LONDON.

17 Grosvenor Place

London SW1X 7HR

26 March 1986

Dear Private Secretary

I am enclosing herewith a letter addressed to the Prime Minister, The Rt Hon Mrs Margaret Thatcher MP, from the Taoiseach Dr Garret FitzGerald TD.

I should be grateful if you would arrange to bring the letter to the attention of the Prime Minister.

Yours sincerely

Noel Dorr
Ambassador

Mr Charles Powell
Private Secretary to the Prime Minister
10 Downing Street
London SW1

Enc.

Env Affairs: Sellafield July 80.

Subject cc Master Ops

CCPC

(2)

PRIME MINISTER'S PERSONAL MESSAGE SERIAL No. T61/86

Prime Minister

CDP 20/3.

Oifig an Taoisigh
Office of the Taoiseach

24 March, 1986.

The Right Honourable Margaret Thatcher, M.P., F.R.S.,
Prime Minister,
10 Downing Street,
London.

Dear Margaret,

Thank you for your letter of 6 March about Sellafield, arising from our meeting on 19 February when I expressed the concern about the plant felt in Ireland and urged that there should be a review of the safety procedures at the plant. I have noted the information you gave on the reduction in discharges to the sea and atmosphere over recent years and that substantial investment is being undertaken which will further reduce discharges. I have also taken note of the assessments of the radiological significance of recent incidents at the plant, of the provisional conclusions of the NRPB in regard to the effect of the new information about discharges in the 1950s on the findings of the Black Committee and of the points made about the Chapelcross and Calder Hall Power Stations.

My Government have at all times kept a clear perspective on questions arising in regard to Sellafield. The evidence available to date from our own monitoring of the sea and air has indicated that discharges including the recent

incidents, have not, up to this point, caused significant radioactive pollution of either sea or air. Our position on recent incidents and disclosures has been, as I indicated when we met, that notwithstanding that the former may be described as of neglible radiological significance, the number of incidents within a short time and the revelation that information in relation to discharges in the 1950s given to the Black Committee was inaccurate by a substantial factor raise doubts and give rise to concern about the operation and management of the plant. This attitude should be seen in the context of the position we have consistently taken that, through necessary investment and use of the best available technology, discharges should be minimised in accordance with the ALARA principle and totally eliminated as soon as possible.

The public concern in Ireland which I conveyed to you when we met has continued unabated with both ordinary and special notice questions in the Dail, debates there and in the Senate, numerous resolutions and statements of concern by local authorities and widespread expressions of disquiet by members of the general public. The recent report by the House of Commons Environment Committee has added to public anxiety here. My Government therefore welcomed the decision by the Health and Safety Executive to undertake the examination of the reprocessing plant to which you refer in your letter and the fact that the findings will be made public. We also welcome the request by your Government to COMARE to assess the health significance of the new

information about discharges in the 1950s: I note that the Committee expects to complete its report within a matter of months and that it will be published.

I appreciate your assurance that neither the United Kingdom Government nor the British industry are complacent. My colleagues and I also appreciate the improved arrangements made for prompt notification of incidents involving radiological emissions or discharges under which we received practically immediate notification of recent incidents at Sellafield and elsewhere. It is therefore no reflection on the goodwill of the U.K. authorities concerned that we remain of the view I conveyed to you that we would wish to see a monitoring process carried out under European Community auspices. I have told the Dail that we would seek Ministerial discussions in Brussels with a view to proposing a European inspection force which would monitor activities such as the reprocessing at Sellafield.

The matter was accordingly raised by our Minister for the Environment, Mr. John Boland, T.D., at the meeting of the Environment Council of the Community on 6 March, where it became clear that the concern in Ireland is shared by other Member States. My colleague referred to the widespread acknowledgement that there is a communications gap between the nuclear industry and the man in the street and to the positive value a European agency would have in being seen to be totally independent of the industry or of governments

and thus reassuring public opinion in a sensitive area. Advance notice of the intention to raise the matter was given to Mr. William Waldegrave. In his contribution to the discussion, he expressed appreciation for the way in which the matter had been handled by the Irish delegation and said that he would be happy to continue co-operation with our authorities in dealing with the situation.

My Government welcome this response. I have no doubt that we can expect continuing close co-operation between our two Governments, as this matter is considered further in bilateral contacts between Ministers concerned and by the appropriate organs of the European Communities, with a view to ensuring the highest possible standards of safety and protection for the peoples and environments on both sides of the Irish Sea and further afield.

Yours sincerely,

Garret FitzGerald
Taoiseach.

Env Affairs: Sellafield July 80

(2)

Prime Minister
CDP
11/3

From the Chairman and Chief Executive

British Nuclear Fuels plc

Head Office: Risley Warrington Cheshire WA3 6AS
Telephone: Padgate (0925) 832000 Telex: 627581

10th March, 1986.

The Rt. Hon. Mrs. Margaret Thatcher, MP.,
10, Downing Street,
LONDON SW1.

Dear Prime Minister,

I was very pleased to read your robust letter to Dr. Fitzgerald regarding Sellafield, and very grateful that you arranged for it to be published. It was particularly pleasing that you scotched any suggestion that the industry or Government is complacent.

The fact that we have had a recent crop of minor incidents is distressing, and I am very sorry that these should have happened so soon after you visited us and gave us such strong public support. I am afraid we were also wrong-footed on some of the P.R. aspects, and, as you well know, the media and our opponents show no mercy on such occasions. I am confident, however, that we are learning all the lessons and that my successors will help to establish complete confidence for the future of nuclear power.

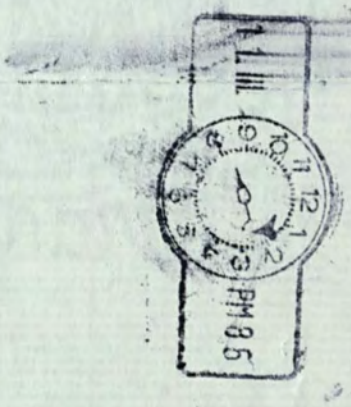
Yours sincerely,

Ian Allday.

C. Allday

ENVI. AFFAIRS

SELLAFIELD 7/90



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FILE

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10 DOWNING STREET

THE PRIME MINISTER

6 March 1986

PRIME MINISTER'S
PERSONAL MESSAGE
SERIAL No. T 44/86

Dear Garret,

When we met on 19 February you expressed some concern about incidents at Sellafield and radiation pollution in and around Ireland. I said that I would write setting out the facts about Sellafield.

The nuclear industry in Britain is very conscious of the vital importance of maintaining high standards of safety, and its record is excellent. It has to operate within discharge limits which are based on the system of dose limitation recommended by the International Commission on Radiological Protection (ICRP) as endorsed by the National Radiological Protection Board (NRPB). These limits are supplemented by a requirement on all sections of the industry to keep discharges as low as reasonably achievable, known as ALARA.

It is important to keep the recent incidents at Sellafield in proper perspective. Almost one person in ten at Sellafield is employed on some aspect of health and safety at the plant. The discharges to the sea and atmosphere at Sellafield are subject to certificates of authorisation by the Department of the Environment and the Ministry of Agriculture, Fisheries and Food, and have been progressively reduced as plant improvements have taken place. The prosecution of British Nuclear Fuels (BNF) in respect of the November 1983 discharge to sea was for a failure to meet ALARA requirements, not for exceeding permissible limits. Substantial investment is going into additional effluent

treatment and storage plant which will further lower discharges from Sellafield. Ten years ago, alpha and beta discharges from reprocessing operations stood at 1,600 curies and 183,500 curies respectively. In 1984, the figures were 400 curies and 32,000 curies and they are expected, in five years time, to be less than 20 curies and 8,000 curies respectively for alpha and beta discharges.

The release to the Irish Sea on 23 January of about 440 kilogrammes of very low level radioactivity has been assessed by the Radiochemical Inspectorate as radiologically insignificant, presenting no hazard to the workforce or to the public on either side of the Irish Sea. Similarly, the interim assessment by the Health and Safety Executive on the incident on 5 February, when a pump taking samples of radioactive material from the reprocessing stream failed, giving rise to a release of plutonium activity, was that there was no significant effect on the environment. The amount of activity discharged, 50 micro-curies, was very small, only about a fifth of the daily dose from natural sources.

More recently, Sellafield reported the leak of roughly 250 gallons of mildly contaminated water on 18 February which was contained within a concrete-lined trench designed for that purpose. No airborne radioactivity was detected and although two workers were contaminated during the removal of protective clothing after repairing the leak, this was removed by washing. There was also an incident in a building which handles mixed plutonium/uranium oxide on 1 March in which a number of workers were exposed to higher than normal aerial activity. Ventilation from the building is through a double filter system and monitoring equipment indicated that there was no abnormal release of activity outside the building, and no risk whatsoever to the remainder of the workforce or to the public.

It is important not to let these relatively minor incidents, whose importance has been exaggerated in the media

out of all proportion to the real risks to health and safety in an apparent effort to discredit the nuclear industry, overshadowed the fact that BNF has substantially reduced its discharges in recent years at Sellafield and that further improvements will occur as new plant is brought into operation. On the other hand it would be wrong to ignore the public concern which has been aroused by recent incidents and, as I told you, I very much welcomed the decision by the Health and Safety Executive to carry out a thorough and systematic examination of the processing plant at Sellafield. The examination will take six or seven months, and the findings of the review will be made public. I hope the results of this extensive audit will help to restore public confidence and bring a greater sense of balance to discussion of Sellafield in the future.

You also expressed concern about the recent disclosures about radioactive discharges from Sellafield in the 1950s. Contrary to some allegations, there was no concealment by either BNF or the Government. The discharges were public knowledge in 1955 and were reported in the Press. Their under-estimation at the time, however, has not given rise to significant changes in the calculations of estimated doses and risks to young people which the NRPB prepared for the Black Committee in 1984. This is because the NRPB based their calculations on assumptions based on later environmental monitoring that bigger discharges may have occurred than were thought at the time. Their re-assessment has been passed to the Committee on the Medical Aspects of Radiation in the Environment (COMARE) which has been asked by the Government to assess the health significance of these revised estimates.

It would be wrong for me to prejudge COMARE's findings, but NRPB's provisional conclusions are that the new information does not invalidate the conclusions reached by the Black Committee. COMARE has already begun its assessment of the new information, and expects to complete its report, which will be published, within a matter of months.

You will also be aware of last Friday's newspaper allegations about the potential effect of an earth tremor on the Chapelcross and Calder Hall power stations. Perhaps the most worrying aspect of those allegations was the suggestion that BNF had put improper pressure on its engineering consultants to revise their assumptions in order to justify the continued operation of the stations. BNF strenuously denied this, and have stated, as the consultant engineer himself acknowledged, that the original computer programme was simplistic and flawed. Furthermore the NII have pointed out that they did, as a matter of course, engage their own firm of consultants to examine the assumptions used so as to form their own assessment of the risk. The further allegation that it was impossible to check the effects of the 1979 tremor was also inaccurate. The bolts supporting the reactor pressure vessel were inspected when the reactors were shut down, and showed no evidence of damage. It is, of course, true that those stations were designed and built to the engineering standards of the 1950s, and the possibility of earth tremors was not taken specifically into account. Nevertheless, those earlier standards provided substantial margins of safety, and the NII are content that both reactors are safe for continued operation.

I hope that the foregoing will go some way to reassuring you about BNF's operations at Sellafield. I can assure you that neither HMG nor the nuclear industry is complacent. The United Kingdom has a rigorous approach to design, giving defence in depth, and there is strict regulation and monitoring of operational safety and discharges to the environment. The average amount of radiation received by the UK public from the nuclear industry is only about one-tenth of 1 per cent of that from natural sources, and for the Irish public it is of course very much less.

Yours sincerely

Margaret Thatcher

Dr Garret FitzGerald, TD

CC PS

SECRETARY OF STATE FOR ENERGY
THAMES HOUSE SOUTH
MILLBANK LONDON SW1P 4QJ
01 211 6402

Charles Powell Esq
Private Secretary to
The Prime Minister
10 Downing Street
LONDON SW1

5 March 1986

Dear Charles,

PM's MEETING WITH THE TAOISEACH: SELLAFIELD

As requested in your letter of 19 February to Colin Budd, I enclose a draft letter for the Prime Minister to send to the Taoiseach. This has been agreed with FCO officials.

I am copying this letter and enclosure to Colin Budd (FCO), Robin Young (DOE), Jim Daniell (NIO) and Michael Stark (Cabinet Office).

Yours,
Geoff

G S DART
Private Secretary

DW2AW3 To issue
CDP
5/3.

~~DRAFT~~ LETTER FROM THE PRIME MINISTER TO THE TAOISEACH

~~SELLAFIELD~~

When we met on 19 February you expressed some concern about incidents at Sellafield and radiation pollution in and around Ireland. I said that I would write setting out the facts about Sellafield.

The nuclear industry in Britain is ~~fully~~ very conscious of the vital importance of maintaining high standards of safety, and its record is excellent. It has to operate within discharge limits which are based on the system of dose limitation recommended by the International Commission on Radiological Protection (ICRP) as endorsed by the National Radiological Protection Board (NRPB). These limits are supplemented by a requirement on all sections of the industry to keep discharges as low as reasonably achievable, known as ALARA.

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It is important not to let these relatively minor incidents, whose importance has been exaggerated in the media out of all proportion to the real risks to health and safety in an apparent effort to discredit the nuclear industry, overshadow the fact that BNF has substantially reduced its discharges in recent years at Sellafield and that further improvements will occur as new plant is brought into operation. On the other hand it would be wrong to ignore the public concern which has been aroused by recent incidents and, as I told you, I very much welcomed the decision by the Health and Safety Executive to carry out a thorough

and systematic examination of the processing plant at Sellafield. The examination will take six or seven months, and the findings of the review will be made public. I hope the results of this extensive audit will help to restore public confidence and bring a greater sense of balance to discussion of Sellafield in the future.

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CH.

ENV. AFFAIRS : Sellafield Leak : July 1980-

Health & Safety Executive

From the Office of the Director General

Regina House
259 Old Marylebone Road
London NW1 5RR

Telephone 01-723 1262 ext 325
(after 5.30 pm 01-723 4621)
Telex 25683

19 February 1986

Nigel Wickes Esq
Prime Minister's Office
10 Downing Street
London SW1

Dear Nigel,

.... Herewith the press notice that we are issuing this afternoon.

In accordance with your request, copies have been sent to Lobby Correspondents.

X 1

J D RIMINGTON
Director General HSE

seen.
B I.

I am not sure I send X. I send — for would mention it to the lobby.

N L W.
19.2

Health & Safety Executive
Regina House
259/269 Old Marylebone Road
London NW1 5RR
Telephone 01 723 3418

News Release

19 February 1986

SELLAFIELD: HSE ANNOUNCES DETAILED SAFETY AUDIT

Mr John Rimington, Director General of the Health and Safety Executive said, "We are going to carry out a house-keeping exercise, an audit, at Sellafield. Sellafield is a big and complicated house, where important tasks are going on. The Nuclear Installations Inspectorate inspect the plant and assess future designs on a day-to-day basis. That is a kind of sampling. Every now and then it is necessary to stand back and look comprehensively and in depth at the important operations. That is what we are now going to do."

The Audit will cover operating and maintenance procedures and their effectiveness, and will also extend to a systematic examination of those parts of the reprocessing Plant B205 which have implications for safety. The implementation of the recommendations of the Executive's 1981 review of Management of Safety at the site will be examined.

The Audit will be carried out on the Executive's behalf by the Nuclear Installations Inspectorate, assisted for certain purposes by the Executive's Accident Prevention Advisory Unit.

The Executive said today that it was timely and necessary that they should satisfy themselves by a thorough and systematic examination that the plant is being operated and maintained to the highest standards consistent with its design. The Audit will concentrate on the process plant but its lessons are likely to be more widely applicable. It will draw upon operating records and the Inspectorate's own accumulated experience since the plant was licensed in 1971.

The findings of the Audit will be made public.

More.../

NOTES TO EDITORS

1. The Sellafield plant was designed and built in successive stages between twenty and thirty years ago. A large investment in new plant is underway. It became licensed when it was hived off from the AEA in 1971, upon the formation of British Nuclear Fuels Limited. It reprocesses spent fuel from the magnox power stations, the spent fuel being at first stored in cooling ponds and then processed in B205 to separate the fission products from the re-usable isotopes of uranium and plutonium. Certain low level radioactive wastes are authorised by the Department of the Enviornment and MAFF to be discharged to sea and air. The licensing authority for the site is the Health and Safety Executive.

2. There have been some recent incidents, widely reported in the national press affecting safety in the plant. Respectively there have been (i) an incident in the reprocessing plant B205 on 5 February which resulted in the contamination of a number of workers and which is still under investigation by the Nuclear Installations Inspectorate; and (ii) the fracture of a pipe leading to the discharge of low activity pond water on 18 February. In addition, there was a discharge of uranium to sea on 23 January, which followed an operational malfunction.

3. Safety Audit is a concentrated examination of a plant or process. It is a systematic extension of routine inspection and assessment of particular parts. Though the processes carried out at Sellafield are simple enough, the need for a high level of radiation protection and safety means that the design is complex. The number of separate installations is also large. The proposed audit is expected to take not less than six months to complete and will engage about a dozen inspectors.

4. The Nuclear Inspectorate will be in charge of the Audit. The Accident Prevention Advisory Unit (APAU) of the HSE which will be assisting them, specialises in the examination of management systems and gives advice to substantial companies.

E25:86

SUBJECT
cc Master Meeting Record

CONFIDENTIAL

File

DG2AWE

bc: Sir P. Cradock

10 DOWNING STREET

From the Private Secretary

19 February 1986

PRIME MINISTER'S MEETING WITH THE TAOISEACH: SELLAFIELD

At the end of their meeting today, the Taoiseach raised with the Prime Minister the Irish Government's concern about incidents at Sellafield.

The Taoiseach said that, because of these incidents, he was under pressure to seek some action by HMG. A scientific paper shortly to be published would show that radiation pollution in and around Ireland was far greater than in virtually all other European countries. It seemed that information about earlier discharges or incidents at Sellafield, particularly that of 1953, had been suppressed. When people believed they had been misled, it inevitably caused alarm and suspicion. This might be unjustified but it existed and had to be dealt with. He wondered whether a system of monitoring under European auspices might be required.

The Prime Minister said that reports of incidents at Sellafield had been greatly exaggerated. Some 11,000 people worked there safely and securely. Very large sums were being spent on improvements at Sellafield. The level of liquid discharges into the Irish Sea had already been greatly reduced and would be reduced further still by the early 1990s. There was no case for introducing a European inspection force; this had been considered at a Euratom meeting in November 1985 and rejected with the endorsement of the Irish representative present. She would write to the Taoiseach setting out the facts about Sellafield in full.

It was agreed that the press should be told that the Taoiseach had explained the concern felt in Ireland about recent incidents at Sellafield. The Prime Minister had undertaken to let the Taoiseach have a full response.

BF I should be grateful for a draft letter setting out the full facts about Sellafield, suitable for publication, as soon as possible.

CONFIDENTIAL

DBS

I am copying this letter to Geoff Dart (Department of Energy), Robin Young (Department of the Environment), Jim Daniell (Northern Ireland Office) and Michael Stark (Cabinet Office).

Charles Powell

Colin Budd, Esq.,
Foreign and Commonwealth Office.

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Ps/No 10 Downing St

OUR TELS 99 AND 103 - SELLAFIELD: PRESS COMMENTS

SUMMARY

1. PRESSURE BUILDS ON IRISH GOVERNMENT TO SEEK ACTION ON SELLAFIELD. TODAY'S (18 FEBRUARY) NEWSPAPERS REPORT LEADER OF OPPOSITION'S (MR HAUGHEY) CALL FOR CLOSURE OF SELLAFIELD AND CASTIGATION OF GOVERNMENT FOR THEIR HANDLING OF THE ISSUE OVER PAST TWO YEARS. ALSO SPECULATION THAT THE TAOISEACH MAY RAISE SELLAFIELD WITH PRIME MINISTER TOMORROW. AND THE TAINISTE/MINISTER FOR ENERGY IS REPORTED TO HAVE SAID THAT IT WAS NOW IMPOSSIBLE TO HAVE CONFIDENCE IN BNFL'S STATEMENTS ON SELLAFIELD.

DETAIL

2. MR HAUGHEY LAST NIGHT TABLED A SPECIAL NOTICE QUESTION IN THE DAIL ASKING THE TAOISEACH TO MAKE AN URGENT REQUEST TO HMG TO CLOSE DOWN SELLAFIELD. HE ALSO ISSUED A STATEMENT (COPIES BY BAG) IN WHICH HE SAID THAT THE MINISTER OF STATE AT ENERGY'S (MR COLLINS) RECENT CALL FOR THE TOTAL ENDING OF ALL DISCHARGES FROM SELLAFIELD WAS A ''COMPLETELY INADEQUATE RESPONSE TO AN OMINOUS AND THREATENING SITUATION''. THE GOVERNMENT MR HAUGHEY SAID, HAD BEEN ''GROSSLY NEGLIGENT'' IN THEIR DEALING WITH THE ISSUE OVER THE PAST TWO YEARS.

3. REPORTING THAT DR FITZGERALD MIGHT RAISE THE SUBJECT OF SELLAFIELD WITH MRS THATCHER, THE IRISH TIMES SAYS THAT SINCE THE IRISH SIDE MADE REPRESENTATIONS IN 1984 IN RELATION TO SELLAFIELD ''THE FLOW OF INFORMATION ABOUT THE OPERATION OF THE PLANT HAS IMPROVE SIGNIFICANTLY''. HOWEVER THE PAPER SAYS THAT THERE ARE SOME DOUBTS ABOUT THE RELIABILITY OF THE INFORMATION. A ''SOURCE'' IS QUOTED AS SAYING THAT ''OUR DIFFICULTY IS THAT BNFL... DON'T SEEM TO BE TELLING THE TRUTH TO ANYONE''.

4. THE CORK EXAMINER AND IRISH INDEPENDENT QUOTE MR SPRING AS SAYING THAT IT WAS IMPOSSIBLE TO HAVE CONFIDENCE IN BNFL'S STATEMENTS ON THE OPERATION OF THEIR PLANT ''PARTICULARY IN RELATION

4. THE CORK EXAMINER AND IRISH INDEPENDENT QUOTE MR SPRING AS SAYING THAT IT WAS IMPOSSIBLE TO HAVE CONFIDENCE IN BNFL'S STATEMENTS ON THE OPERATION OF THEIR PLANT ''PARTICULARY IN RELATION TO MALFUNCTIONS''. HE ALSO SAID THAT THERE WAS A HEAVY RESPONSIBILITY ON HMG TO ENSURE THAT SAFETY STANDARDS AT THE PLANT WERE MAINTAINED. ''BECAUSE OF THE POSSIBLE EFFECTS ON THE REPUBLIC AND NORTHERN IRELAND THE ISSUE HAD AN ANGLO-IRISH AGREEMENT DIMENSION''.

COMMENT

5. THE DEPARTMENT OF ENERGY HAVE CONFIRMED THAT SELLAFIELD WILL BE DISCUSSED IN CABINET THIS MORNING. BUT WE HAVE NOT YET BEEN ABLE TO ESTABLISH WHETHER DR FITZGERALD WILL RAISE THE SUBJECT WITH MRS THATCHER. WE SHALL ADVISE RID BY TELEPHONE WHEN WE HAVE A STEER.

FCO ADVANCES PLEASE TO GOODWIN NED, MORRIS RID, MISS MCINTOSH MAED, MISS NOWAK D/ENVIRONMENT, CHALLIS D/ENERGY, HATHAWAY MAFF/FISHERIES, SAUNDERS DHSS (HANNIBAL HOUSE) AND SILL NIO (L).

GOODISON

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PS/LADY YOUNG.
PS/MR EGGAR
MR GOODALL
MR DAUNT.

COPIES TO:
AS ADDRESSEES.

PS/No.10 Downing St. ✓

Sellafield (Release of Radioactivity)

3.31 pm

Dr. John Cunningham (Copeland) *(by private notice)* asked the Under-Secretary of State for Energy whether he would make a statement about the release of plutonium nitrate at the Sellafield site of British Nuclear Fuels plc in the Copeland constituency yesterday.

The Parliamentary Under-Secretary of State for Energy (Mr. Alastair Goodlad): British Nuclear Fuels plc has reported that during maintenance operations yesterday there was a small release of plutonium radioactivity within the main reprocessing building at Sellafield. The incident arose during maintenance operations on a pump, during which air was accidentally blown across a flow of liquid with plutonium in it. This caused a mist with a small amount of plutonium in suspense. Monitoring equipment in the building, which is extremely sensitive, gave an alarm. The staff quickly traced the sources of the escape, shut off the flow of air and instituted procedures for evacuating all non-essential staff.

Tests on staff contamination have so far shown no cause for concern. BNFL will carry out further tests on staff over the next few days. On present evidence, there was no risk to the public.

A member of the nuclear installations inspectorate was on site and was notified at the time. My Department and other interested Government Departments were notified shortly afterwards. The company has estimated that a very small radiation release from the building of 50 micro-curies may have occurred, but no release was, in fact, discernible from its monitoring equipment outside the building.

The nuclear installations inspectorate has already initiated an investigation in co-operation with the radio-chemicals inspectorate, and will make a statement about the incident within the next few days. The company is also conducting its own inquiries into the incident.

Dr. Cunningham: I am grateful to the Minister for his reply. When, if ever, will it be possible to quantify the total of material that was lost in that release? Is it true that, contrary to statements given to me yesterday by BNFL, some material did in fact escape into the atmosphere and was effectively released from the site?

How many of my constituents and others employed at the plant are still under medical supervision, and what is the nature of the tests that they are likely to have to undergo?

Will the Minister discount the inevitable, predictable and unjustified opportunist calls that are likely to be made for the Government to close the plant, which would immediately throw 11,000 of my constituents out to work?

Will the Government institute the most rigorous inquiry and ensure that reports are available to the House and public as soon as possible?

Will the Government convey to the management of BNFL the fact that the industry can have a future only if there is public acceptance of its activities? Is it not clear that a regular series of such incidents, whether they are serious or not in terms of the nuclear material involved, will simply undermine public confidence in the industry and the political credibility of those who seek to support it?

Mr. Goodlad: The precise amount of the discharge will be known when the inquiry has been completed, and I do not wish to anticipate its finding. About 50 people were evacuated, and as I said, they are undergoing medical tests. I heartily endorse what the hon. Gentleman said about resisting any suggestion that the plant should be closed. The report will be published. I endorse what he said about the necessity for public confidence and public acceptance. I trust that there will be no regular series of incidents.

Mr. Michael Morris (Northampton, South): Many hon. Members are well aware of the dangers of reprocessing this difficult material. Is it not encouraging that the management of the establishment had proper early warning system which ensured that there was an amber alert? Should there not be confidence on the Goverment Benches, and I hope on all other Benches, that at least the management have proper procedures to deal with such difficult situations?

Mr. Goodlad: I wholly agree with my hon. Friend.

Mr. Donald Stewart (Western Isles): Is the Minister aware that the EEC has described Windscale as the source of the worst radioactive pollution in western Europe? In view of this plant's deplorable record and of the fact that assurances from BNFL are about as reliable as assurances from the Government, will the Minister, in the interests of the people of Cumbria, Northern Ireland and the west of Scotland see that this dirty and dangerous plant is closed?

Mr. Goodlad: The answer to the right hon. Gentleman's question is no. On the whole, the company has a very good record.

Sir Hector Munro (Dumfries): Should not these events be kept in proportion? Does my hon. Friend agree that those who live near nuclear plants in the Solway and Irish sea areas have the highest confidence in the management of those plants and hope that they will continue in the future?

Mr. Goodlad: I heartily endorse my hon. Friend's remarks.

Mr. D. N. Campbell-Savours (Workington): Is the Minister aware that the repeated incidents at Windscale make it increasingly difficult for those of us who support nuclear power to defend the industry? Our position, both in the House and in our constituencies, is becoming quite untenable. Is the Minister aware that, between my hon. Friend the Member for Copeland (Dr. Cunningham) and myself, 11,000 of our constituents work in this industry in west Cumbria? When Members call for the closure of Windscale they do not understand the catastrophic effects that it would have on an area of high unemployment. Is not the answer to this question to demand of the Windscale authorities higher and higher standards so as to secure the objective of zero or near-zero effluents in aerial atmospheric discharges and marine discharges, as is proposed, by 1991?

Mr. Goodlad: I do not wish to anticipate the evidence of the inquiry, but the hon. Gentleman should keep the significance of this incident in proportion, as we all should. In this respect at least, I should not wish to make the hon. Gentleman's position in his constituency untenable.

than to write off the launch aid of £40 million, which expenditure had already occurred, should the W30 project be terminated.

Q6. **Mrs. Virginia Bottomley** asked the Prime Minister if she will list her official engagements for Thursday 6 February.

The Prime Minister: I refer my hon. Friend to the reply that I gave some moments ago.

Mrs. Bottomley: Will my right hon. Friend join others in congratulating the *Daily Star* this week on cataloguing the corrosive and cumulative amount of television violence that comes into our homes? Does she expect the television or broadcasting authorities to take that mounting public concern into account in their policy discussions?

The Prime Minister: I agree with my hon. Friend. I saw that catalogue of violence displayed over a short time on television. There is much public disquiet about it, which is why my right hon. Friend the Home Secretary called in representatives of the BBC and the IBA to discuss how they would alter their guidelines on violence to ensure that violence was reduced. We must wait to see what they do, monitor it carefully, and see whether further action must be taken.

Mr. Bell: How much in taxpayers' subsidies has gone into farming?

The Prime Minister: The system of support changed from direct support when we went into Europe. The amount of support through Europe is too high a cost on the taxpayer, and we are trying to achieve a reduction in surpluses.

Mr. Jessel: Can my right hon. Friend confirm that the Government intend to continue to uphold the excellent standards of British Army bands—which add splendour to royal and State occasions—and which are trained at Kneller hall, Twickenham? As the Public Accounts Committee has today reported its "grave disquiet" at the lack of any financial basis for the decision of the former Secretary of State for Defence to move the bands elsewhere, will the new Secretary of State take a fresh look at the facts?

The Prime Minister: I congratulate my hon. Friend on his valiant campaign in support of the excellent military bands. I note that the report of the PAC on that matter has been published today. Obviously, I cannot at this stage reply to that, but I can give my hon. Friend the assurance that he seeks — that the new Secretary of State will indeed look at matters afresh in the light of the latest facts.

Mrs. Edwina Currie (Derbyshire, South): Does my hon. Friend agree that there is no risk-free way of harnessing energy and that, in comparison with the nuclear industry, the coal industry is far worse in this respect? Is he aware that two of my constituents have been killed in coal mines recently, and that the effect of a pit on its environment, in terms of spoil, building and the amount of land taken is far worse than that of any nuclear installation? By contrast, does not nuclear power have a first-class record?

Mr. Goodlad: My hon. Friend is entirely right. I endorse everything that she has said.

Mr. Chris Smith (Islington, South and Finsbury): Has the reprocessing operation been restarted? If not, when does he anticipate that it will be restarted? Can he give the House any guarantee that when it restarts, discharges, both accidental and regular, will decrease rather than increase?

Mr. Goodlad: The operation of the plant restarted today. I have every hope that there will be no further discharges.

Mr. Tony Marlow (Northampton, North): Are there any statistics available about the number of deaths per 100,000 people and the number of injuries per 100,000 people who are working in the nuclear power industry that can be compared with statistics for the coal industry? If they are available could we have them? if they are not available, could they be provided?

Mr. Goodlad: They are available and they are favourable. I shall give them to my hon. Friend.

Mr. Frank Cook (Stockton, North): Does the Minister recall that this incident occurred in a portion of the plant that is reserved for the de-canning of isotopes that are used for stripping metal from radioactive elements? Will he take note of the fact that, if the Select Committee on the Environment's study of radioactive waste disposal has done its job, it ought to tell him when he receives its report that the recycling of radioactive materials is quite unnecessary for the survival of the industry and that it ought to be stopped? If that is the result of the Committee's report, will he support it?

Mr. Goodlad: I note what the hon. Gentleman says. I shall of course read with care the report of the Select Committee.

Mr. Simon Hughes (Southwark and Bermondsey): Can the Minister tell us how near to public property the particular part of the plant was in which the incident happened? Can he confirm that there have been over 300 incidents with safety factor risks at this site in the last 30 years, of which yesterday's was the third serious incident? Can he also tell us whether he and his Department are satisfied with the safety and modernity of the plant and buildings, given that the reported view of hon. Members who recently visited the site on official duties is that in many respects the site is primitive, even in 1986?

Mr. Goodlad: The site is subject to inspection by the nuclear installations inspectorate, upon whose advice the Government rely. As I have already said, I do not wish to anticipate the report of the inquiry into this incident.

Mr. Dennis Skinner (Bolsover): On a point of order, Mr. Speaker.

Mr. Speaker: I will take it after the statements.

Mr. Skinner: In view of the fact that I have raised it before——

Mr. Speaker: Order. I shall take it after the statements. — *[Interruption]*. Order. I shall take points of order after the statements. Business statement.

Mr. Skinner: It arises out of that statement. I am being gagged.

Business of the House

3.43 pm

Mr. Neil Kinnock (Islwyn): May I ask the Leader of the House whether he will state the business for next week?

The Lord Privy Seal and Leader of the House of Commons (Mr. John Biffen): Yes, Sir. The business for next week will be as follows:

MONDAY 10 FEBRUARY—Until Seven o'clock private Members' motions followed by a debate on a Government motion to approve the White Paper on the channel fixed link.

Remaining stages of the Australia Bill (Lords).

Motion on the Precept Limitation (Prescribed Maximum) (Inner London Education Authority) Order.

TUESDAY 11 FEBRUARY—Second Reading of the Wages Bill.

Remaining stages of the Atomic Energy Authority Bill (Lords).

Motion on the Local Government Act 1985 (Police and Fire and Civil Defence Authorities) Precepts Limitation Order.

Motion on the Precept Limitation (Passenger Transport Authorities) (Prescribed Maximum) Order.

WEDNESDAY 12 FEBRUARY — Opposition Day (7th Allotted Day). There will be a debate on an Opposition motion entitled "Government Economic Policy and the Level of Unemployment".

Motions on the Housing Support Grant (Scotland) Variation Order and the Housing Support Grant (Scotland) Order.

Motion relating to the Housing Revenue Account Rate Fund Contributions Limits (Scotland) Order.

It is expected that the Chairman of Ways and Means will name opposed private business for consideration at seven o'clock.

THURSDAY 13 FEBRUARY—Until about Seven o'clock, a debate on the multi-fibre arrangement, followed by a debate on the report of the fraud trials committee chaired by Lord Roskill. Both debates will arise on motions for the adjournment of the House.

FRIDAY 14 FEBRUARY—Private Members' Bills.

MONDAY 17 FEBRUARY — Second Reading of the Animals (Scientific Procedures) Bill (Lords)

Afterwards, there will be a debate on a motion to take note of EC Document No. 7163/85 relating to new community energy objectives.

[Debate on Monday 17 February
Relevant Document
7163/85 Community energy objectives
Relevant Report of European Legislation Committee
HC 5-xxvii (1984-85) para 2.]

Mr. Kinnock: In recent weeks the Opposition have had to provide time for debates on Westland and British Leyland. Next week we must provide time for the scandal of the 3·4 million people who have been made unemployed as a consequence of the Government's policies. As there is no rush, would not the country be better served if the Government gave time next Tuesday to debating the plight of the jobless instead of using their time to present legislation that will cut the wages of those who are, already poor? When will there be a debate on this week's report by the Select Committee on Employment to discuss the various ways of assisting the long-term unemployed?

Why will the House have only three hours to debate the White Paper on the Channel fixed link? Does the right hon. Gentleman think that that is an appropriate period for a debate on such a crucial issue?

Why will the right hon. Gentleman not find proper time for the debate on the order to limit precepts for the police and fire services, when rising crime rates are a matter of major public concern? Why can we not debate these proposals to reduce resources for the inner-city police and fire services earlier next week?

An examination of next week's business reveals that the Government are squeezing a debate on the Channel fixed link White Paper into three hours, despite the great importance of that issue. The Government are pushing through secondary legislation to cut funds for education, for public transport, for housing in Scotland and for the police and fire services. All those matters will be dealt with late at night in very little time. Next week's business is the agenda of a Government who hope that they can avoid having their policies properly debated and who hope, even more, that their policies are not recorded.

Mr. Biffen: I am not sure that I can entirely satisfy the Leader of the Opposition. I think that next week's business is a sensible balance between private Members' business, legislation and general debates. I do not suppose for one moment that come this time next week we will feel that we have misused our time.

The Wages Bill is an important piece of legislation, and I cannot relate it to the parody that was represented by the Leader of the Opposition. The House will benefit by giving that legislation a Second Reading.

The Select Committee on Employment's report on long-term unemployment has only just been released. It is customary for the Government's observations to be available before any subsequent stages. I can assure the right hon. Gentleman that we will consider that through the usual channels.

The Government may consider extending the debate on the Channel fixed link and would be happy to have discussions on those lines with the right hon. Gentleman.

Finally, I note the strictures upon the police and fire services order. I believe that that is being arranged at a time which is not without precedent in the arrangement of business, but if the right hon. Gentleman would like to have the matter re-examined, we shall be happy to oblige.

Sir John Biggs-Davison (Epping Forest): May we have an early debate based on early-day motion 280 signed by 80 right hon. and hon. Members of all parties and headed "Miscarriage of Justice"?

[That this House notes the widespread concern felt in Parliament by eminent scientists, by other responsible observers and by members of the public who have viewed programmes on the matter screened by Channel 4, that Anne Maguire, Patrick Maguire (senior), Vincent Maguire (then aged 17), Patrick Maguire (then aged 14), Sean Smyth, Patrick O'Neill and the late Giuseppe Conlon, sentenced in 1976 to long terms of imprisonment since served, now appear, despite confirmation of their convictions at the time by the Court of Appeal, to have been entirely innocent of the crime with which they were charged; further notes at the conclusion of the debate in

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JD

10 DOWNING STREET

From the Private Secretary

8 July, 1985.

Dear Joan,

BNFL PRE-1971 WASTES

The Prime Minister has seen the Lord President's minute of 2 July and is pleased to note that an agreement has been reached on the attribution of costs for treating BNFL pre-1971 wastes.

I am sending copies of this letter to Richard Mottram (Ministry of Defence), Richard Broadbent (Chief Secretary's Office, HM Treasury), Geoff Dart (Department of Energy), John Ballard (Department of the Environment), and Richard Hatfield (Cabinet Office).

Yours sincerely

Andrew Turnbull

(Andrew Turnbull)

Miss Joan MacNaughton,
Lord President's Office.

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CENO

Prime Minister (2)

With help from the Cabinet Office Lord Whitelaw has resolved one of Whitehall's longest running disputes.

AT 3/7

PRIME MINISTER

BNFL Pre-1971 Wastes

Your Private Secretary's letter of 19 April recorded your request that I should seek to arrive at an apportionment of the costs of treating BNFL pre-1971 wastes attributable to past military activity between the defence budget and the contingency Reserve acceptable to the Chief Secretary and the Secretary of State for Defence.

2. Peter Rees and Michael Heseltine have now agreed to accept an equal split of the costs in all years between the Reserve and the defence budget. If you are content with this arrangement, MOD and Treasury will examine the costs in more detail in discussion with BNFL.

3. I am sending copies of this minute to the Secretary of State for Defence, the Chief Secretary, the Secretaries of State for Energy and Environment and Sir Robert Armstrong.

Privy Council Office
2 July 1985

Sellafield : ENV. Affairs July 80.

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File SRW

10 DOWNING STREET

From the Private Secretary

19 April 1985

BNFL PRE-1971 WASTES

The Prime Minister has seen the Chief Secretary's minute of 4 April and the reply by the Secretary of State for Defence of 15 April. The Prime Minister recognises that there are arguments on both sides in this issue. Nevertheless she feels that where the pre-1971 wastes arise from past military activity the costs of treating them should be attributable to the defence budget. As the 1964 settlement has proved to be based on such a massive under-estimate of the costs of treating the wastes, she feels that some part of the costs should be met from within the existing provision for the defence budget.

She would be grateful if the Lord President could discuss the issue with the Secretary of State for Defence and the Chief Secretary to see if he can arrive at an apportionment of these costs between the defence budget and the contingency reserve which is acceptable to both parties.

I am copying this letter to Richard Mottram (Ministry of Defence), Michael Reidy (Department of Energy), John Ballard (Department of the Environment), Richard Broadbent (Chief Secretary's Office) and Richard Hatfield (Cabinet Office).

(Andrew Turnbull)

Miss Janet Lewis-Jones
Lord President's Office

SRW

Heroic VAFF? Disposal of Nuc. waste.

E.R.

PRIME MINISTER (1)

BNFL PRE-1971 WASTES

A meeting of E Committee in March 1983 agreed that the Government should take responsibility for the costs of treating the radioactive wastes accumulated at BNFL sites before it became a plc in 1971. The argument since then has been about which programmes should bear the costs and whether any additional provision should be made available. You might like to look at your summing up of the meeting at Flag A. Agreement has been reached on the small share of the costs attributable to UKAEA, the Electricity Boards and BNFL itself. All have agreed to bear the costs without additional provision.

As the Chief Secretary's minute reports - Flag B - the remaining argument, confined to the Treasury and MOD, is about the way in which treatment of the 80 per cent of the wastes attributable to past military activity should be financed. These costs could average about £20 million a year for 30-50 years.

-Flag C-

Mr Heseltine argues that additional funds should be made available to the Defence Budget. He puts forward three arguments:

(i) The Government is only bearing these costs in order to facilitate the privatisation of BNFL ie. for reasons completely unconnected with defence. This is a poor argument, as to make BNFL responsible would in effect be to levy a surcharge on BNFL's customers, ie. the Electricity Boards, for the costs of dealing with past military activity.

(ii) MOD reached a settlement with BNFL's predecessors in 1964 which was supposed to include a contribution towards the cost of treating the wastes. The sum set aside of £0.4 million has proved to be a dramatic under-estimate.

(iii) The new costs represent an unforeseen additional charge which should not be met by reducing other expenditure on defence. The Treasury argue that the Defence Budget is a block which is meant to absorb relatively small annual additions of this kind. There is not much sense in adding £20 million to an annual budget in excess of £18 billion.

At present there is an impasse. While there are arguments on both sides, I think the Treasury case has more logic to it. However, it would be very difficult to get Mr Heseltine to absorb the full costs. This points to trying to reach a compromise settlement. One approach would be to ask the Lord President to talk to Mr Heseltine and the Chief Secretary to see if he can reach agreement which would leave MOD bearing some part of the costs. One possibility would be that MOD absorbed the costs arising within the PES period within the Defence Budget but that additional provision be made for subsequent years (or vice versa); or an agreement could be reached to split the costs.

Do you:

(i) wish to pursue the objective of getting MOD to bear the costs, or

(ii) want to see if a compromise could be negotiated? If the latter, should the Lord President be asked to see what he could achieve?

Willing to go AT for a compromise but it is a military cost

17 April 1985

MF

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MO 20/17/7

PRIME MINISTER

BNFL PRE-1971 WASTES

The Chief Secretary sent me a copy of his minute to you dated 4th April. I agree, as Peter says, that his minute sets out the issues before us and I share his regret that the question has had to come back to you.

2. I do, however, wish to reinforce my strongly held view that the Defence Budget should not be required to take on board 80% of the costs involved without additional funds being made available for the purpose. My department has discharged its legal liability in this matter once already. The commitment is over a long period and the costs are not small. The transaction will be visible to Parliament and, by diverting funds from defence purposes, can in my view only strengthen the claims of those who are already arguing that, with the ending of our commitment to NATO's 3% aim, we are devoting insufficient resources to sustaining the capability of our conventional forces.

3. I am sending copies of this minute to the Chief Secretary, the Secretaries of State for Energy and Environment, the Lord President and Sir Robert Armstrong.

Ministry of Defence
15th April 1985

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FROM: CHIEF SECRETARY
DATE: 4 April 1985

PRIME MINISTER

BNFL PRE-1971 WASTES

The meeting of E Committee on 30 March 1983, which you chaired, considered the problem of radioactive wastes and plant acquired by British Nuclear Fuels plc on its formation in 1971. It was decided that the Government should accept ultimate liability for the costs of making safe wastes and plant which resulted from earlier programmes for which Departments were responsible.

2 On funding, the Secretaries of State for Defence and Energy were to agree with me to which public expenditure programme, or programmes, any resulting expenditure should be attributed and the extent, if any, to which the programme or programmes concerned might be increased in consequence (E(83)3rd Meeting).

3 The origins of the waste are broadly assessed as 80 per cent defence and 20 per cent civil, (10 per cent UKAEA, 5 per cent Electricity Boards and 5 per cent BNFL itself). The cost of making them safe has been estimated at between £600 million and £1000 million (1982 prices) spread over the next 30-50 years, of which some £300 million would be incurred in the first decade. The three bodies responsible for the civil nuclear wastes have agreed to pay their share of costs from within the programmes settled during the 1984 public expenditure round.

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4 I regret that we have so far been unable to reach agreement on the remaining 80 per cent - the defence wastes. The essential issue in determining attribution to public expenditure programmes is what policy function is being executed.

5 The Defence Secretary's view is that the expenditure is intended to protect BNFL's financial and commercial position and to facilitate the Company's privatisation; and that this was a key element of the case for accepting financial liability put to E Committee in 1983. Accordingly, he considers the expenditure should be classified as industrial support and rest on the Department of Energy's programme.

6 We considered whether the costs could be borne by either the Energy or Environment programmes. Both Secretaries of State believe it would be wrong in principle for their Departments to pay costs resulting from past defence programmes. They argue this would run counter to the established "polluter pays" principle. Primary legislation would be required to give either Minister powers to make continuing payments. This would be controversial, providing a focus for opponents of our civil and defence nuclear policies.

7 Legislation would not be required for the Ministry of Defence to make the payments (since this Department would, in effect, be picking up costs from its earlier contracts). It is common ground that the Ministry of Defence's legal liability in respect of its payment was discharged by a 1964 settlement. This involved the payment of £210 million by the Department of which £0.4 million was provided specifically for treatment of wastes. The Defence Secretary argues that funding from within the Defence Budget would therefore involve paying twice for the same service and would divert resources from the primary objective of maintaining national security.

8 The Defence Secretary recognises however the presentational difficulties involved in introducing legislation to enable the Department of Energy to fund BNFL as part of the programme of industrial support. He has therefore reluctantly agreed that he would be prepared to take on board responsibility on the Defence Budget for 80 per cent of the costs provided that the necessary funds in the current year and the PES period are made available in subsequent years to meet the costs.

9 The figures are:

£ million (January 1984 prices)

up to 1984-85	1985-86	1986-87	1987-88
13-20	4-14	6-23	8-27

10 The higher end of the band indicates payments by MOD if the Department pays for BNFL's capital plant as investment is incurred. The lower end indicates payments if BNFL funds plant by borrowing, and then charges depreciation and interest to MOD as plant is used later to process wastes. It is not yet clear which would be the cheaper option (in real terms) in the long run. The precise figures would have to be settled in negotiation with BNFL after investment appraisal.

11 Given the current pressure on public expenditure I am unable to give the undertakings the Defence Secretary has sought. The provision for waste management made in the original legal settlement has turned out to be much too low. MOD are not legally liable for the extra costs but now that we have decided collectively to accept them I think they are a fair charge to the Defence Budget.

Summary

12 We have settled the attribution of the cost of dealing with the component deriving from the civil nuclear programme. While the issues surrounding the defence component have been clarified, we have not been able to reach agreement on whether that programme should be increased. Accordingly, I regret I must refer the question back to you as Chairman of the original E Committee to decide how it should be finally resolved.

13 A copy of this minute goes to the Secretaries of State for Defence, Energy and Environment (who agree that it sets out the issues before us) and to the Lord President and Sir Robert Armstrong.

PETER REES

CCNO

PRIME MINISTER

w bpm
DMB
17/12

SELLAFIELD DISCHARGES

I have seen William Waldegrave's minute to you of 3 December about the proposed Written Answer on the steps being taken to reduce the level of discharges from Sellafield.

I strongly support the proposals now in hand for limiting the discharges from the plant and also the terms of the Written Answer as circulated. I hope that these meausres will go some way to eliminate the concern expressed by residents on the North Wales coast since the incident.

I am copying this minute to members of the Cabinet, to Sir Robert Armstrong and to Dr Nicholson.

13 December 1984

RNE

Env. Affairs July 80

Sellafield

file

10 DOWNING STREET

From the Private Secretary

11 December 1984

SELLAFIELD DISCHARGES

The Prime Minister was grateful for Mr. Waldegrave's minute of 3 December, to which he attached a draft Written Answer on measures to reduce radioactive discharges from Sellafield.

The Prime Minister is content with the terms of the draft Answer, subject to any further comments from colleagues.

I am copying this letter to Janet Lewis-Jones (Lord President's Office), Christine Heald (Home Office), Graham Sandiford (Northern Ireland Office), John Neilson (Department of Energy), Nick Evans (Ministry of Defence), John Graham (Scottish Office), Colin Jones (Welsh Office), Judith Rutherford (Department of Employment), David Morris (Lord Privy Seal's Office), David Harbourne (Ministry of Agriculture, Fisheries and Food), Richard Broadbent (Chief Secretary's Office, HM Treasury), Stephen Alcock (Office of the Minister for Health, DHSS), Richard Hatfield (Cabinet Office) and Dr. Nicholson (Cabinet Office).

David Barclay

Mrs. Joan Dunn,
Department of the Environment.

10 DOWNING STREET

From the Private Secretary

(1)

Prime Minister

SELLAFIELD DISCHARGES

The option favoured at your meeting in July would reduce Sellafield discharges to Cap de la Hague levels no later than 1992.

Content, subject to colleagues, with the draft DoE statement at Flag A?

Yes

Derek
10/12

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CC NO

01 211 6402

The Rt Hon Patrick Jenkin MP
Secretary of State for the Environment
2 Marsham Street
LONDON
SW1P 3EB

7 December 1984

SELLAFIELD DISCHARGES

William Waldegrave copied to me his minute of 3 December to the Prime Minister. I agree that a Written Answer should be given along the lines of his attachment.

I have one or two specific points which I am sure can be agreed between officials. First, the discharge levels referred to at the bottom of the first page are, I understand, the target for actual average discharges. The authorisations will need to be set at a somewhat higher level to allow for a reasonable operating margin. I think it would be helpful, therefore, if the levels referred to in the statement were described as a target.

Second, the floc precipitation plant is not, strictly speaking, the only plant involved in the new programme. I therefore suggest the deletion of "a" from "a major new treatment plant" in the third paragraph.

Finally, the wording of the third paragraph also needs to be amended to reflect the fact that THORP is expected to be in operation before the new waste treatment plant.

BNFL will themselves need to be able to release much fuller details of what is proposed, for example, to their Local Liaison Committee, as soon as the statement is made. I would therefore ask that they be kept in close touch on the timing and content of the statement, so that the briefing of all concerned can be co-ordination.

I am copying this letter to the recipients of William Waldegrave's minute.

PETER WALKER

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ENV AFFAIRS : Sellafield : Jul[illegible]80

CONFIDENTIAL

W.0916 5 December 1984

PRIME MINISTER

SELLAFIELD DISCHARGES

At the meeting you chaired on 24 July, it was agreed that further reductions in discharges of liquid radioactive waste from Sellafield should be made, over and above those reductions which would result from changes already in train. Of the several options discussed, it was agreed that further changes should be made which would reduce alpha discharges to 17 curies per annum and beta/gamma discharges to 8,000 curies per annum. The Secretary of State for Energy was asked to explore with the management of BNFL the scope for achieving these reductions earlier than 1992 (the year originally envisaged for this option).

2. BNFL's reaction has been to agree to a nominal speeding up of the timetable. BNFL is able to bring the new plant into operation by mid-1991, but does not want to commit itself to a specific date for the achievement of the discharge reductions. This wish has been granted in the wording of the draft Written Answer. In effect, BNFL has moved rather less than one-third of the way from Option 1 (implementation of these reductions by 1992) to Option 2 (implementation of the same reductions by 1989).

3. My advice is that the timetable proposed by Mr Waldegrave, and the wording of the draft Written Answer, should be accepted; it would be counterproductive to try and push BNFL to speed up the timetable any further at this stage. However, I believe that it should be made crystal clear to the new management of BNFL that it is expected not to let the new timetable slip but to achieve the target discharge levels at the earliest date, preferably before the end of 1991.

4. At the meeting of 24 July, it was also agreed that there should be a low-key announcement after an interval. I therefore

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advise that Mr Waldegrave's proposals for the handling of an announcement are accepted.

5. I am copying this minute to Robert Armstrong.

RBN

ROBIN B NICHOLSON
Chief Scientific Adviser

Cabinet Office
5 December 1984

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Env. Affairs: Sellafield July 80.

CENS

PRIVY COUNCIL OFFICE
WHITEHALL. LONDON SW1A 2AT

4 December 1984

Dear Barbara

SELLAFIELD DISCHARGES

I refer to Mr Waldegrave's minute of 3 December to the Prime Minister and to my telephone conversation of 4 December with a member of your staff.

As I explained, the Lord Privy Seal is content that this announcement should be made in the form of a Written Answer with the proviso that the Answer should not be delivered on a Friday.

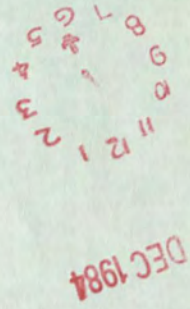
I am sending a copy of this letter to Tim Flesher at Number 10 and Janet Lewis-Jones in the Lord President's Office.

yours
Charles

C M J MARSHALL
Private Secretary

Mrs Barbara Jones
Private Secreary to
the Hon William Waldegrave MP
Department of the Environment

Sellafield : ENV. Affairs July 80.



mg

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QCNO

Prime Minister

Await D Fin ad MAFF

SELLAFIELD DISCHARGES

At your meeting on July 24 (recorded in your Private Secretary's letter of July 25) it was agreed to adopt option 1 in the paper Patrick Jenkin had circulated about the long-term programme for reducing discharges by British Nuclear Fuels plc from Sellafield. However, it was also agreed that the Secretary of State for Energy should have further discussions with the company's management about the possibility of bringing forward the date of operation of option 1 from 1992. Discussions have now taken place at official level, with the involvement of the Radiochemical Inspectorate and the Nuclear Installations Inspectorate.

The UK has a specific obligation to submit a report on the long-term programme before the end of the year to the Paris Commission on the prevention of marine pollution from land-based sources, and Parliament must be told of our decision first. The content of option 1 remains as described in Patrick Jenkin's paper.

On the timetable, BNFL have confirmed that they will be able to bring the relevant new plant into operation by mid 1991, without prejudicing other developments at Sellafield or creating new safety hazards. However, as the plant will take some time to run in, they are not willing to commit themselves at this stage to a specific date for the full achievement of the resulting reduction in discharges. After that, there will also be a time lag of a couple of years before the full benefit is achieved in terms of reduced doses to the critical group of fish and shellfish eaters. In the light of these factors, it would be best for the announcement to refer specifically to the date for the coming into operation of the new plant, and to describe the reduced dose cautiously as 'well below 10%' of the ICRP limit, rather than the 3% which is actually estimated.

There was a wish that the announcmeent should be a low key one. We therefore propose, if you and other colleagues agree, a Written Answer on the lines of the attached draft, which is based on consultation at official level. Consistently with the low key approach, this announcement is not presented as a direct response to the Black Report on health effects in the area (which was published in July, also with a Written Answer), but cross-references to specific recommendations in that report are made where appropriate.

I am copying this minute to the Lord President, the Home Secretary, the Secretaries of State for Northern Ireland, Energy, Defence, Scotland, Wales, Employment, the Lord Privy Seal, the Minister of Agriculture, the Chief Secretary, the Minister for Health, to Sir Robert Armstrong, and to Dr Nicholson.

Nicola Cropp

pp WILLIAM WALDEGRAVE (approved by the Minister and signed in his absence)

3 December 1984

CONFIDENTIAL

SELLAFIELD DISCHARGES:

DRAFT WRITTEN ANSWER

Q. To ask the Secretary of State of the Environment, what measures are being taken to reduce discharges of radioactivity from Sellafield.

A. The Radiochemical Inspectorate of my Department, jointly with the Ministry of Agriculture, Fisheries and Food, have already put forward formal proposals for a variation of the authorisation under the Radioactive Substances Act 1960, so that the limits will reflect the substantial reductions in actual discharges that have been achieved in the past few years and place extra controls on the amounts discharged over short periods, and on solvent and particulates. This variation, which also contains a formal requirement that the best practicable means must be used to limit discharges, is expected to come into force in January.

The Site Ion Exchange Plant (SIXEP), constructed at a cost of £130m, will come into operation next year and will make possible a further reduction in discharges of caesium, to one tenth of the maximum released in recent years. The new salt evaporator, also due to come into operation next year at a cost of £30m, will make possible a parallel reduction in discharges of plutonium and other alpha emitters, to about 200 curies a year. Formal proposals to replace the existing authorisation by a new and more stringent one will be put forward by the Authorising Departments next year, and the opportunity will also be taken to set specific limits on a much larger number of individual radionuclides. The local authorities will be consulted about the new draft authorisation, as will the water and health authorities, and sea fisheries committees.

Beyond that, the achievement of a further significant reduction on a continuing basis depends on the construction of a major new treatment plant. The government, after a review of the options in consultation with the company, has approved the company's proposal to build a floc precipitation plant, costing £150m, which would be in operation by 1991. The aim is to reduce discharges to less than 20 curies a year of alpha activity and about 8000 curies a

year of beta/gamma activity. The latter figure is below the level currently achieved by the only plant in any way comparable, the newer French reprocessing plant at Cap de la Hague, and the alpha figure is approximately equal to the current figure for that plant. These levels will also be maintained after the new reprocessing plant for oxide fuel comes into operation; and further reductiions will be obtained when the present reprocessing plant for magnox fuel goes out of operation in the early years of the next century.

This programme of measures complies with the recommendation of the Paris Commission on the prevention of pollution from land-based sources that contracting parties should take account of the best available technology at nuclear reprocessing plants, in order to minimise radioactive discharges to the marine environment. The Radioactive Waste Management Advisory Committee have confirmed that, in their view, this programme takes full account of all the scientific evidence, and is consistent with the United Kingdom's policy objectives for radioactive waste management, particularly the objective of reducing discharges to the lowest level reasonably practicable. The estimated annual radiation dose to the small critical group of people eating large amounts of fish and shellfish will be reduced to well below 10% of the limit recommended by the International Commission on Radiological Protection, as compared with 54% in 1982.

The two Authorising Departments plan to review the authorisation every 3 years, in line with a recommendation in the Black Report. For the purposes of such reviews, they will draw upon the results from an expanded programme of environmental monitoring they have now required BNFL to carry out as from January 1985, as well as their own check monitoring and relevant research. They will also take full account of advice on the health aspects of discharges, and my rt hon friend the Minister for Health is considering, in the light of the Black Report, how such advice can be best provided.

ENV. Affairs July '80
SELLAFIELD LEAK

10 DOWNING STREET

From the Private Secretary

DR. NICHOLSON
CABINET OFFICE

SELLAFIELD

The Prime Minister was most grateful for your minute of 27 July, commenting on the distinction between alpha, beta and gamma radiation. She found this most helpful.

(David Barclay)

30 July 1984

CONFIDENTIAL

W.0493

27 July 1984

PRIME MINISTER

SELLAFIELD

There was some discussion at your meeting on Sellafield last Tuesday on the distinction between alpha, beta and gamma radiation. As this is fundamental to the strategy for reducing discharges, it may be helpful for me to clarify the essential points.

2. The composition of the radioactive effluent from Sellafield varies according to the processes in operation at a particular time, but about 60% arises from the re-processing of Magnox fuel. Because of the long half-lives of the radionuclides, the population exposure to the radioactivity comes not only from present discharges but from past discharges of differing composition.

3. Alpha emitters:

i. are mainly plutonium (238Pu with a half-life of 87 years; 239Pu with a half-life of 24,400 years; and 240Pu with a half-life of 6,600 years) and americium (241Am with a half-life of 433 years);

ii. have longer half-lives than the beta emitters;

iii. are mostly rapidly bound to sediments on the sea-bed. However, there is evidence that some of the activity is transported by currents in the water and some is re-mobilised to land by wind or sea spray; they can thus enter food chains or be present in dust.

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4. Beta emitters:

i. are mainly ruthenium (106Ru with a half-life of 1 year), strontium (90Sr with a half-life of 29 years), cerium (144Ce with a half-life of 285 days), caesium (134Cs with a half-life of 3 hours; and 137Cs with a half-life of 30 years), plutonium (241Pu with a half-life of 14.3 years) and tritium (3H with a half-life of 12.3 years);

ii. have shorter half-lives than the alpha emitters;

iii. are also the principal gamma emitters;

iv. tend to be mobile in sea-water;

v. enter marine food chains, where some (106Ru, 90Sr and 144Ce) are biologically concentrated, and are ingested by man in seafoods.

5. Alpha radiation:

i. can penetrate a few micrometres of tissue; and thus

ii. is hazardous only when ingested, inhaled or taken into a wound;

iii. leaves a dense trail of ionisation damage in tissue which is not easily repaired by natural mechanisms;

iv. is considered to be more harmful than an equal dose of either beta or gamma radiation by a factor of twenty.

6. Beta radiation:

i. can penetrate several centimetres of tissue;

ii. is hazardous only when ingested, inhaled or taken into a wound;

iii. causes tissue damage which is more readily repaired than alpha radiation damage;

iv. is considered twenty times less harmful than an equal dose of alpha radiation.

7. Gamma radiation:

i. can penetrate tissue easily; and thus

ii. is hazardous whether on the outside or inside of the body;

iii. is considered twenty times less harmful than an equal dose of alpha radiation.

8. The most important effect of radiation on biological tissue is damage of the genetic material in the cell nucleus. This can cause, in particular, sterility, hereditary defects and cancers.

9. Summary of discharges

The annex shows the estimated discharges, in terms of alpha and beta/gamma activities, from the storage ponds and re-processing plant.

MBN.

ROBIN B NICHOLSON
Chief Scientific Adviser

Cabinet Office
27 July 1984

ANNEX

Sellafield discharges

		discharges to sea in curies/year	
		alpha	beta/gamma
STORAGE PONDS	now →	38	33,600
	on completion of SIXEP →	0	2,500
REPROCESSING PLANT	now →	342	26,400
	effluent treatment (option 1/2) →	17	5,500

Cap de la Hague discharges

alpha	beta/gamma

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CC master set.

FILE GCA ACG

Pl. cc to HOME AFFAIRS Disposal of Nuclear Waste

10 DOWNING STREET

From the Private Secretary

25 July 1984

NUCLEAR ISSUES: SELLAFIELD AND RADIOACTIVE WASTE DISPOSAL

The Prime Minister chaired a meeting on 24 July to discuss the Sellafield nuclear fuel reprocessing plant, and radioactive waste disposal. Those present at the meeting, in addition to your Secretary of State, were the Lord President, the Secretaries of State for Defence, Energy, Employment and Scotland, the Minister of Agriculture, the Chief Secretary, the Minister of Health, the Minister of State for Industry and Information Technology (Mr Baker), Mr Ray Whitney (Foreign and Commonwealth Office), Mr William Waldegrave (Department of the Environment), Mr David Mitchell (Department of Transport), Mr Wyn Roberts (Welsh Office), Sir Robert Armstrong, Dr Nicholson and Mr. Brearley (Cabinet Office). The papers before the meeting were your Secretary of State's minute of 20 July and the paper by officials which was attached to it; the letter of the same date from the Secretary of State for Energy; your Secretary of State's minute of 23 July on radioactive waste disposal facilities; and the Secretary of State for Energy's minute of 17 July on the Black Report.

Introducing a discussion on the options for reducing radioactive discharges from Sellafield, your Secretary of State said that current levels of discharges were higher than those from any other reprocessing plant in the world, basically because Sellafield was an old installation. Sir Douglas Black, in his recent report on the incidence of cancer in West Cumbria, had recommended a critical review of the need for discharges to be at their present level, and backbench opinion in Parliament was rallying in support of a substantial reduction. Significant progress would be made as a result of changes now in train and due to be completed by 1986. Further reductions could not be justified on strict cost benefit criteria, but comparisons would inevitably be made with the much cleaner French plant at Cap de la Hague, and the political feasibility of expanding

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nuclear power generation could depend on restoring public confidence in Sellafield.

In discussion, differing views were expressed on the level of additional expenditure which could be justified in order to reduce further the level of discharges. On the one hand, it was argued that there was no scientific case for any further reduction, since discharges were already comfortably within the agreed international standards, which were themselves very low. There were many alternative uses for the money which would make a higher contribution to the nation's health. On the other hand, it was argued that international standards were virtually certain to reduce further as understanding of the effects of radioactivity and its paths of return to the human body increased; that questions of public confidence were just as important as the scientific facts; and that the levels of expenditure proposed in all but the most extreme option in your Secretary of State's paper compared favourably with the cost of constructing a single nuclear power station. It was noted that any expenditure would not score as public expenditure, but would feed through to electricity prices.

Concern was expressed about the ability of BNFL management to cope with further changes in addition to the massive programme of civil and chemical engineering on which they were already embarked. The recent spate of inquiries had had a damaging effect on morale, and it was important not to force the pace to the point where new safety hazards could be created. The continued cooperation of the local population was also vital.

In terms of presentation, it would be important to avoid any "dramatic gestures". Press reaction to the Black Report had been generally favourable, and this suggested that a low key announcement, after an interval, might be the best course. Your Secretary of State was in any event committed to announcing revised levels of authorisation for discharges from Sellafield in the autumn.

Summing up this part of the discussion, the Prime Minister said that the meeting endorsed option 1 in your Secretary of State's paper, which would reduce alpha levels to 17 curies a year and beta/gamma levels to 8000 curies a year, by 1992. The Secretary of State for Energy should, however, explore with the BNFL management the possibility of bringing forward this timescale without prejudicing other developments at the plant and without creating new safety hazards. No announcement should be made before the Recess, but further consideration should be given to the possibility of a low key statement in the autumn, perhaps in the form of a response to recommendation 9 of the Black Report.

Introducing a brief discussion of radioactive waste disposal and storage, your Secretary of State said that the planning procedures originally envisaged now seemed untenable. Instead he proposed that exploratory operations at not less than three sites for each type of waste should be covered by a Special Development Order, which would be subject to negative resolution of both Houses. The main planning enquiries would follow once exploration had been completed.

In discussion it was argued that such a major change in the Government's approach to these matters required further and deeper consideration. There was a danger that by multiplying the number of sites the Government would simply multiply the opposition to any land disposal of waste: an alternative approach would be to store waste only at existing nuclear sites.

Summing up, the Prime Minister said that the meeting was not ready to reach conclusions on the proposals set out in your Secretary of State's minute of 23 July. Further work should be done in Departments at official level over the summer, following which your Secretary of State should circulate a further paper to colleagues. The statement of Government policy on radioactive waste management which the Sizewell Inspector had requested should be cleared in correspondence.

Consideration of the Secretary of State for Energy's proposal for a national study of leukaemia rates (his minute to the Prime Minister of 17 July) was deferred.

I am sending copies of this letter to the Private Secretaries to those who attended the meeting, and to Graham Sandiford (Northern Ireland Office).

DAVID BARCLAY

John Ballard, Esq.,
Department of the Environment.

GR

Please circulate as shown.

DMB 26/7

10 DOWNING STREET

Mr Bradley (Cabinet Office)

I should welcome comments / amendments as soon as possible.

Mr. Barclay

An excellent minute. I have made a very few suggestions for amendments. I note that I was invisible.

DMB 25/7

25/7

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10 DOWNING STREET

From the Private Secretary

25 July 1984

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DAVID BARCLAY

John Ballard, Esq.,
Department of the Environment.

1) Copy to D Pascall pdc
2) PA.
Dawds
26/7

Prime Minister (2)

CONFIDENTIAL

MR BARCLAY

24 July 1984

SELLAFIELD

The Prime Minister was concerned this morning whether the measures proposed will produce a clean site at Sellafield and whether expenditure of the order of £290 million is necessary to achieve this.

The important point to appreciate is that the current reprocessing plant does not have a dedicated effluent treatment plant. As a chemical engineer, I was amazed during my recent visit that this was the case for a plant of the sensitivity and complexity of Sellafield.

Our problem therefore is not that Cap de la Hague has newer technology but that they have an effluent treatment plant and we do not.

This situation needs to be remedied as soon as possible. The effluent treatment plant currently under construction (the Sixep plant) will treat only one of many effluent streams, ie from the storage ponds. The technology proposed under options 1/2 will ensure that the principal contaminated effluent streams from the reprocessing plant are chemically treated. Although costs have not yet been assessed in detail, £290 million does not appear an unreasonable first estimate.

DLP.

DAVID PASCALL

DAWAAJ

CONFIDENTIAL

DMB
20/7

2 MARSHAM STREET
LONDON SW1P 3EB
01-212 3434
My ref:

Your ref:

23 July 1984

Dear David

SELLAFIELD

As you know, my Secretary of State's minute to the Prime Minister of 20 July will form the basis of tomorrow's meeting on Sellafield.

The Prime Minister, and other colleagues, may find the attached note (which summarises the four options) useful for the meeting.

I am sending a copy of this letter and the table to the private secretaries of those who received a copy of my Secretary of State's minute: The Lord President, the Secretaries of State for Foreign and Commonwealth Affairs, Energy, Northern Ireland, Defence, Scotland, Wales, Social Services, Trade and Industry, Employment and Transport, the Minister for Agriculture and the Chief Secretary, and the Secretary of the Cabinet.

Yours ever,

Andrew

A C ALLBERRY
Private Secretary

David Barclay Esq

CONFIDENTIAL

REDUCTION OF SELLAFIELD DISCHARGES:

SUMMARY OF THE OPTIONS

OPTION 1: Cost £280m at 1984 prices. Major reductions: alpha discharges to 17 Ci a year by 1992 and beta/gamma discharges to 8000 Ci a year. Defects: no major benefit in the period 1986-1992, no room for subsequent improvement or margin for unforeseen circumstances.

OPTION 2: Cost £290m. Major reductions: as in option 1, but by 1989. Defects: the company argue this date cannot be guaranteed, other defects as in option 1.

OPTION 3: Cost £525m. Major reductions: alpha discharges to 15Ci, and beta/gamma discharges to below 5500 Ci and perhaps (further study by consultants needed) to 3500 Ci, both by 1992. Defect: no major benefit in the period 1986-1992.

OPTION 2 + OPTION 3: Cost £565m. Major reductions: alpha discharges to 17 Ci a year by 1989, beta/gamma discharges to below 5500 Ci a year by 1992. The aim is to combine early action as in option 2 with the longer-term benefits of option 3.

OPTION 4: Cost £2510m. Major reductions: alpha discharges to 5Ci a year by 1995, beta/gamma discharges to 8000 Ci a year by 1992 and 500 Ci a year by 1995. Defects: slow and expensive, would also produce much larger quantities of solid waste for disposal than the other options.

DOE/RWA
23 July 1984

CONFIDENTIAL

PRIME MINISTER

nbpm

24/7

SELLAFIELD

I have seen the correspondence on Patrick Jenkin's minute of 31 May. There are two points which particularly concern this Department, namely regional policy and support for tourism.

2 I understand Patrick Jenkin's reference to the fears which have been expressed about possible loss of Assisted Area status for Sellafield. These are not confined to Sellafield, and we can say no more about Sellafield than we can about any other Assisted Area, namely that we shall not have a clear picture of the likely shape of the new Assisted Area map until August when we shall have the final version of the TTWA map. When we have this, we can then make our decisions, taking into account special factors such as the problems of Sellafield - although these must clearly be subordinate to the main purpose of our regional industrial policy, namely the reduction of disparities in regional

JH3ASX

employment opportunities.

3 My second concern is the effect of the current bad publicity surrounding Sellafield on tourism interests in West Cumbria. The adverse publicity is clearly damaging the tourism industry there, and I have been approached to provide compensation and funds for additional marketing of Cumbria to help attract visitors back. But compensation must be a matter for BNFL, and I do not believe that additional advertising would prove productive in the present circumstances. I am considering, however, with the English Tourist Board whether the support available for tourism development projects in the area might helpfully be highlighted.

4 I am copying this minute to members of the Cabinet, to the Chief Whip and to Sir Robert Armstrong.

NT

N T

23 July 1984

JH3ASX

Department of Trade and Industry

CONFIDENTIAL

K.0873

Prime Minister

This is the Cabinet Office brief. The Policy Unit note is at flag E.

E

Sellafield discharges

DMB 23/7

1. This is a handling brief for your meeting tomorrow. The principal issues are which option to select for the future level of radioactive discharges from the British Nuclear Fuels (BNFL) plant at Sellafield and what, if anything, to do about the quality of BNFL management at Sellafield. The considerations and options are set out in the note by officials attached to the Secretary of State for the Environment's minute of 20 July. Dr Nicholson's advice is in his minute of 20 July. A supplementary issue is the content and timing of an announcement. The meeting might also consider the suggestion that the Secretary of State for the Environment made in earlier correspondence that there should be some measure of positive discrimination in Government policies in favour of the Sellafield area, and the Secretary of State for Energy's proposal (his minute of 17 July) to follow up the Black Report on the incidence of cancer in west Cumbria with a national study of the incidence of leukaemia.

A B

C

BACKGROUND

2. There is concern about the level of radioactive discharges from Sellafield. Sir Douglas Black's recent report (to be published today) does not establish any definite connection between the discharges and the incidence of cancer in the locality. But he does recommend, inter alia, that the discharges should be reviewed critically in relation to those from plants in other countries, with special attention to alpha discharges. There is also strong pressure from the Irish and the Scandinavians.

3. Alpha activity, currently at the level of 380 curies, is relatively powerful, long-lived and accumulates on the sea-bed. Beta/gamma activity, currently 60,000 curies, has a shorter life and disperses in the sea. Action already in hand (costing £130 million) will reduce the discharges to 200 curies of alpha and 20,000 curies of beta/gamma activity in 1986, rising slightly in the 1990s. For comparison current discharges at the French reprocessing plant at Cap de la Hague are 14 curies of alpha and 30,000 curies of beta/gamma activity. The expressed French intention is to keep their discharges to current levels in the face of an increased throughput of fuel.

4. The main source of the Sellafield discharges is the reprocessing of spent Magnox fuel which is likely, though not certain, to have been phased out by 2005. By that date the emissions should be about 5 curies of alpha and 2,000 curies of beta/gamma.

5. The Government and BNFL are committed to substantial reduction of discharges below the levels already expected in 1986. The International Commission on Radiological Protection (ICRP) has recommended that doses received by members of the public most at risk (which relate only indirectly to discharges) should be as low as reasonably achievable, taking economic and social factors into account. The 1986 discharges would produce doses of 17% of the upper limit which has been set by the ICRP. The UK's Radioactive Waste Management Advisory Committee (RWMAC) think doses should not exceed 10%, regardless of cost, and would expect application of the "as low as reasonably practicable criterion" to achieve a figure substantially below that. The Black Report recommends that "there should be a

critical review of the necessity for discharges of alpha as well as beta/gamma emitted in discharges from BNFL Sellafield site to be significantly in excess of those from similar plant in other countries". On dosage the French objective at La Hague is 1% of ICRP - in more favourable geographic conditions.

MAIN ISSUES

Radioactive discharges

6. The note by officials identifies 4 options for reducing discharges. The Secretary of State for the Environment favours a fifth option (a combination of 2 of the basic ones). They are:-

Option 1

Emissions - By 1992 17 curies of alpha; 8,000 curies of beta/gamma, ie doses of about 3% of the ICRP limit.

Cost £280 million (1984 prices), £235 million (net present cost)

Increased cost of magnox power - 0.07 pence per kilowatt hour (p/KWh)

Option 2 - the same plan, but accelerated to achieve the same discharges in 1989.

Not achievable. Cost £290 million (1984 prices), £245 million (net present cost)

Increased cost of magnox power - 0.07 p/KWh

Risk - delay to existing programme of emission reduction, and other investment.

Option 3 - Cap de la Hague method (ie removal of beta/gamma activity from all discharges)

Emissions By 1992 - 15 curies of alpha; 3,500 curies of beta/gamma, ie doses of about 2% of ICRP limit (But only 150 alpha and 10,000 beta/gamma by 1989)

Cost £525 million (1984 prices); £345 million (net present cost)

Increased cost of magnox power - 0.15 p/KWh

Option 2/3 Secretary of State for the Environment's preference. As option 3 but with earlier action as option 2 to reduce alpha discharges.

Emissions 1989 discharges - as option 2; 1992 discharges - as option 3

Cost £565 million (1984 prices); £375 million (net present cost)

Option 4 - Different process evaporating virtually all effluents and solidifying the resulting concentrate. Effective from 1995

Emissions - 1995 5 curies of alpha; 500 curies of beta/gamma ie doses of under 1% of ICRP

Cost - £2,510 million (1984 prices); £1,470 million (net present cost)

Increased cost of magnox power - 0.86 p/KWh

With all the options the costed benefit of lives saved is relatively small. The real benefit is to public confidence and a continuing nuclear power programme.

7. Option 4 is very expensive, and would increase the cost of magnox power prohibitively (64%). No-one favours it. Of the other options:-

Option 1 is favoured by BNFL and the Nuclear Installations Inspectorate. The others would all endanger their current investment programmes.

Option 2 is favoured by Dr Nicholson. The accelerated timescale would respond to public concern. BNFL would be willing to see if the Option 1 timescale could be accelerated towards Option 2. Any damage to other aspects of their safety investment programme would have to be assessed and judged acceptable.

Option 3 is favoured by the Radiochemical Inspectorate as "reasonably practical" and therefore what should be done. The technology involved is in use at La Hague, and it would provide an essential element of insurance against incidents and unforeseen circumstances.

Option 2/3 is favoured by the Secretary of State for the Environment because it combines the advantages of option 3 with accelerated treatment of alpa discharges.

BNFL management at Sellafield

8. Past events at Sellafield have raised concern about the quality of BNFL management. The DOE paper says simply that steps have been taken to improve the quality of management. Dr Nicholson fears this will not go far enough. He suggests that the Secretary of State for Energy should strengthen the non-Executive Director membership of the Board and, through them, assure himself that the quality of management is brought up to the standard of best private sector practice.

Announcement

9. The Black Report is being published today. It does not establish

a link between Sellafield discharges and the local incidence of cancer. To follow it very quickly with a statement about the discharges might be thought to mean that the Government did see such a link. For this reason the Secretary of State for Energy argues against an early statement (his letter of 20 July). Depending on the decision over options it may well be that further discussions should in any case take place with BNFL before an announcement.

D1

Wider Government action

10. In the earlier correspondence the Secretary of State for the Environment argued the case for a "Sellafield dimension" to other Government policies. This would not be an overt link but the Government demonstrating "clearly through its actions that we understand the pressures on this part of West Cumbria which derive from being the home of the largest plant of its kind in Europe". Apart from the Secretary of State for Energy, you and other ministers participating in the correspondence were not attracted to this approach, and the Secretary of State for the Environment has not returned to it. You might like to confirm that dealing with the plant and its discharges is the first priority.

National Leukaemia Study

11. The Secretary of State for Energy suggested to H Committee, when it was discussing the Black Report last week, that one strand of the Government response might usefully be to mount a national study of the incidence of leukaemia. This would usefully put the position at Sellafield (and around nuclear power stations) into a national perspective. H Committee felt that the arguments were evenly balanced. Some members felt that such a study would only cause concern about other areas (including Sizewell), to no good effect

since there were no useful explanatory hypotheses to test. Others thought that the identity of locations of high incidence of leukaemia would become known anyway; that there were enough grounds for a study; and that it would help to put Sellafield in a less prominent perspective. There is a current study going on at Oxford whose results might also be relevant. It seems clear that more work should be done on the pros and cons of a national study before any decision is reached.

HANDLING

12. After the Secretary of State for the Environment has introduced his minute and the officials' paper, the meeting should first discuss the options for reducing discharges. The Secretary of State for Energy will have views on what BNFL can achieve and the effect of the options on the price of nuclear power, and nuclear power policy more generally. The Chief Secretary, Treasury will also have views on cost. Most other ministers will have views on the acceptability of the options, perhaps especially the Lord President, the Scottish and Northern Irish ministers, the Foreign Office minister (the international context), the Secretary of State for Social Services, the Minister of Agriculture and the Secretary of State for Employment.

13. On the management of BNFL, the Secretaries of State for Energy and the Environment and the Chief Secretary, Treasury will have views. Dr Nicholson has just visited the plant.

14. On the timing of an announcement, the Energy and Environment Secretaries, the Social Services Secretary (especially in relation to Black) and the Lord President should be asked to contribute.

15. On wider Government policies, the Secretary of State for the Environment might be asked for his current views. If he still favours

wider action most other ministers will want to contribute.

16. On the national leukaemia study, the Secretary of State for Energy should explain what he has in mind, and the Social Services Secretary to comment. The two of them might then be asked to consult further.

CONCLUSIONS

17. You will wish the meeting to reach conclusions on -

(a) Future discharges - the preferred option. The real choice seems to lie between Option 2 and Option 2/3. In either case there should almost certainly be further discussions with BNFL about costs and timing;

(b) whether further action should be taken to strengthen BNFL management generally and at Sellafield in particular;

(c) when any announcement should be made. On practical grounds, and in relation to Black, there is a good case for the autumn;

(d) whether wider Government action in the Sellafield area should be further considered. Probably not, but if so you may want to ask the Environment and Energy Secretaries to consider and report further.

(e) whether there should be a national leukaemia study. The Energy and Social Services Secretaries should consider further.

C J S BREARLEY
23 July 1984

CONFIDENTIAL

PRIME MINISTER

ENVIRONMENTAL POLLUTION: SELLAFIELD
RECOMMENDATIONS BY THE SECRETARY OF STATE FOR THE ENVIRONMENT

There is no dissent on the need to cut discharges from Sellafield to the Irish Sea. The question is, how far and how fast. The relative importance of these discharges is shown in the attached diagram. The options are described in para 12 of the attached paper agreed by officials; table 2 shows their effects. Officials were not able to reach agreement on a preferred option; I recommend a combination of options 2 and 3, and in this minute I set out my reasons.

We must be able to point to a declining curve both for alpha activity, (mainly plutonium and actinides) which accumulates near Sellafield and is highlighted by Sir Douglas Black's report, and for beta/gamma activity, which disperses widely around Scotland and right round the North Sea, and has more effect on other countries. Option 1 would cut alpha discharges sharply, but not until 1992: I reject it as not doing enough.

I also reject option 4. Para 17 and table 3 of the attached paper show it would be excessively costly and there would also be greater problems in disposing of the resulting solid wastes.

Turning to Options 2 and 3, it is worth noting that the addition to the price of electricity under either option would be well under 1%. There are strong grounds for adopting option 3. It uses the technology already in use at Cap de la Hague, the only comparable plant to Sellafield; the Radiochemical Inspectorate of my Department favour it as being the best practicable technology. It achieves a substantial reduction in beta/gamma discharges and would provide an essential element of insurance against incidents and unforeseen circumstances.

On the other hand, option 3 does little to reduce alpha discharges between 1986 and 1992. Option 2, while achieving a sharp cut in alpha discharges by 1989, leaves little room for subsequent improvement and the capacity of the plant would be saturated.

I therefore recommend the modification suggested in para 15 of the attached paper, beginning with option 2 and moving on to option 3 later. The table below is a simplified version of table 2 in the paper, with this modification added. I propose that we give BNFL published targets of under 20 curies of alpha activity by 1989, and of 3500 curies of beta/gamma activity by 1992. Further studies by consultants will be needed to establish the exact timing and costs beyond 1990 and the exact reductions that could be achieved.

This is a more expensive solution than option 1 - a net present cost of about £375m against £235m. However the difference, when set against the enormous capital investment in the electricity industry, is relatively small; it would represent an addition to the price of electricity of the order of 0.1%. This solution will be well worthwhile if it reassures moderate opinion, restores confidence, and keeps the way open for further development of nuclear power (which is in many ways desirable for environmental reasons, as well as to maintain energy supplies).

HANDLING

Sir Douglas Black's report on cancer incidence is about to be published, and could cause the Sellafield issue to reverberate through the summer. Decisions on the lines I recommend, announced in an oral statement before the recess, will enable us largely

to contain this issue. I attach a draft statement.

I am copying this to Willie Whitelaw, Geoffrey Howe, Peter Walker, Michael Heseltine, George Younger, Nicholas Edwards, Norman Fowler, Norman Tebbit, Tom King, Michael Jopling, Peter Rees, and Nicholas Ridley, and to Sir Robert Armstrong.

Yours Aubrey

for P J
20 July 1984

(agreed as the Secretary of State, and signed in his absence).

3F

SELLAFIELD

DRAFT ORAL STATEMENT

With permission, Mr Speaker, I wish to make a further statement about the reduction of discharges of radioactivity from the Sellafield plant of British Nuclear Fuels plc.

Last February, I announced to the House (Official Report, 14 February 1984, cols 131-2) that there would be a comprehensive long-term plan for Sellafield to ensure that its environmental impact meets the highest standards that are reasonably achievable. For this purpose my Department and the Ministry of Agriculture Fisheries and Food, with which it has joint responsibility under the Radioactive Substances Act 1960, intend to set firm objectives for routine discharges, reviewed at regular intervals, and to take all necessary action to ensure progress. I acknowledge the ready co-operation of the company in carrying out the necessary studies, as a matter or priority, to enable decisions to be reached.

The House will be aware that large reductions in discharges to the sea will in any case be achieved by 1986, as a result of the coming into operation of the SIXEP and salt evaporator plants at a cost of over £100m. As well as these major reductions in caesium discharges, it is the intention that discharges of plutonium and other alpha emitters should be sharply reduced to 200 curies a year on the same timescale, which can be compared with 1840 curies a year in 1978. These reductions will be reflected in a new and more detailed authorisation under the 1960 Act.

That is all already in hand. This statement is concerned with reductions beyond 1986. Having taken account of all the relevant factors, including the best available technology, the Government have concluded that the target by 1989 should be the reduction of alpha discharges to under 20 curies a year, with a reduction in beta/gamma discharges to 8,000 curies a year. The target for 1992 should be the reduction of beta/gamma discharges to a figure which will be in the range 3500 to 5500 curies a year. We think it right that a very careful examination should be made of the possibility of achieving the lower figure, and for that purpose the Radiochemical Inspectorate of my Department are arranging for a study by consultants, in close consultation with the Company and the Nuclear Installations Inspectorate.

The reductions will be achieved by using floc precipitation plant. The target figures will apply to the site as a whole, including the thermal oxide reprocessing plant when it comes into operation. I am taking steps to strengthen the Radiochemical Inspectorate, and to expand environmental monitoring and research, in conjunction with my rt hon friend the Minister of Agriculture Fisheries and Food. In 1992 a further review will need to be undertaken of the scope for further reductions in advance of the eventual phasing out of the magnox reprocessing plant.

The plan I have outlined implements the relevant recommendations of the Radioactive Waste Management Advisory Committee and

of Sir Douglas Black's inquiry, and fulfils the UK's obligations under the Paris Convention. The target level for alpha discharges in 1989 is similar to the current level of such discharges from the only nearly comparable reprocessing plant, at Cap de la Hague in France. For beta/gamma discharges Sellafield will already be well below the current Cap de la Hague level by 1986, quite apart from the further major reductions planned after that date.

Mr Speaker, this represents a major initiative for the control of pollution and the improvement of the environment at a cost estimated by the company as £565m at 1984 prices. It shows our determination to use modern technology to go well beyond simple compliance with internationally recommended dose limits, and ensure that discharges are as low as reasonably practicable. It is a declaration of confidence by the government in the future of Sellafield and in Cumbria.

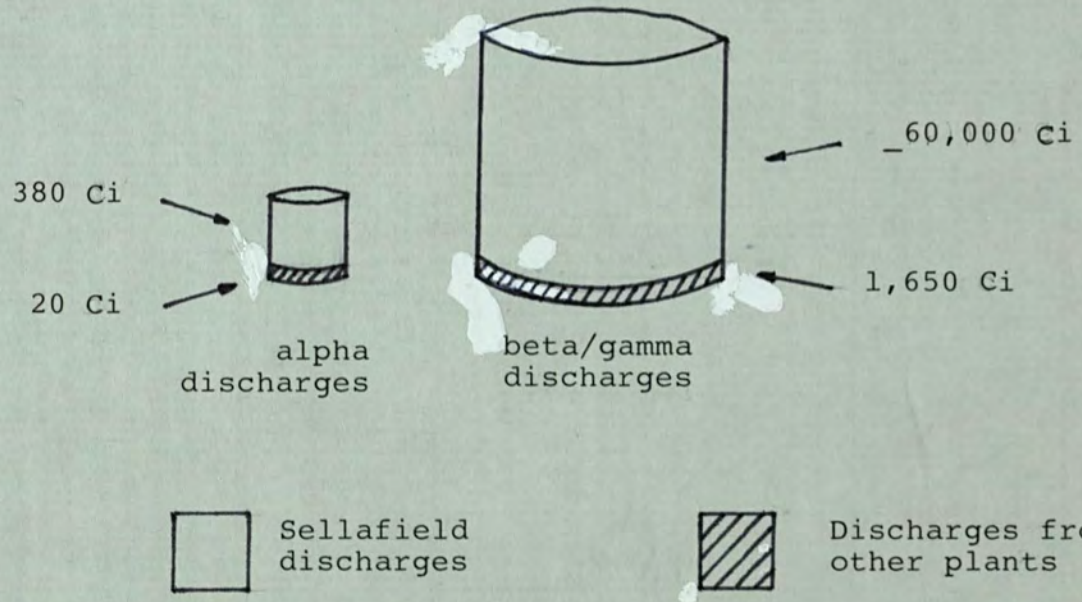
SELLAFIELD: TARGET LEVELS FOR ANNUAL LIQUID DISCHARGES

(curies)

	OPTION 1	OPTION 2	OPTION 2+3	OPTION 3	OPTION 4
1989 alpha	150	17	17	150	150
beta/gamma	10000	8000	8000	10000	10000
1992 alpha	17	17	15	15	150
beta/gamma	8000	8000	3500	3500	8000
1995 alpha	17	17	12	12	5
beta/gamma	8000	8000	3000	3000	500
Cost at 1984 prices	£280m	£290m	£565m	£525m	£2510m
Net present cost in 1984	£235m	£245m	£375m	£345m	£1470m

ANNUAL DISCHARGES TO SEA FROM

UK NUCLEAR PLANT



OPTIONS FOR REDUCING SELLAFIELD DISCHARGES

PAPER BY OFFICIALS

1. There is an urgent problem of taking further action about the routine discharges of radioactivity from Sellafield, the Achilles heel of an industry which it is vital to safeguard. Sir Douglas Black's report may do little to allay public anxiety about possible health effects, and itself recommends that Sellafield discharges should be critically reviewed in relation to those from plants in other countries, with special attention to alpha discharges. The UK is also under strong pressure on this issue from the Irish and the Scandinavians. This paper considers the options for a phased programme of reductions designed to reassure the public.

2. The programme is defined in terms of target levels of discharges, which British Nuclear Fuels plc (BNFL) would be expected to achieve in normal operation. The statutory limits on discharges under the Radioactive Substances Act 1960 would have to be set somewhat higher than these target levels (by not more than a factor of 2). Both target and statutory limits would be reviewed at frequent intervals in the light of technological advances. All the options for new plant considered below use established technology, although in each case R and D would be required for this particular application. More novel methods of treatment could be developed to become available by the 1990s, and could then be used if so desired to improve on the targets quoted below; but these methods are not yet sufficiently developed to provide a basis for planning. Whatever new plant is installed, BNFL's performance against targets, and the avoidance of incidents, will depend on the quality of management, and steps have been taken to improve that.

PRESENT SITUATION AND FIRM PLANS

3. The major activity giving rise to discharges is the reprocessing of magnox fuel. In the absence of a programme to retrofit all the magnox power stations other than Wylfa with dry storage (which the CEGB consider would make them uneconomic) early reprocessing of spent magnox fuel will continue to be necessary in order to prevent it corroding. Thus reprocessing is likely to continue until about 2005, or later if the magnox stations continue to operate beyond their original design life.

4. Table 1 compares the current routine discharges of radioactivity with past levels; with other UK nuclear sites and Cap de la Hague; and with the levels expected by 1986, when major effluent treatment plant costing 130m will have

come into full operation. It also shows the levels in 2005 on the assumption that the magnox stations will have been phased out by then. The remaining discharges will then be from the second-generation reprocessing plant for oxide fuel (THORP), which is due to come into operation in the early 1990s.

5. The government and BNFL are committed to achieving substantial reductions in discharges over and above the 1986 figures. The UK has also supported a recommendation by the Paris Commission that the control of discharges from nuclear reprocessing plants should 'take account of the best available technology, and is required to submit a progress report to the Commission by the end of 1984 on the urgent application of appropriate and effective measures.

6. The relevance of the Cap de la Hague plant is that it is the only other large-scale commercial reprocessing plant, and the only other known nuclear plant of any kind making discharges to the environment which are close in size to those from Sellafield. It reprocesses both magnox and oxide fuel, and came into operation in 1966, 14 years after Sellafield. The comparison made in table 1 is with present discharges from Cap de la Hague. COGEMA have stated their intention to keep discharges to the current levels in the face of an increased throughput of fuel. The French government are likely to come under pressure in the Paris Commission to reduce discharges, but the precise outcome is impossible to predict.

ENVIRONMENTAL EFFECTS

7. Environmental effects depend, not merely on the overall amounts of radioactivity discharged, but upon the identity and form of the particular radionuclides involved, and the pathways by which they return to man. To reflect these factors, and in accordance with the advice of the National Radiological Protection Board, the Department of the Environment (DOE) and the Ministry of Agriculture Fisheries and Food (MAFF) have controlled discharges by reference to dose limits recommended by the International Commission on Radiological Protection for representative members of the public within critical groups, and in the light of the further ICRP recommendation that doses should be as low as reasonably achievable. On the latest calculations, the reduced discharges in 1986 will give to the small number of people who form the critical group an estimated dose of 17% of the ICRP limit. This will still be above the level of 10% of the ICRP limit which the Radioactive Waste Management Advisory

TABLE 1

SELLAFIELD LIQUID DISCHARGES: POSITION WITH NO EXPENDITURE BEYOND THAT ALREADY PLANNED

	alpha activity	curies beta/gamma activity
Sellafield 1978	1,840	193,000
Sellafield 1983	380	60,000
Sellafield 1986	200	$\lesssim$ 20,000
Sellafield 2005	$\lesssim$ 5	$\lesssim$ 2,000
Dounreay 1982	13	1,010
All other UK installations discharging to the sea 1982	3	640
La Hague 1983	14	30,000

NOTE: Following normal practice, these figures do not include discharges of tritium which are inevitable with the present technology and of broadly comparable size (expressed in curies) to the other beta/gamma discharges in recent years, but have much less significance in health terms than even the low levels of other discharges envisaged for 2005.

Committee (RWMAC) have now recommended as the objective in order to allow an adequate margin for technical uncertainties, particularly about the doses actually received (a point now emphasised in Sir Douglas Black's report). RWMAC have also said that, in most circumstances, they would expect application of the 'as low as reasonably practicable' criterion (in which cost is one relevant consideration) to lead to doses substantially below 10%. The French objective for Cap de la Hague is 1% of ICRP, although the geographical conditions make that easier to achieve in their case.

8. A further consideration in deciding what is reasonably practicable is that radioactivity removed from effluents has to be retained on site until disposed of in another way, thus increasing the radiation exposure of the workforce and the scope for on-site incidents. The increase in dose to workers would depend on the precautions adopted, and in any case would be less than the reduction in dose to the general population. However any effects produced in workers could be more easily attributed to radiation.

9. Nevertheless there has been much concern about health effects on the public from Sellafield discharges, particularly about alpha activity (which comes mainly from plutonium) and about children. There is more uncertainty about estimates of dose from alpha activity. Alpha activity is also longer-lived, and accumulates in sediments on the sea bed, instead of dispersing widely like beta/gamma activity. RWMAC are examining the longer-term implications of this accumulation.

10. A conventional cost-benefit calculation in relation to health effects as presently understood suggests that reductions in discharges beyond the expected 1986 levels would not be justified. The eventual benefits even from reducing discharges to zero would be the avoidance of up to 40 deaths, spread over 40 years within a European population of 300m; or in money terms £10m at 1984 prices, considerably less than the cost of any of the options considered below. The justification for reductions beyond the 1986 levels comes partly from the need to achieve a defensible position in relation to ICRP dose limits (para 7 above), but mainly from the need to recognise public concern about the Sellafield plant and to ensure public acceptance for continued and increasing use of nuclear power. Against this has to be balanced any public concern at the larger accumulations of solid waste that will result.

OPTIONS FOR IMPROVEMENTS AFTER 1986

11. Four options have been identified for the purposes of this paper. The target levels of discharges under each option, and its cost, are shown in table 2. For beta and gamma activity, reductions in discharges would be almost immediately reflected in reduced levels of radioactivity in the environment. For alpha activity, there would be a time-lag of several years before the full benefit was achieved.

12. The options are defined as follows:

option 1 (Cost £280m at 1984 prices): some relatively low-cost measures would be taken in 1986-9, including temporary expedients like providing extra storage tanks. A new floc precipitation plant would be brought into operation by 1992 to remove alpha activity from selected effluent streams; and remove alpha, beta and gamma activity from a smaller volume of stored concentrates. The dose to the critical group would be eventually reduced to about 3% of the ICRP limit

option 2 (Cost £290m at 1984 prices): the same design of plant but accelerated, in order to achieve the option 1 levels of discharges by 1989

option 3 (Cost £525m at 1984 prices): for alpha activity similar to option 1, but beta/gamma activity would be removed from all the effluents treated in the plant and not merely from the small volume of concentrates. The plant would come into operation by 1992. The dose to the critical group would be eventually reduced to about 2% of the ICRP limit, and there would be benefit to a much wider population through the reduction of beta/gamma discharges. There would be a valuable element of insurance through the ability to smooth out fluctuations in discharges, including any caused by incidents or unforeseen factors. This is the form of treatment used at Cap de la Hague

option 4 (Cost £2510m at 1984 money values): instead of constructing floc precipitation plants, virtually all effluents would be evaporated, beginning in 1995, and the resulting concentrate solidified. The dose to the critical group would be eventually reduced to less than 1% of the ICRP limit.

TABLE 2

SELLAFIELD: TARGET LEVELS FOR ANNUAL LIQUID DISCHARGES

Curies

	no action	option 1	option 2	option 3	option 4	Cap de la Hague discharges 1983
1989 alpha	200	150	17	150	150	14
beta/gamma	20,000	10,000	8,000	10,000	10,000	30,000
1992 alpha	210	17	17	15	150	
beta/gamma	26,500	8,000	8,000	3,500	8,000	
1995 alpha	210	17	17	12	5	
beta/gamma	26,500	8,000	8,000	3,000	500	
2005 (or later) alpha	< 5	< 5	< 5	< 5	2	
beta/gamma	$< 2{,}000$	$< 2{,}000$	$< 2{,}000$	$< 2{,}000$	500	
Cost at 1984 prices	N/A	£280M	£290M	£525M	£2510M	
Net present cost in 1984	N/A	£235M	£245M	£345M	£1470M	

NOTES: 1. The 'cost' of each option is the total of capital and operating expenditure. The 'net present cost' is the cost discounted back to 1984, to take account of differences in the timing of expenditure under the different options and allow them to be compared.

2. Of the capital cost of option 2, £30m represents a proportion of costs which BNFL planned to incur in any case for a medium-active solid waste encapsulation plant.

3. The means of achieving the target levels under option 3 for 1992 and 1995 would need further examination in the light of the coming into operation of THORP, as well as more precise information obtained by the company about the compositin of individual waste streams within the plant, and the detailed future programmes for fuel reprocessing. The target level for beta/gamma discharges would be in the range 3500-5500 curies.

13. In terms of comparison with Cap de la Hague, Sellafield will achieve lower beta/gamma discharges by 1986, even on present plans, as table 1 shows. Table 2 shows that alpha discharges can be reduced to roughly the present Cap de la Hague level or below, by 1989 (option 2), 1992 (options 1 and 3) or 1995 (option 4), with a substantial further improvement in beta/gamma discharges.

TECHNOLOGICAL IMPLICATIONS

14. It would not be feasible to acclerate the implementation of options 3 or 4. BNFL accept that it may well be possible to improve on the operational date of option 1, and have expressed willingness to use their best endeavours to do so. However over the period up to 1989 they are already involved in a very large capital investment programme on the Sellafield site, amounting to £1.2bn, and including THORP and major high-priority projects designed to improve waste storage on the site (such as the vitrification of high-level liquid waste) or to reduce worker exposure. There is a risk that, by diverting effort, option 2 could cause delays to these other projects, and associated financial penalties to BNFL.

15. If option 1 or option 2 is adopted, it might still be feasible, at a later date, to modify the plant further along the lines of option 3. The extra cost of this route, as opposed to adopting option 3 now, has not been assessed in detail but would be about £40m.

16. All the options would produce large amounts of solid radioactive wastes for storage and disposal. In options 1/2 the volume would be about 720m^3 a year: in option 3 it would be 3 times greater on present estimates, and in option 4 it would be 25 times greater. There are possible ways of reducing these figures by reducing the volumes of effluent requiring treatment, and these require further study. However these differences in volume are balanced to some extent by differences in the concentration of radioactivity in the waste. The cost figures in table 2 include the necessary provision for storage and treatment. They also include provision for disposal by burial deep underground in a facility developed by the Nuclear Industry Radioactive Waste Executive (NIREX) for options 1 and 2, and by shallow burial in a NIREX facility for options 3 and 4. The amounts involved would be within the capacities of the facilities which NIREX are currently planning.

FINANCIAL IMPLICATIONS

17. The costs will almost entirely fall to magnox reprocessing operations. BNFL would seek to recover about 85% of them from the Central Electricity Generating Board (CEGB), the South of Scotland Electricity Board (SSEB), and the Ministry of Defence. Table 3 shows the effects on the running costs of the magnox stations, that is the avoidable costs included in the total cost of generating electricity from magnox stations:

TABLE 3

RUNNING COSTS OF MAGNOX STATIONS

	p/KWh	% addition to running costs
Present cost	1.35	
Addition under options 1 or 2	.07	5.2
option 3	.15	11.1
option 4	.86	63.7

Under options 1, 2 and 3 the addition to electricity prices would be well under 1%: the merit order of the magnox stations within the generating system would not be affected. Under option 4, on the other hand, the impact would be sufficiently large as to raise a question about the continued operation of the magnox stations.

18. The financial effects on BNFL itself would consist firstly of additional borrowing to meet the capital costs of the selected option, and secondly the effect on profitability as a result of meeting the remaining 15% of waste management costs attributable to foreign contracts for reprocessing magnox fuel, and to the Calder Hall and Chapelcross power stations. These effects are shown in table 4.

BNFL's VIEWS

19. BNFL agree that a commitment to substantial further reductions in discharges after 1986 is necessary in the current circumstances. They announced last month that they are carrying out an urgent feasibility study of the reduction of

discharges to 'as near zero as possible', even though they consider there is no rational cost-effective basis for doing so on risk assessment grounds. Their firm preference is for option 1, on the understanding that they would give an undertaking to use their best endeavours to bring the operational date forward to approach option 2 as far as possible. However their current position is that option 2 as such is not achieveable. They consider that option 3 offers little advantage (especially in terms of the difference to the total amount of radioactivity discharged over the period 1989-2005), but involves substantially increased cost and complexity, with uncertainty about the management of the solid wastes produced. They do not consider option 4 is tolerable, especially in view of the limited life of the magnox reprocessing plant. In terms of health risk there is little to choose between the options

VIEWS OF THE REGULATORY BODIES

20. The Nuclear Installations Inspectorate (NII) of the Health and Safety Executive (HSE) have to give their consent under the site licence for the design, construction, commissioning and operation of new treatment plant. They believe it is important that the correct balance is struck between the various considerations, including those mentioned in para 8, bearing in mind the disparity between the costs of the options and the calculated benefit of £10m (para 10). They would prefer an option which would have the minimum effect on the completion of other safety-related projects (para 14) and from this point of view option 1 appears to them best. The Radiochemical Inspectorate (RCI) of DOE advise the Secretary of State for the Environment on his statutory responsibility for controlling discharges under the Radioactive Substances Act 1960. In their view option 3 represents what is 'reasonably practicable' (para 7), and they attach importance to the insurance it would provide in smoothing out fluctuations. Option 4 could be regarded as representing the 'best available technology' for the treatment of effluents, but the UK is not committed to adopt such technology if there are other countervailing factors (para 5).

DOE/RWA

20 July 1984

CONFIDENTIAL

TABLE 4

EFFECTS ON BNFL's BORROWINGS AND PROFITABILITY (£M)

	Borrowings in 1989	Borrowings in 1990	Approximate effect on annual profits 1988-2000
No action	950	930	
Option 1	1,067	1,062	- 2.5
Option 3	1,180	1,200	- 5
Option 4	1,420	1,800	- 12-15

NOTES: 1. With options 3 or 4 peak borrowing would be pushed back one year, from 1989 to 1990.

2. BNFL's borrowings are guaranteed by the Secretary of State for Energy. They are not however included within the PSBR. Effects on the PSBR will be limited to the impact on the dividends paid to the Secretary of State (typically this would be of the order of 30-40% of the shortfall in profit) and the effect on the company's corporation tax payments.

3. Projected borrowings in 1990 under option 4 would exceed the present statutory limit of £1,500m on government guarantees.

CONFIDENTIAL

MR BARCLAY 20 July 1984

SELLAFIELD

Sellafield is a genuinely worrying problem. Our continuing inability to restore public confidence is likely to jeopardise our whole nuclear power programme.

Publication of the Black Report will do nothing to reassure public opinion. We cannot expect the public to understand why discharges from Sellafield are significantly in excess of those from similar plants in other countries. Our objective should be to ensure Cap de la Hague standards at Sellafield.

The Plant

Patrick Jenkin's paper concentrates upon reducing routine discharges. However, there is an equally important problem at Sellafield of reducing the likelihood of unforeseen accidents. Indeed it is this probably more than the routine discharges which alarm the public. BNFL have reported 14 incidents between 1952 and 1983 involving abnormal releases of radioactivity into the environment.

During a recent visit to the plant with Robin Nicholson, I did not gain the impression of an efficiently managed operation. Much of the existing plant is old technology and BNFL seem to lurch from one crisis to another. I was astounded that a plant of the sensitivity and complexity as Sellafield does not have a dedicated waste disposal plant. The effluent treatment plant currently under construction (the Sixep plant) will treat only one of many effluent streams.

The overall quality of the management was not impressive. BNFL appears to operate in a cosy and to some extent complacent world. The BNFL culture is too inbred with the feeling that nuclear engineering is special. It is not.

It is a highly complex task to manage a site such as Sellafield particularly with the amount of construction projects in progress. Recent management changes have merely shuffled existing BNFL personnel from one post to another. Salaries are low and in no way comparable with the private sector.

We need to be more certain that this plant is being competently managed if further incidents are to be avoided.

We recommend that a technical and management audit should be carried out on BNFL's operations. This could

DAWAAF

CONFIDENTIAL

either be undertaken by some of the newly appointed non-executive directors to the BNFL Board or by an outside engineering director from the private sector.

The Options

As far as routine discharges are concerned, Patrick's paper sets out four options:

- Option 1 - achieves Cap de la Hague levels by 1992 for £280 million.
- Option 2 - achieves Cap de la Hague levels by 1989 for £290 million.
- Option 3 - goes further than Cap de la Hague by 1992 for £525 million.
- Option 4 - goes significantly further than Cap le la Hague by 1995 for £2,510 million.

To put these options into context, annual liquid discharges (curies) from Cap de la Hague are 14 alpha and 30,000 beta/gamma. Current levels at Sellafield are 380 alpha and 60,000 beta/gamma although these will reduce to 200 alpha and 20,000 beta/gamma by 1986 when current projects are completed. Options 1 and 2 will reduce alpha levels to 17 and beta/gamma levels to 8,000. Option 3 will reduce alpha to 15 and beta/gamma to 3,500. Option 4 will reduce alpha to 5 and beta/gamma to 500.

Option 2 therefore meets our objective of achieving Cap de la Hague levels as quickly as possible. We do not consider that there is any policy or political advantage in spending the significant extra sums required to achieve options 3 or 4. Although option 3 would provide a greater degree of security against unforeseen incidents, this would be of limited impact in terms of the plant's overall operation.

£290 million is still a significant sum of money although it would put up electricity prices by less than 1%. Nevertheless, this seems an acceptable price to pay in order to ensure the credibility of our nuclear programme.

BNFL question whether option 2 can be achieved by 1989. They prefer option 1 by 1992. However, the plain fact is that BNFL do not know the implications of meeting the option 2 timetable. It has not been clearly established that other projects would suffer if option 2 were pursued.

In fact, none of the four options has been assessed in detail and could vary by at least +/-30% on price and +/-1

year on timing. It would be a mistake to endorse option 1 at this time as it would place no incentive upon BNFL to operate quickly and efficiently.

Conclusion

We recommend that an independent technical and management audit should be carried out urgently.

We recommend that option 2 which meets our requirement of bringing Sellafield into line with Cap de la Hague as quickly as possible should be endorsed.

We recommend that a public announcement of revised limits should be delayed until October. This will give BNFL a proper opportunity to justify their reservations about option 2 and will also distance the Government's detailed proposals from the publication of the Black Report.

We are confident that provided BNFL fully accept the priority of restoring Sellafield's credibility and their responsibilities for the site, option 2 is a desirable and achievable policy.

DLP.

DAVID PASCALL

DAWAAF

SECRETARY OF STATE FOR ENERGY

01 211 6402

The Rt Hon Patrick Jenkin MP
Secretary of State for the Environment
2 Marsham Street
LONDON
SW1P 3EB

20 July 1984

I understand that you are considering making oral statements to the House next week on nuclear waste disposal policy and (immediately after the Prime Minister's meeting planned for 24 July) on reductions in Sellafield's discharges.

These are both highly senitive issues which currently involve serious differences between our two departments and their presentation will need careful handling. I do not believe the climate is right for us to rush them through in the last days of the session, especially as they would come on top of publication of the Black Report on leukaemia in the Sellafield area.

Black has not in fact found any connection between Sellafield and the Seascale leukaemias, and his report contains a considerable measure of reassurance for the local population. But it would be seen in a totally different light if it appeared to be followed by a massive Government response in the form of a programme of reduced Sellafield discharges. For this reason I believe that a considerable gap is needed between the publication of Black and any announcement of new Sellafield discharge objectives.

I have considerable sympathy with a policy of cutting out the preliminary planning inquiry for nuclear waste disposal sites by giving approval for exploration by Special Development Order. But such a course is bound to be controversial especially as it will be seen as a reversal of previously announced policy. Careful consideration within Whitehall of both this and other aspects of your proposals and amongst the other parties will be essential before we attempt to move forward in this area. I recognise that your Department is committed to providing a document on nuclear waste strategy for the Sizewell Inquiry shortly. But I would hope that this can be achieved without anticipating Government thinking on planning policy by concentrating on the technical disposal options and bringing out the limited significant of Sizewell wastes in relation to the wastes arising in any case from the industry as a whole.

I am copying this to the Prime Minister, Willie Whitelaw, Geoffrey Howe, George Younger, Nicholas Edwards, Norman Fowler, Norman Tebbit, Tom King, Michael Jopling, Peter Rees, Nicholas Ridley and to Sir Robert Armstrong.

PETER WALKER

CONFIDENTIAL

W.0485 20 July 1984

PRIME MINISTER

SELLAFIELD

The Sellafield nuclear fuel re-processing plant is a critical link in our nuclear power programme. Nothing less than a first-class performance by the plant will suffice if the programme is to be sustained. Such a performance requires excellent technology to reduce the level of radioactive discharges from the plant and excellent management to make the best use of the technology and avoid accidental high-level discharge.

Technology

2. The Secretary of State for the Environment offers four options for reducing the level of routine discharges of liquid radioactive wastes. The options differ in cost, time-scale and the extent of reduction of the radioactivity.

3. The cost/benefit analysis presented in the paper is too simplistic since the benefits are calculated only from the notional monetary values of deaths from cancer foregone. If one takes the view that the viability of the nuclear power programme is at stake, then the benefits are very substantial and the costs of options, 1, 2 and 3, at least, are modest.

4. Table 1 of the paper shows that a major reduction in both α and β/γ discharges will be achieved when the SIXEP ion exchange plant comes into operation over the next two years. This plant treats the effluent of the cooling and storage ponds which is presently discharged to sea.

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5. However, the current plans would still leave Sellafield discharging about 200 Ci/annum of α compared with about 14 from the French plant at Cap de La Hague. To do better the effluent from the re-processing plant itself must be tackled.

6. The Secretary of State's options 1 and 2 are technically identical - both would reduce discharges to about 17 Ci/annum by incorporating a floc precipitation plant in the effluent from the re-processing plant.

7. The outcome of either option 1 or 2 would be a plant emitting 17 Ci/annum of α and 8,000 Ci/annum of β/γ. Comparable Cap de La Hague figures are 14 and 30,000. Thus, for either option, it would be true to say that both the technology and discharge levels of Sellafield would be as good as, or better than, the comparable French plant.

8. The choice between options 1 and 2 depends on one's assessment of BNFL's criticism of the accelerated option 2. Some other part of their investment programme would slip, they claim, and this could have safety and/or economic consequences.

9. Option 3 differs from options 1/2 only in so far as the whole of the effluent from the re-processing plant is treated for β/γ radiation as well as for α radiation, whereas in options 1/2 the mainly α stream is not treated for β/γ reduction. The outcome is a barely changed α discharge of about 15 and a β/γ discharge reduced from 8,000 to 3,500 Ci/annum.

10. The reduction in liquid wastes necessarily means some increase in solid wastes but the effect is marginal compared with other solid wastes arising at the Sellafield plant. However, while the additional solid wastes arising from options 1/2 can be accommodated in the current plan for the solid waste encapsulation plant, the greater wastes of option 3 would require an increased capacity, hence part of the additional cost.

11. The only arguments in favour of the much more expensive option 3 are:

(i) it provides an additional margin of safety for β/δ which while apparently unnecessary in our present state of understanding could, possibly, be an insurance policy against future changed requirements;

(ii) it might be regarded as what is 'reasonably practicable' by the Radiochemical Inspectorate in advising the Secretary of State concerning his statutory obligation under the Radioactive Substances Act 1960 to give consent to waste disposals and discharges. The recent report of the Radioactive Waste Management Advisory Committee hints at this.

12. These arguments seem insufficient to justify the substantial additional expense of option 3, and my advice is to adopt option 2 since I believe the accelerated programme is justified by current public concern, especially as a robust response to the recommendations of the Black Report. The Secretary of State for the Environment will, however, wish to assure himself that by going for option 2, rather than option 1, any damage to the remainder of BNFL's investment programme is acceptable, particularly in so far as it affects investment for improved safety.

Management

13. I have recently visited the Sellafield plant and feel that the statement in the Secretary of State's paper that 'steps have been taken to improve management' is unduly complacent. The management task for this critical plant on a huge site with 6,000 employees and ample opportunity (even with new technology) for human error should not be underestimated. No private sector company, such as ICI or BP, would be content with the present management. I recommend that the Secretary of State for Energy be asked to strengthen the non-Executive Director membership of the Board and,

through them, assure himself that the quality of management is brought up to the standard of best private sector practice.

14. I am copying this minute to Sir Robert Armstrong.

RBN

ROBIN B NICHOLSON
Chief Scientific Adviser

Cabinet Office
20 July 1984

CONFIDENTIAL

Env. Affairs
July 80
BLUP 2017

file

BLUP 2017

BM.

H Cttee:

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10 DOWNING STREET

From the Private Secretary

20 July 1984

Sellafield: The Black Report

The Prime Minister was grateful for the Lord President's minute of 19 July, in which he reported H Committee's consideration of the Black Report.

The Prime Minister has noted the Committee's conclusion that the Report should be published on Monday 23 July. She has also noted that the Energy Secretary's proposal for a national study of variations in leukaemia rates might be considered at the meeting of Ministers arranged for Tuesday 24 July.

I am sending copies of this letter to the Private Secretaries to the members of H Committee, to Len Appleyard (Foreign and Commonwealth Office), Michael Reidy (Department of Energy), Callum McCarthy (Department of Trade and Industry), Ivor Llewelyn (Ministry of Agriculture, Fisheries and Food), Stephen Alcock (Office of the Minister for Health), Joan Dunn (Office of the Parliamentary Under Secretary of State's Office, Department of the Environment, (Mr. Waldegrave)), and to Richard Hatfield (Cabinet Office).

David Barclay

Miss Janet Lewis-Jones,
Lord President's Office

CONFIDENTIAL

E.R.

PRIME MINISTER (2)

Black Report

I attach a note from the Lord President reporting on H Committee's discussion of the Black Report.

The Committee felt that the Report should be published without delay: i.e. on Monday 23 July. It is known that the Report has been received, and the Committee were concerned to avoid any accusation of rushing it through in the last days before the Recess. This means publication before your own meeting on Sellafield, but in practice the discussion should not be prejudiced since most of the recommendations are for further studies.

The Committee originally favoured a written Statement. The Lord Privy Seal and the Lord President have reconsidered, and now believe that the Statement should be oral. This seems wise given the way previous Statements have gone, and the sensitivity of the subject.

H Committee left over Mr. Walker's suggestion of a national study of variations in leukaemia rates, for discussion at your meeting on 24 July.

DMB

MS

19 July 1984

CCDP

PRIME MINISTER

Sellafield: The Black Report

At its meeting yesterday, H Committee discussed the publication and presentation of the Report of the independent advisory group investigating the possible increased incidence of cancer in West Cumbria (the Black Report). The report was commissioned by the Minister for Health after last November's ITV programme "Windscale - the Nuclear Laundry" which pointed to a possible increased incidence of cancer, particularly among children in the village of Seascale.

2. The report concludes that there is an increased incidence of leukaemia among young people in Seascale. It is not able to say with certainty that this is or is not due to the radioactive discharges at Sellafield, but gives a qualified reassurance on the possible health hazard to people living near Sellafield. With the intention of enhancing public safety the Report makes a number of recommendations. These are set out together with proposals on their implementation at Annex 1 of H(84) 26. H agreed with the implementation proposed.

3. There are, however, two points I should draw to your attention: on the timing of the publication of the Report and an immediate Government statement, and on the proposal in the Secretary of State for Energy's minute of 17 July to you for a national study of variations in leukaemia rates.

(attached)

4. On publication, the Committee started from the position that it would be sensible to decide the timing of this at the meeting you are holding on Tuesday 24 July on Sellafield discharges, in relation to decisions that meeting might reach on future discharge levels and their announcement. However, it is known that the Report has been made, one MP is believed to have obtained a copy already, and the deferment of publication even to the middle of next week could lead to accusations that the Government was postponing publication to so near the summer adjournment

to try to stifle Parliamentary reaction and comment. As a secondary point, it also seemed desirable to distance the publication of Black from any announcement on Sellafield discharges; it might otherwise appear that the one had led to the other. In the light of these considerations the Committee concluded that the best course would be to publish Black and an immediate Government reaction in the form of a written question and answer as soon as possible (which in practice means on Monday 23 July). What would be said on recommendations 8 to 10 would not in any way foreclose the options on the reduction of discharges.

5. H also considered Peter Walker's minute of 17 July arguing that both tactically and on merits there was a good case for a national study of variations in leukaemia rates. The Committee felt that the arguments were evenly balanced. Some members felt that such a study would only cause concern about other areas (including Sizewell), to no good effect since there were no useful explanatory hypotheses to test. Others thought that the identity of locations of high incidence of leukaemia would become known anyway; that there were enough grounds for a study; and that it would help to put Sellafield in a less prominent perspective. There is a current study going on at Oxford whose results might also be relevant. The Committee concluded that such a study could not be included in the immediate reaction to Black, but that the case for such a study might usefully be further discussed at your meeting on Tuesday.

6. I am sending copies of this minute to the members of H Committee, the Foreign and Commonwealth Secretary, the Secretaries of State for Energy and Trade and Industry, the Minister of Agriculture, Fisheries and Food, the Minister for Health, the Parliamentary Under-Secretary of State, DOE (Mr Waldegrave), and to Sir Robert Armstrong.

19 July 1984

CONFIDENTIAL

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B/f for meeting please. DMB 18/7

Prime Minister (2)

065533

H Committee will consider this tomorrow, and the Lord President will be able to report their conclusions at your meeting on 24 July. DMB 17/7

PRIME MINISTER

I am concerned that publication of the Black report on leukaemia in the vicinity of Sellafield, to be discussed at H Committee on Wednesday, could provide a propoganda success for opponents of nuclear power.

Black has found nothing to connect the childhood leukaemia in Seascale with Sellafield. Indeed all the evidence in his report suggests that there is no connection (radiation levels are 40 times too low) and that the Seascale statistics are part of a nationwide pattern of variations in local leukaemia levels that are unrelated to nuclear installations.

It is therefore unfortunate that Black's conclusions imply the possibility of some kind of link for which there is no evidence (an unplanned emission which was undetected by the monitors and affected the population by an unsuspected route) and that his recommendations are largely devoted to further examination of this hypothesis.

This outcome underlines the anxiety that I expressed in connection with the Bonnybridge inquiry that in the present state of our knowledge of leukaemia further local inquiries are not likely to reach any useful conclusion.

I believe that it is essential that the Government should now set up a comprehensive national scheme to plot local variations in leukaemia rates throughout the UK and to analyse the pattern that emerges and that a commitment in principle to such a scheme should be the main element in our response to Black. Black's recommendations do not, in my view, go nearly wide enough in this respect.

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I am copying this minute to members of H Committee, the Minister of Agriculture, Fisheries and Food, and to Sir Robert Armstrong.

SECRETARY OF STATE FOR ENERGY

17 July 1984

ENV Appeals 7/80
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B/up 20/7

CF
bf for meeting
on 24 July pm.
D
17/7

10 DOWNING STREET

Prime Minister (2)

SELLAFIELD

Sir Douglas Black's report is imprecise and not at all reassuring.

You will wish to discuss handling at your Sellafield meeting on 24 July.

DMB
16/7

MR BARCLAY

16 July 1984

THE BLACK REPORT

The report concludes that there is an incidence of leukaemia among young people in Seascale which is unusual, statistically significant but not unparalleled. The report is not able to say with certainty that this is or is not due to the radioactive discharges at Sellafield, but gives a qualified reassurance on the possible health hazard to those people living near Sellafield.

However, the report also notes that there are uncertainties concerning the operation of the plant and questions concerning the adequacy of controls on present permitted levels for discharges.

This is an unsatisfactory outcome which will not reassure public opinion. However, it would have been surprising if Sir Douglas Black had been able to come to any other conclusion.

The report shows that background radiation would be expected to cause 0.5 deaths from leukaemia among young people under the age of 20 living in Seascale since 1955. Additional radiation exposure from the known discharges from Sellafield would be expected to cause less than 0.1 further deaths. In fact 4 deaths from leukaemia were observed during this period.

In other words, the direct evidence does not incriminate Sellafield. But as the report points out, we shall never know the actual doses received by those children subsequently contracting leukaemia. In addition one cannot completely exclude the possibility of unplanned discharges which were not detected by the monitoring programmes and yet delivered a significant dose to humans by an unsuspected route.

In this context it is disturbing that BNFL have reported 14 incidents at Sellafield between 1952 and 1983 involving abnormal releases of radioactivity into the environment. It is not reassuring to be told that apart from the Windscale fire in 1957, none is believed to have resulted in significant exposure to the public.

Sir Douglas Black makes 10 recommendations. We agree with Norman Fowler in his paper for H Committee tomorrow that the Government should accept all of these.

However, even this will not reassure the public. Of the 10 recommendations, 7 are for further studies and research work. A further 2 are implicit criticisms of the

DAVABA

way authorisation limits are applied and the way in which controls and monitoring procedures are co-ordinated.

The recommendation which is likely to receive most public attention is that there should be a critical review of the necessity for discharges from Sellafield to be significantly in excess of those from similar plants in other countries. This is one of the essential questions which the Prime Minister's meeting on Sellafield next week will address. It re-emphasises that the most effective way of restoring public confidence in Sellafield is to ensure that the operation of the plant is acceptable and defensible.

The Government's response to Sir Douglas Black's report will therefore need to take account of conclusions reached during the Prime Minister's meeting.

DLP.

DAVID PASCALL

cc DP

Pol
Dmb
22/6

MO 18

Prime Minister (2)

To note.

Dmb
21/6

PRIME MINISTER

SELLAFIELD

I have seen copies of the recent correspondence on this matter. I strongly support your view that public confidence in Sellafield could best be secured by improving the operation of the plant and the competence of BNFL rather than by special treatment for the Sellafield area. There is a serious risk that the offer of some form of compensation would lead to claims for similar treatment for the vicinity of defence installations, notably AWRE at Aldermaston and the Nuclear Royal Ordnance Factory at Burghfield, where radioactive materials are stored and processed. There would also be a serious risk of undermining public confidence in the safety of these installations, thereby undoing what has been achieved by Government efforts over the years to allay concern among local residents. We could also expect that CND would not fail to exploit recognition by the Government of the need for special treatment.

2. I am copying this minute to the Members of Cabinet, to John Wakeham and to Sir Robert Armstrong.

Ministry of Defence
20th June 1984

Env Affairs 7180 Scrapfield

PRIME MINISTER

SELLAFIELD

I have seen Patrick Jenkin's minute to you of 31 May as well as your comments and those of the Lord President, both of 4 June.

I fully agree that the Sellafield plant itself must be the priority. I recently announced three new appointments to strengthen the Board of British Nuclear Fuels, and the Company themselves announced that they are giving top priority to finding ways to reduce discharges to much lower levels.

Nevertheless at any level of discharge that is practicable and reasonable it seems inevitable that Sellafield will continue to be the subject of very unpleasant media campaigns inspired by anti-nuclear activists. I agree with you and the Lord President that we should avoid any steps which would publicly identify West Cumbria as a problem area or encourage a "begging bowl" mentality. But I hope that Patrick Jenkin will consider how, short of this, the Government can best support the Company and the local community.

I am copying this minute to members of the Cabinet, to John Wakeham and to Sir Robert Armstrong.

SECRETARY OF STATE FOR ENERGY
20 June 1984

ENV Affairs. Sellafield
July 80

CCND B/

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PA DMB 13/6

Prime Minister (2)

To note FCO's comments.

DMB 12/6

PRIME MINISTER

Sellafield

I have seen your reply to Patrick Jenkin's minute of 31 May.

I share the concern that it is important to restore public confidence in Sellafield. There is also considerable disquiet in the Republic of Ireland and in Scandinavia about discharges from Sellafield.

In drafting his paper for consideration on 19 June, I hope Patrick Jenkin will therefore bear in mind the need to respond also to the concerns of the Irish Government as well as to reassure public opinion in Scandinavia.

I am sending copies of this letter to the members of the Cabinet, to John Wakeham and to Sir Robert Armstrong.

GEOFFREY HOWE

Foreign and Commonwealth Office
11 June 1984

Environmental Affairs July 80

Schedule

CC NO
BD

CHIEF SECRETARY TO THE TREASURY

nbpm

DMS
12/6

PRIME MINISTER

I have seen Patrick Jenkin's minute to you of 31 May.

While I share the objective of securing more public confidence in Sellafield, I think we would be unwise to move away from the "polluter pays principle" even in these difficult circumstances. To give compensation to those who live near nuclear installations could lead to similar pleas from those living by chemical and other hazardous plants. In any case, I wonder whether the understandable fears of local people would in any case be truly assuaged by financial compensation.

I agree that the main concentration should be to get BNFL itself to tackle local worries cost-effectively. The paper already being prepared by officials on radioactive discharges will address one key area. I was quite impressed, during a visit to the site last month, by the effort being made to help local businesses and community schemes. Peter Walker is, I know, already taking steps to strengthen the Board as well as their environmental problems, the Company are also engaged on major capital projects at the site, at least one of which is already showing signs of difficulties. First-class management will be essential to deal with the daunting range of problems BNFL faces at Sellafield.

Like Willie Whitelaw, I therefore doubt whether there is a case for the Government to take initiative to give preferential treatment for the Sellafield area and I should need a great deal of convincing that any increases in Departmental programmes

(or reduction in nationalised industry revenues) could be justified for the purpose.

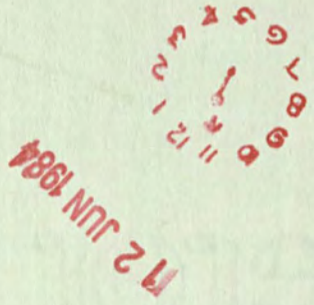
I am sending copies of this minute to members of the Cabinet, to John Wakeham and to Sir Robert Armstrong.

PETER REES
7 JUNE 1984

Environmental Affairs

July 80

Sellafield



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10 DOWNING STREET

From the Private Secretary

6 June 1984

Dear Janet,

SELLAFIELD

The Prime Minister has seen and noted the Lord President's minute of 4 June about Sellafield. She very much shares his view that the priority should be to make Sellafield a better and safer plant.

I am sending copies of this letter to the Private Secretaries to the members of Cabinet, to Murdo Maclean (Chief Whip's Office) and to Richard Hatfield (Cabinet Office).

Yours ever,

David

David Barclay

Miss Janet Lewis-Jones,
Lord President's Office.

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31

Prime Minister (2)

PRIME MINISTER

Sellafield

I have seen Patrick Jenkin's minute to you of 31 May. I would agree with him when he states that continued public acceptance of the site is vital. I would also agree that proceeding with projects in the area such as the Workington Enterprise Zone reclamation scheme is important in itself and therefore valuable. But from a close personal knowledge of the area, I must say that I hope we shall be extremely careful about giving it preferential treatment, which could all too easily encourage a "begging bowl" attitude. The area benefits greatly from continued activity at Sellafield, which indeed produces the only real increase in employment opportunity in West Cumbria; and local people know this. The greatest boost to their confidence would be evidence that money is to be spent on work to render it a better and safer plant. That surely is necessary in any event but above all it would be a great mistake politically to appear to be making concessions to the alarmist pressures of Dale Campbell Savours, who has little real support even from within his own party.

I am sending copies of this minute to the members of Cabinet, to John Wakeham and to Sir Robert Armstrong.

4 June 1984

CONFIDENTIAL

CONFIDENTIAL

DSG

File

bc: David Pascall

10 DOWNING STREET

From the Private Secretary

4 June 1984

Dear John,

SELLAFIELD

The Prime Minister saw over the weekend your Secretary of State's minute of 31 May about Sellafield.

The Prime Minister fully accepts the importance of restoring public confidence in Sellafield. But her initial reaction is that this objective is best secured by improving the operation of the plant and the competence of BNFL, rather than by special treatment for the Sellafield area.

As you know, policy towards Sellafield is to be considered further by Ministers in the light of a paper which your Department is now preparing (my letter to you of 17 May refers). The Prime Minister would be content for your Secretary of State to include in that paper any specific proposals he may wish to put forward, building on the approach set out in his minute.

I am sending copies of this letter to the Private Secretaries to members of the Cabinet, to Murdo Maclean (Chief Whip's Office), and to Richard Hatfield (Cabinet Office).

Yours ever,

David

David Barclay

John Ballard, Esq.,
Department of the Environment.

DSG

CONFIDENTIAL

E.R. Prime Minister (1)

The Environment Secretary's minute is far from clear. Agree response on these lines?

DMB 1/6

CC B/1

CONFIDENTIAL

MR BARCLAY

1 June 1984

SELLAFIELD

Public confidence has been severely shaken following recent events at Sellafield. Unless we take positive steps to improve the situation, our whole nuclear programme could be jeopardised.

However, the only way of restoring public confidence is by improving the operation of the plant, in cleaning up the beaches and in a careful assessment of whether re-processing on the current scale is necessary. BNFL have manifestly failed to carry out their responsibilities and we must make it clear that this will not be tolerated. The restructured Board must deliver an environmentally acceptable plant.

The Prime Minister's recent environmental meeting recognised this problem and commissioned an urgent paper on the range of options available. This paper should be considered as soon as possible.

We do not support Patrick Jenkin's proposals for a "Sellafield dimension" in Government policies. Public confidence will not be restored by offers of compensation nor by granting the Sellafield area special status which would also distort our whole approach to regional policy.

Nevertheless, the paper is muddled and it is unclear what is actually being proposed. The references to public money are ominous but there could be a case for better co-ordination of our existing policies.

We recommend that the Prime Minister should respond to the Secretary of State.

- Recognising the need to restore confidence in Sellafield.

- Giving an initial reaction that this is best achieved by improving the operation of the plant and the competence of BNFL rather than by special treatment for the Sellafield area.

- Inviting him to develop any specific proposals he may have in mind in the options paper for Sellafield. This paper should be available for Ministerial discussion before the Summer recess.

DLP.

DAVID PASCALL

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PRIME MINISTER

SELLAFIELD

Sellafield is likely to attract increasing attention, rather than less, in view of Sir Douglas Black's report on cancer incidence (due early in July), various international meetings and the possible prosecution of BNFL over the incident last November. Continued operation of the present reprocessing plant is necessary for the spent fuel from magnox power stations, quite apart from military requirements, and there is also the plant now being built for oxide fuel, predominantly from profitable overseas contracts. In addition, there will be large quantities of waste in store at Sellafield for the foreseeable future, and new facilities will have to be built for them. It is not inconceivable that we may want to develop new storage facilities there if no acceptable final disposal site is found elsewhere. Thus continued public acceptance of the Sellafield site is vital.

One essential part of any strategy for achieving that acceptance is that further reductions in discharges of radioactivity from Sellafield must be made, and officals are urgently considering this. Peter Walker is also taking steps to strengthen the board of BNFL. However it is also essential that the Government should demonstrate clearly through its actions that we understand the pressures on this part of West Cumbria which derive from being the home of the largest plant of its kind in Europe. These pressures will, of course, be deliberately increased by opponents of nuclear power. The two Yorkshire TV programmes show how the local people can expect to be treated by the media, and local confidence has certainly been shaken recently.

The French, and to some degree the Americans, overcome such

feelings by a deliberate policy of giving some tangible compensation to the areas around nuclear installations. Whether or not it is justifiable to do that for a nuclear power station, Sellafield is obviously in a category of its own in this respect, and I believe we now have to adopt that kind of policy for it. Of course, there is considerable direct benefit in terms of BNFL investment and employment, and the company has undertaken some minor community schemes and is considering what part it could play in promoting small businesses. But a more comprehensive approach is required, with the Government itself involved.

I understand the Department of Energy are studying the general principle of reduced electricity prices in areas around nuclear installations, and that study could be speeded up. However, it is also essential that all Departments should avoid in present circumstances actions that would have a significant adverse effect on West Cumbria (for example, fears have been expressed to us about possible loss of assisted area status, although I understand that is not contemplated), and should look for positive actions which will improve confidence. I am considering what more can be done within my own Department's programmes. The Workington Enterprise Zone with the £12m reclamation scheme for Workington Ironworks provides a solid basis.

I realise that an initiative of this kind will give rise to awkward questions of priorities and warnings about precedents. I certainly do not envisage that any expenditure should be undertaken by the Government which, under the polluter pays principle, should properly fall to the company. However, we should, I believe, recognise the danger to the country of a loss of confidence in nuclear installations of the kind which has occurred in the USA, and spend a little money to

keep this one vital community, which still fundamentally wants to be supportive, from feeling disregarded or disadvantaged. The risks the other way seem to me serious: Sellafield could be the Achilles heel of our whole nuclear programme.

It would be counter-productive for individual measures to be linked publicly with the difficulties over the Sellafield plant. However if the principle of a 'Sellafield dimension' in Government policies commends itself to you, I shall arrange for my officials to monitor the overall response, in conjunction with other Departments, so that inadvertent 'own goals' are avoided, and so that, where feasible, positive action is taken to provide some counter balance to the pressures I have described.

I am copying this minute to the Members of Cabinet, to John Wakeham and to Sir Robert Armstrong.

P.J.

P J
31 May 1984

Sellafield (Discharges)

3.45 pm

The Secretary of State for the Environment (Mr. Patrick Jenkin): With permission, Mr. Speaker, I shall make a further statement about the abnormal discharges to the sea last autumn from the British Nuclear Fuels plant at Sellafield in Cumbria and about the Government's plans for the future of the discharges from the plant.

I have today published the report of the investigation made by the radio-chemical inspectorate of my Department, and copies are in the Vote Office. The Health and Safety Executive, which is responsible for ensuring safe operation, has also published the report of the investigation by the nuclear installations inspectorate, and copies of this are also in the Vote Office. I should like to express my appreciation of the care with which the inspectors have carried out their tasks, and the co-operation that they received from the company.

The conclusions of the reports confirm the interim account that I gave to the House on 21 December. I am advised that it would be inappropriate for me to comment further at this stage on the events that led to the incident itself, because the Director of Public Prosecutions is pursuing inquiries into the circumstances with the assistance of the Cumbrian police and the two inspectorates.

I must, however, describe the present situation with regard to the environmental contamination resulting from the incident. As I have made clear to the House, there is no evidence to suggest that this contamination, although very unsatisfactory, could cause significant damage to anyone's health. The sort of risks we are talking about is that someone might suffer from localised irritation of the skin from prolonged contact with one of a number of pieces of material which have been found with much higher than usual levels of radioactivity. Continued monitoring of the beaches shows that this small risk remains. The advice not to use the beaches unnecessarily therefore must still stand for the time being. However, at the request of my Department and the Ministry of Agriculture, Fisheries and Food, a more intensive examination of the nature, distribution and origins of the material is now being made in order to put us in the best possible position to take a safe and early decision about withdrawal of the advice.

As to the future of discharges from the plant, BNFL has already begun to implement a number of short-term measures put to it by the inspectorates. These include the installation of on-line monitors and automatic cut-offs for the pumps, and will lead to safer and more reliable control of present discharges through the pipeline. The inspectorates consider, on the basis of the work done to date, that a discharge like that of last autumn could not now be repeated. The inspectorates have therefore agreed that the normal operation of the plant may be resumed. Other recommendations in the reports, which require action by Government Departments, are being urgently considered.

The main aim of the Government, and of the company's programme, will continue to be the reduction of discharges to the environment. BNFL already has in hand a major programme of investment costing over £100 million, which will reduce substantially radioactive emissions from Sellafield. As from next year, discharges of caesium to the sea will be reduced to one tenth of the maximum released in recent years. The revised authorisation sent to the company in draft will, when implemented, reduce discharges of plutonium and other alpha emitters to 200 curies a year, which is also a very sharp reduction from previous levels.

We now need to consider what further steps should be taken. BNFL is proceeding with design and construction for a second-generation reprocessing plant for oxide fuel. This will incorporate a much cleaner technology from the start.

The new standards for this plant are part of a comprehensive long-term plan for Sellafield to ensure that its environmental impact meets the highest standards that are reasonably achievable. In setting firm objectives and ensuring progress, my Department will work closely with the other Departments concerned, including the Ministry of Agriculture, Fisheries and Food, with which it has joint responsibility under the Radioactive Substances Act 1960.

The reduction in discharges to the environment will lead to an increase in wastes retained on the Sellafield site, and these wastes must also be dealt with. Schemes will therefore be formulated and carried out, within the framework of the national waste management strategy, for the effective management of stored wastes until disposal routes are available, and for the decommissioning of redundant installations.

The authorising Departments will continue to examine the adequacy of their own programmes for environmental monitoring and associated research. Full account will need to be taken of the report of Sir Douglas Black's inquiry, which is expected in May. If improvements are shown to be needed, they will be made.

The generation of electricity by means of nuclear power is and will remain an important component of this country's energy supplies, and the Sellafield reprocessing plant is an integral part of that civil nuclear programme. The Government reaffirm their confidence in the future of the plant. The public has a legitimate right to demand that the environmental standards within which it operates are of the utmost rigour. It is the Government's intention to see that they are.

Dr. John Cunningham (Copeland): The Secretary of State has made a long statement that was in effect, another interim report. While a number of aspects of what he said are undoubtedly welcome, a number of matters in the statement are unsatisfactory.

I welcome the publication of the two reports, both of which criticise mmanagement systems at the plant for the control of radioactive waste, and that is a very serious feature of these investigations. It is argued in the reports that the existing plant is inadequate, and that warning systems are absent from the part of the plant that deals with sea outfall discharges.

I welcome the commitment of British Nuclear Fuels to refurbish that part of the plant as a priority, but will the Secretary of State assure the House that the necessary funding for that priority work will be made available without further delay? In view of his assurance that this kind of incident cannot happen again, will he institute a review of all aspects of the magnox plant at Sellafield to give some backing to that assurance, because we have heard such assurances before? When the nuclear installations inspectorate carried out a review of all the plants in 1980, it gave similar assurances for the future,

Government's programme may be, will my right hon. Friend persuade his right hon. and learned Friend the Foreign Secretary to grant his Department more money so that we may do more and more for these poor people?

Mr. Raison: I share my hon. Friend's view about the concern over such events. In response to his question about the Department's budget, I should point out that we are bound by the Government's general public expenditure policy. However, if in time our economy strengthens and more money is available, we will not have any difficulty in spending it.

Mr. Dave Nellist (Coventry, South-East): Notwithstanding the terrible tragedy of a flood following a drought and the fact that 100,000 people in the region have died as a result, is not the real problem a lack of distribution of home grown or imported grain that is caused by South Africa's backing of terrorism and by the fact that southern Mozambique is controlled by terrorists who prevent food from reaching those people?

Mr. Raison: Many different factors contribute to the problem, but it is unquestionable that drought is predominant among them. No doubt the hon. Gentleman will have noticed that recently the Mozambique authorities and the South Africans have been engaging in talks.

Mr. Stuart Holland (Vauxhall): The Minister will be aware that there is great concern on both sides of the House about the scale of the problems caused by the drought. He must also be aware that some of the measures that he has proposed are pitiful. That is clear, in that he has been talking about making available one Land Rover for an Oxfam programme although it clearly had already been scheduled. Surely the Minister is aware that Oxfam and others have argued that, in long-term development planning, attention should be paid, in particular, to the crises caused by weather and rapid weather changes. Will he take advantage of that emphasis in his Department, and of the disaster response unit which was established by my right hon. Friend the Member for Clydesdale (Dame J. Hart) 10 years ago? Will the right hon. Gentleman ensure that he takes the initiative in finding out how the Government can give aid instead of waiting for the Mozambique authorities to come to him?

Mr. Raison: Our missions are in close touch with the Governments of those countries concerned. It is for them to put formal requests to us, but plenty of consultation goes on. I believe that we have shown that we can respond promptly.

Open Questions

3.42 pm

Mr. Speaker: I have a brief ruling to make to clarify the position regarding open questions to departmental Ministers.

I have recently reviewed the practice regarding open questions to departmental Ministers, namely questions relating to a meeting with some person or organisation without indicating the purpose of the question.

In the light of experience with a growing number of open questions this Session, I am now convinced that it would not be desirable to encourage them still further. I have therefore decided that once those open questions that at present stand in the Order Book have been answered, I shall revert to the earlier practice of the Chair and will not call supplementaries to any further question to a departmental Minister about that Minister's meetings which does not state its purpose reasonably precisely.

some of which now seen not to have been worth the paper on which they were written. Is it satisfactory for the nuclear installations inspectorate to remain below adequate strength?

Why has it taken three months for the right hon. Gentleman's Department and other Departments to ask for a more intensive examination of the nature of the pollutants? Is he not aware that Cumbria as a whole is being damaged by the situation which obtains, and that the public has been advised against using the beaches for many weeks which is affecting tourism in the area and all other aspects of life, in my constituency in particular but throughout west Cumbria? Three months to take a decision about a further investigation is far too leisurely an approach.

If the Secretary of State and the Government—and I am sorry to be long about this, but these are crucially important matters — intend to rest on the ALARA principle, "as low as reasonably achievable", is it not time that a definition was put on record of exactly what that means in practice, for no such definition appears ever to have been attempted? Would it not be better to accept now that, for the future operations of the industry—not just the new Thorpe oxide plant, but existing magnox processors—discharges should be eliminated altogether, and that no discharges to the green environment should be allowed within a reasonable time scale?

I say to the Secretary of State that the statement comes odd from a Government who have leaked these reports comprehensively over the last 48 hours and tipped off the press about the statement. I arrived at Westminster yesterday to have four messages from the press asking me to give interviews about this statement today, so the press clearly knew what was going on. Is it satisfactory to have off-the-record briefings of correspondents of *The Observer,* and at the same time to have the police pursuing Greenpeace and Friends of the Earth over the availability of documents like this which carry a restricted covering, and which contain information that is in the public interest?

I realise that the Secretary of State can say nothing now about the Black inquiry into health, which is perhaps the most important of all the inquiries taking place. I make no criticism about that, because the inquiry is continuing, but the House will wish, in the fullness of time when the reports are available, to debate all those issues.

Mr. Jenkin: No one would criticise the hon. Gentleman for treating this matter with great seriousness. He was right to put it in the context of the previous private notice question today, which my right hon. Friend the Minister for Overseas Development answered about the deaths from natural causes of hundreds of thousands of people in other parts of the world. It is important to make it clear that there is no risk of death to anyone as a result of this discharge. However, it was an unsatisfactory discharge and we should treat it seriously.

I can give the hon. Gentleman a categoric undertaking that there will be no shortage of funds for the necessary plant changes which are being and will be made to eliminate the chances of a repetition of this accident, and substantially to reduce the discharges of radioactive material. British Nuclear Fuels Ltd. has in hand a programme costing more than £100 million, of which the largest part is devoted to the new SIXEP plant, which is due to come on stream next year. If further measures are necessary in order to reach satisfactory standards, they will be taken.

As a result of the report, the company will conduct a review of all the operations in the plants at Sellafield. The hon. Gentleman referred to the earlier review following the Windscale trial. That was a review of the entire operation, but it did not examine the detailed management of individual plants. As the hon. Gentlemen rightly said, the errors which gave rise to this incident occurred in the detailed management of this plant.

I am dealing with the inspectorate urgently. We are considering a variety of possibilities to strengthen our monitoring capacity, including the possibility of using independent contractors to do the work.

The hon. Gentleman asked why it had taken three months to undertake a review. The early signs were of a rapid decline in the amount of contaminated material washed up on the beaches, and I certainly hoped—as I am sure did the hon. Gentleman—that this contamination would be short-lived. Events have proved otherwise; in those circumstances, with evidence of continuing detritus or radioactive material being washed up, we decided to examine the matter more systematically to try to find out how it was happening.

As to the definition of ALARA, the hon. Gentleman must realise that this is an obligation upon the nuclear industry in addition to the numerical limits placed upon discharges. I assure him that we have in mind the possibility of extending the numerical discharges so that they cover not only a rolling three-month period, but shorter periods. That will remove some of the uncertainty of which he complained.

I do not believe that any Government have been more open in their dealings with the House and the public than the present Government have been with this discharge, and I shall continue to keep the House as fully informed as possible on those matters. It is not for me to decide whether an official should be prosecuted for disclosing a restricted document to Greenpeace in breach of undertakings.

Mr. Nigel Forman (Carshalton and Wallington): As my right hon. Friend is Secretary of State for the Environment, will he accept that many hon. Members on both sides of the House applaud the responsible line that he has taken on this important issue? However, will he also realise that, although progress is welcome in reducing emissions, particularly of caesium and plutonium, the matter of concern to this House should be the long-term effects of low-level emissions of all radioactive substances, whether into the air or water? Will he make absolutely sure that that aspect of this environmental problem is taken fully into account by Sir Douglas Black and by everybody else who will be looking at the continuing effects of this incident?

Mr. Jenkin: I am well aware of my hon. Friend's long concern with these matters, and I assure him that we shall treat the findings of Sir Douglas Black's review with the utmost care. We expect his report perhaps in May. It will be one aspect, one of the pieces of evidence, that we shall need to maintain continually in view in looking at the environmental impact of this and other nuclear plants.

Mr. Donald Stewart (Western Isles): Will the Secretary of State confirm that Sir Douglas Black's inquiry

[Mr. Donald Stewart]

will not be confined to the vicinity of Windscale but will extend right up the west of Scotland in the light of increasing radioactivity levels in fish there and concern about the rising incidence of leukaemia cases? Will this establishment continue processing waste from countries outside the United Kingdom?

Mr. Jenkin: The question of other health risks outside the Sellafield area would, technically, be outside Sir Douglas Black's inquiry. If any hon. Member has evidence which suggests that there might be a link with the Sellafield plant, that is a matter in the first instance for the health authorities of the country concerned. If it appears relevant, no doubt Sir Douglas Black's inquiry will take account of that.

The answer to the right hon. Gentleman's second question is that the decision to proceed with the thermal oxide reprocessing plant, which was approved by this House in 1978 and for which planning permission has recently been given by Copeland district council, is intended to enable Sellafield to reprocess fuel not only from this country but from other nuclear power countries. But the right hon. Gentleman will also know that the obligation to return, to take back, the waste from that reprocessing is an integral part of the contracts which have been made with the firms concerned.

Several Hon. Members *rose*——

Mr. Speaker: Order. To allay fears and frustrations, may I say that I shall call all hon. Members who have been standing. We have important business to follow, and I hope that it will be possible to complete questions on this statement by about 4.15 pm.

Sir Hector Monro (Dumfries): Is my right hon. Friend aware of the concern that is felt in the Solway area not only for the local residents but for fishing and the future of tourism? Will he say a little more about the failure of the procedures in relation to his assurance that it cannot happen again? May we be assured that sufficient resources will be available, along with sufficient contractual experience, to finish the SIXEP plant in time this year so that the level of treatment will be improved by next year?

Mr. Jenkin: I am well aware of the concern that has been expressed in other coastal areas. My hon. Friend will be glad to know that there is no evidence of any flotsam having been washed up on the northern beaches of the Solway firth of higher than 10 millirads, the limit which the NRPB has regarded as safe.

The answer to his question about the SIXEP plant is that it is intended, and hoped, that it will be finished and commissioned this year, and I have no doubt that BNFL is doing its best to achieve that.

The Ministry of Agriculture, Fisheries and Food—which is responsible for monitoring the marine environment—has, in the report which was published last December, given a completely clean bill of health to the fish and shellfish, in that there is no hazard as a result of this incident to anyone who eats them.

Mr. D. N. Campbell-Savours (Workington): Will the Secretary of State make it clear that any person with an interest in this subject has the right to communicate his or her views to Sir Douglas Black and his inquiry? Is the right hon. Gentleman aware that many people in Cumbria, including myself, although highly critical of BNFL's management systems—in particular, the shabby way in which it treated Greenpeace — firmly and positively support the nuclear industry, a safe nuclear industry?

Is he also aware that the only way in which the people of Cumbria will be fully satisfied in the coming years is if the Government ditch the principle of ALARA—as low as reasonably achievable—to which he referred in his statement, and switch to ALATA — as low as technically achievable—irrespective of the costs?

Is the right hon. Gentleman further aware that every scrap of information, every statement in this House, every written answer and any statement made by any politician or whatever in relation to contamination within the county of Cumbria damages our industrial base, damages our tourist industry, damages our public services and does immense damage to the population at large by causing further and greater tension?

Will the right hon. Gentleman, in whatever allocations he makes available to the county in future, take those matters into account because our development is now being prejudiced by the poor publicity that our county is getting, publicity which is often totally out of proportion to the nature of the danger, which is far less than many people have been advocating nationally?

Mr. Jenkin: I have the utmost sympathy with the difficulties which the hon. Gentleman and his hon. Friend the Member for Copeland (Dr. Cunningham) have faced in recent months, and in earlier years, as a result of incidents at the Sellafield plant. In everything that I and the Government have done, we have had the impact on the local population greatly in mind. As the hon. Gentleman knows, I have been to see some of the development and reclamation projects which are going on in his constituency, when that point was made to me clearly by his constituents and by the constituents of the hon. Member for Copeland.

I should like to feel that we shall soon be able to put this behind us and have a much more satisfactory plant operating there in future. In the meantime, I am sure that the hon. Gentleman would not in any way advocate that I should not be as frank as possible with the House and the public when dealing with matters of this seriousness.

Mr. Kenneth Warren (Hastings and Rye): While welcoming the Secretary of State's announcement and applauding the technical prowess of the British nuclear industry, may I ask him to give an assurance that he will not be dazzled into believing that accidents can never happen again? Will he say that he appreciates that quality and safety are as much attitudes of mind in management as the provision of wonderful tools to control the processes?

Mr. Jenkin: My hon. Friend, who speaks with great experience of these matters, has spoken wise words. I am now satisfied that the management philosophy which he enunciates is treated with great seriousness by the management of BNFL.

Mr. George Foulkes (Carrick, Cumnock and Doon Valley): Will the Secretary of State confirm that discharges of full tanks such as that which took place last autumn have occurred on four occasions in the past few years? What, therefore, gives him confidence to say that it will never happen again? Does the right hon. Gentleman

agree that he would have greater confidence if he were to insist that BNFL installed the best available technology to deal with processing at that plant?

Mr. Jenkin: The question of precisely what technology to put into the plant is really one for BNFL, and I have no doubt that the hon. Gentleman will wish to satisfy himself with BNFL. My inspectors must be satisfied that the plant and its operation are such as to reduce to as low as reasonably achievable the environmental pollution.

As for the suggestion that there have been earlier discharges, I understand that there is no evidence that there have been discharges of the amount of radioactive material which is involved in this discharge. Modifications have already been made to the plant that will make any repetition of the incidents of last November impossible. The technical equipment that has been put in renders impossible any such repetition.

Mr. Simon Hughes (Southwark and Bermondsey): The Secretary of State had made four statements in just over three months. Although we welcome the report, it does not deal with the immediate need to have the beaches cleared. Is the right hon. Gentleman able to tell the House today that that can now be authorised? Secondly, the right hon. Gentleman has promised to report to the House on his consideration of the recommendations in the report. I note that there are 25 recommendations, some of which require immediate action, especially the discharge from the solvent stocks. The House will want reassurance that that will be the subject of an early report to the House, if not an extremely quick report.

The Minister's reassurances have been heard and listened to, but they have not been fulfilled. Does the right hon. Gentleman accept that with every expansion of the nuclear industry it will be impossible for him to say that there will not be discharges in future, and that that is the risk that the country is especially concerned about?

Mr. Jenkin: I understand the hon. Gentleman's concern. I do not think that I can add to what I have already said about the beaches. There continue to be some forms of flotsam which do not yet reach the standards demanded by the NRPB's tests in ascertaining whether the beaches are safe for normal public access. In these circumstances, the only responsible course is to undertake, as we have done, a more systematic review of what will be necessary so that we can make an early statement to the effect that the beaches are safe and can be opened. Many of the recommendations have already been acted upon; others are already being acted upon and the necessary changes will be implemented. The remaining recommendations will, likewise, be acted upon. BNFL has accepted in full all the recommendations of both the radio-chemical inspectorate's report and the nuclear installations inspectorate's report. That is the best guarantee that I can give that these matters are being taken extremely seriously.

Mr. Richard Holt (Langbaurgh): Does my right hon. Friend accept that, unlike the press, some of us have not had the opportunity to read a leaked report in advance, and that I had to listen carefully to his statement? I recall him saying that alternative methods of disposal would need to be sought. If the alternative methods include the anhydrite mine in Billingham, which is in the constituency of the hon. Member for Stockton, North (Mr. Cook), there will be great distress in the north-east of England. I hope that he will take this opportunity of saying that notwithstanding his final decision on the NIREX proposals for Billingham, nothing from Sellafield is in his mind in that area.

Mr. Jenkin: I understand the problems that my hon. Friend and a number of his neighbouring parliamentary constituencies face. I have made no final decision about Billingham or other disposal sites. The most that has happened is that NIREX has made certain proposals. I have published the principles upon which the disposal sites must be chosen and operated—the principles are still out for consultation—and the matter is subject to future planning inquiries, as I outlined when I made an earlier statement on the subject. To that extent, I can give my hon. Friend the reassurance that he is seeking.

Mr. Frank Cook (Stockton, North): I commend the Minister for the great concern that he has displayed in a balanced and steady statement. Will he accept that one of the principal reasons for anxiety within the electorate is that so many bland assurances have been given in the past which have been unfounded, as a result of which many accidents have happened? When the Minister replied to my hon. Friend the Member for Copeland (Dr. Cunningham), he referred to a much slower rate of decay than that which was anticipated. He said that there had been increased detritus on the coast line and a much more systematic monitoring procedure.

Bearing in mind that anxiety has been caused by bland assurances and that we need to remove that cause of anxiety, will the right hon. Gentleman accept that we cannot placate an electorate that is becoming alarmed rather than alert until such time as the chemical and radioactive inspectorates are given some form of representation of qualified, professional observers and commentators who have no vested interest in the industry?

Mr. Jenkin: I think that the hon. Gentleman has lost sight—it would be easy for any of us to do so—of the fact that the nuclear industry is one of the safest industries in which to work and near which to live. The number of deaths that can be said to be attributable to the normal operation of a nuclear plant is infinitesimal. Its record should be compared with that of the coal mines and North sea divers and set against the natural hazards that we heard about earlier today.

I assure the hon. Gentleman that those who undertake monitoring roles in the nuclear installations inspectorate and my own radio-chemical inspectorate are entirely independent of the industry. That is why the Health and Safety Executive and the Department of the Environment, as well as the Ministry of Agriculture, Fisheries and Food, have a monitoring responsibility that is separate from that of the Department of Energy and the nuclear industry itself.

There are representatives of many different sectors on the Radioactive Waste Management Advisory Committee. The Government have plenty of outside, independent and impartial information and advice on the subject.

Mr. David Crouch (Canterbury): I thank my right hon. Friend for the frank way in which he and the Under-Secretary of State have made statements to the House over the past two months to explain the extent of the seriousness of the contamination arising from the discharges at

[Mr. David Crouch]

Sellafield. We appreciate that my right hon. Friend is the Secretary of State for the Environment, but we are all concerned about what goes on inside the plant under BNFL's management as well as what happens outside. Is my right hon. Friend satisfied about what might happen outside as a result of discharges into the sea? Is he satisfied also that the procedures of management are satisfactory in every way in the existing plant, or will be in future plant, to prevent such discharges in future? It is in my understanding that the discharges that occurred were a failure of management proedures at a fairly low level on the nightshift rather than any fault in the machinery and the operation of the plant itself.

Mr. Jenkin: The precise circumstances are currently the subject of study by the police and the Director of Public Prosecutions. I do not think that it would be right for me to comment in detail, but I understand that a statement has been made today by the chairman and chief executive of BNFL which gives some sign of what may have lain at fault.

It is the prime responsibility of both the inspectorates involved to work with the management of the company to ensure that management systems and the structure of the plant are such as to reduce to the absolute minimum the risk of discharges and other hazards to health. That is their primary role, and I can tell my hon. Friend that the distinguished professionals who undertake the task exercise enormous care and dedication.

Mr. Ron Lewis (Carlisle): May I assure the Minister that the issues raised by my hon. Friends the Members for Copeland (Dr. Cunningham) and Workington (Mr. Campbell-Savours) are not exaggerated and that they are causing great concern to the people of Cumbria? Can he give an assurance, with the approach of the holiday season, that all of the Cumbrian beaches are safe?

Mr. Jenkin: I understand the hon. Gentleman's point. I hope very much that we shall be able to move towards giving such an assurance as swiftly as possible. However, I cannot give the hon. Gentleman the undertaking which he seeks this afternoon.

Mr. Dennis Skinner (Bolsover): Will the Minister tell us, without trying to evade the question, how many people have been contaminated? We need to know the precise number so that his report is precise. Will he bear in mind also that it comes as a bit of a cheek from the Government to talk about trying to find protection for those living in the Sellafield environment when they have cut the Health and Safety Executive from about 4,250 employees to 3,723 since they came into power. The nuclear inspectorate has been affected adversely as a result of cuts. Is this statement just another chapter in events that must lead to stopping the development of the PWR programme?

Mr. Jenkin: Nothing I have said today has any relevance to the PWR programme. Following the incidents, four members of Greenpeace had their hands checked for contamination, and no detectable activity was found. Any contamination would have been less than 10 per cent. of the level permissable under the Factories Act 1961 for exposure on a continuing basis. Measurements of intake pf radioactivity being made by BNFL on a confidential basis, at the request of 38 individual members of the public—any of whom can ask for this monitoring to be carried out by BNFL's doctors—show only small percentages of the relevant internationally recommended limits. Yesterday, in answer to a question by the hon. Member for Workington (Mr. Campbell-Savours) it was made clear that eight of those 38 people had intake measurements that showed the presence of ruthenium 106, but the quantities measured were all close to or within the limits of detection.

Mr. Skinner: What about the others?

Mr. Jenkin: That is the best answer I can give to the hon. Gentleman. As I said in answer to an earlier question, the radio-chemical inspectorate staff are dealing urgently with this matter.

Mr. David Alton (Liverpool, Mossley Hill): Does the Secretary of State agree that, before the publication of the Black report, it is premature to proceed with the construction of a thermal oxide reprocessing plant at Sellafield? Would it not be better to exercise caution? Does he regret that in 1978 the then Secretary of State for Energy, Mr. Benn, decided to go ahead with the construction of this reprocessing plant? Does he agree that my right hon. Friend the leader of the Liberal party was right when at that time he prayed against the order?

Mr. Jenkin: Liberals have a way of never having to take responsibility for anything and of always being able to trot out their earlier words. The decision of the whole House to go ahead was right. The hon. Gentleman will know that we are talking about greatly improved technology. The plant's design will incorporate the highest standards of environmental protection. A much cleaner process will be used in the new plant. I see no reason why it should not go ahead as planned.

Mr. Tam Dalyell (Linlithgow): The Secretary of State rightly refers to the distinction of the staff of both the radio-chemical inspectorate and the NII. Following his answer to my hon. Friend the Member for Copeland (Dr. Cunningham), may we be clear about whether there is under-staffing? My understanding is that part of the trouble has arisen because of a shortage of staff. If that is so, what will be done to fill what is, admittedly, a difficultlt set of places to fill?

Mr. Jenkin: In light of the report and its follow-up, I must determine precisely the monitoring requirements. I assure the hon. Gentleman that, if it transpires that extra manpower is required, it will be provided in some way or another—possibly by the use of outside contractors—because the monitoring must be done.

BILL PRESENTED

Pensions Commutation

The Chancellor of the Exchequer, supported by Mr. Peter Rees, Mr. John Moore, Mr. Barney Hayhoe, and Mr. Ian Stewart, presented a Bill to dissolve the Pensions Commutation Board and to amend the Pensions Commutation Act 1871: And the same was read the First time; and ordered to be read a Second time tomorrow and to be printed. [Bill 103.]

PRIME MINISTER

Sellafield

Windscale 6

Below are the main points made by Mr Jenkin in his statement today.

(i) There has been no breach of the authorised quarterly normal limits on the discharge of radio activity by BNFL, There may have been breaches on other conditions such as those requiring exposure from discharges to be kept as low as reasonably possible and those requiring proper records to be kept. For these reasons the matter has been brought to the attention of the DPP.

(ii) The nuclear installations inspectorate and DOE have informed BNFL of further measures they wish them to take. These have been taken.

(iii) Extensive and continuing monitoring of the environment has confirmed that the risk to the public was and remains extremely small.

(iv) The Government intends that reports both from DOEs radio chemical inspectorate and from the nuclear installations inspectorate should be published as soon as possible after they are received by Ministers provided there is no risk of prejudicing legal proceedings. Mr Jenkin will report further to the House when the financial reports are available.

21 December 1983

STATEMENT BY THE SECRETARY OF STATE FOR THE ENVIRONMENT

SELLAFIELD

WITH PERMISSION, MR SPEAKER, I WOULD LIKE TO MAKE A FURTHER STATEMENT ABOUT THE RECENT DISCHARGES AT THE SELLAFIELD PLANT IN CUMBRIA.

DURING THE SIX DAYS FROM NOVEMBER 11 TO NOVEMBER 16 A SERIES OF ABNORMAL DISCHARGES WERE MADE FROM THE SELLAFIELD PLANT OF BRITISH NUCLEAR FUELS LTD THROUGH THE PIPELINE TO THE SEA. THE DISCHARGES FOLLOWED THE WASHING OUT OF THE REPROCESSING PLANT IN THE COURSE OF ANNUAL MAINTENANCE. FOLLOWING A MANAGEMENT ERROR IN THE OPERATION OF THAT PLANT, RADIOACTIVE LIQUIDS INCLUDING SOLVENT, AND PARTICULATE MATTER OF HIGHER THAN NORMAL ACTIVITY WERE TRANSFERRED TO A SEA TANK. ATTEMPTS WERE MADE TO TRANSFER THE MORE ACTIVE MATERIAL TO ANOTHER STORAGE TANK. THIS WAS ONLY PARTIALLY SUCCESSFUL AND A SIGNIFICANT QUANTITY OF THE RADIOACTIVITY WAS DISCHARGED TO THE SEA.

THE RADIOCHEMICAL INSPECTORATE OF MY DEPARTMENT AND THE NUCLEAR INSTALLATIONS INSPECTORATE OF THE HEALTH AND SAFETY EXECUTIVE HAVE BEEN CARRYING OUT DETAILED INVESTIGATIONS INTO THE CAUSES OF THE INCIDENT. NEITHER I NOR MY RT HON FRIEND THE SECRETARY OF STATE FOR ENERGY HAVE YET RECEIVED FINAL REPORTS. WHILE IT SEEMS CLEAR THAT THERE HAS BEEN NO BREACH OF THE AUTHORISED QUARTERLY NUMERICAL LIMITS ON THE DISCHARGE OF RADIOACTIVITY, THERE MAY WELL HAVE BEEN BREACHES OF OTHER CONDITIONS NAMELY THOSE REQUIRING EXPOSURES FROM DISCHARGES TO BE KEPT AS LOW AS REASONABLY ACHIEVABLE AND THOSE REQUIRING PROPER RECORDS TO BE KEPT. IT IS ALSO POSSIBLE THAT THERE WERE SOME BREACHES OF OTHER CONDITIONS OF THE NII SITE LICENCE. FOR THESE REASONS THE MATTER HAS BEEN BROUGHT TO THE ATTENTION OF THE DIRECTOR OF PUBLIC PROSECUTIONS WITH WHOM MY DEPARTMENT AND THE HEALTH AND SAFETY EXECUTIVE ARE COOPERATING.

THE MOST IMPORTANT THING IS TO PREVENT ANY REPETITION OF SUCH AN INCIDENT. BOTH NII AND MY DEPARTMENT HAVE NOTIFIED BNFL OF THE FURTHER MEASURES THEY WISH THE COMPANY TO TAKE. THE MEASURES SO FAR TAKEN BY BNFL INCLUDE A BAN ON THE DISCHARGE OF FREE SOLVENT AND AN AUTOMATIC CUT-OFF SYSTEM GOVERNING THE DISCHARGE OF LIQUID FROM THE SEA TANKS. OTHER MEASURES ARE IN HAND.

EXTENSIVE AND CONTINUING MONITORING OF THE ENVIRONMENT HAS CONFIRMED THAT THE RISK OF HARM TO THE PUBLIC WAS, AND REMAINS, EXTREMELY SMALL. MY RT HON FRIEND THE MINISTER OF AGRICULTURE FISHERIES AND FOOD IS TODAY ANSWERING A WRITTEN QUESTION ANNOUNCING THE PUBLICATION OF A REPORT ON THE MARINE ENVIRONMENTAL AND AGRICULTURAL CONSEQUENCES OF THE DISCHARGE. COPIES ARE IN THE LIBRARY OF THE HOUSE. THIS SHOWS THAT THERE HAS NOT BEEN ANY SIGNIFICANT EFFECT ON FISH, SHELLFISH OR OTHER FOODS. THERE IS THEREFORE NO REASON WHY PEOPLE SHOULD NOT EAT LOCAL CATCHES OR FARM PRODUCE.

ALSO PUBLISHED TODAY AND PLACED IN THE LIBRARY IS A REPORT BY THE NATIONAL RADIOLOGICAL PROTECTION BOARD, PREPARED FOR MY DEPARTMENT, ON THE DISTRIBUTION AND ANALYSIS OF SAMPLES OF SEAWEED AND OTHER FLOTSAM COLLECTED FROM THE BEACH TEN MILES EITHER SIDE OF THE PIPELINE. ONE CONCLUSION OF THE REPORT, CONFIRMED BY SEPARATE ANALYSIS CARRIED OUT BY MAFF, IS THAT THE RADIOACTIVITY IN THE SAMPLES WAS WELL BELOW THE LEVEL THAT WOULD CONSTITUTE ANY HAZARD TO THE GENERAL POPULATION IN THE AREA. THE NRPB'S MAIN CONCERN HOWEVER IS THAT ANYONE HANDLING THE MORE ACTIVE SAMPLES TAKEN FROM THE BEACH COULD EXCEED THE ANNUAL DOSE LIMIT FOR THE SKIN AFTER ONLY COMPARATIVELY BRIEF DIRECT CONTACT.

IT WAS FOR THAT REASON THAT, ON NOVEMBER 30, MY DEPARTMENT ADVISED THE PUBLIC TO AVOID UNNECESSARY USE OF THE BEACHES ON THIS STRETCH OF COAST FOR THE TIME BEING. I HAVE TO TELL THE HOUSE THAT RADIOACTIVE FLOTSAM IS STILL OCCASIONALLY BEING FOUND, SO THAT IT IS NOT YET POSSIBLE TO WITHDRAW THAT ADVICE. IT REMAINS TRUE THAT ANY RISK OF CONTAMINATION TO THE PUBLIC IS EXTREMELY SMALL. PEOPLE SHOULD NONETHELESS CONTINUE TO AVOID UNNECESSARY USE OF THE BEACHES BETWEEN ST BEES AND ESKMEALS AND SHOULD NOT HANDLE OBJECTS WASHED UP BY THE SEA. MONITORING WILL CONTINUE AND MY DEPARTMENT WILL KEEP THE PUBLIC FULLY INFORMED.

MR SPEAKER, THIS IS AN INTERIM REPORT WHICH I HAVE THOUGHT IT RIGHT TO MAKE TO THE HOUSE BEFORE WE ADJOURN FOR THE CHRISTMAS RECESS. THE GOVERNMENT INTENDS THAT THE REPORTS BOTH FROM DOE'S RADIOCHEMICAL INSPECTORATE AND FROM THE NUCLEAR INSTALLATIONS INSPECTORATE SHOULD BE PUBLISHED AS SOON AS POSSIBLE AFTER THEY ARE RECEIVED BY MINISTERS, PROVIDED THERE IS NO RISK OF PREJUCIDING ANY LEGAL PROCEEDINGS. WHEN WE HAVE THE FINAL REPORTS I WILL MAKE A FURTHER STATEMENT TO THE HOUSE.

Prime Minister

This scare has been quite heavily publicized.

MP 9/X.

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MILLBANK LONDON SW1P 4QJ

01-211 6402

Mike Pattison
Private Secretary
10 Downing Street
London SW1

9 October 1981

Dear Mike,

INCIDENT AT BNFL SELLAFIELD (WINDSCALE)

I attach a copy of the report made to my Secretary of State yesterday evening by the Nuclear Installations Inspectorate (NII) on the incident at BNFL's Windscale reprocessing plant. That is the factual background to the incident.

The incident occurred on 4 October. The Plant was promptly shut down, but re-opened 24 hours later as explained in the NII report. The MAFF Inspectorate were informed by BNFL of the incident on 5 October, and that milk samples were being taken for analysis. The DoE were informed by BNFL about the incident on 6 October, and subsequently that day NII were in touch with BNFL. The NII informed the Department by telephone on 7 October that the incident had occurred and that they were awaiting further information before making a report. On 8 October (yesterday), the Deputy Chief Inspector NII gave an oral briefing on the incident to the PUSS, Mr Moore and to the Head of Atomic Energy Branch concerned. Later that day, an official report on the incident was sent to my Secretary of State. BNFL, also on that day (8 October), put out a statement to the Press. This was reported on Television news yesterday evening, and in this morning's papers.

We are not satisfied with the speed at which this incident was officially reported to us or with reporting procedures, and a report will be made on this to our Ministers. There will also of course be a full report by the NII on the course of the incident.

The incident itself was not a major one, but inevitably any incident that leads to the slightest contamination of milk is impossible to get across to the media without causing headlines such as "Milk Alert".

Yours ever,

JULIAN WEST
Private Secretary

HEALTH AND SAFETY EXECUTIVE

PS/Secretary of State for Energy

cc PS/Mr Simpson
PS/Mr Gray
PS/Mr Moore
PS/Mr Manley
Mr Dunster
Mr Anthony
Mr Kelly
Mr Fullerton
Mr Morphet
Mr Anderson
Mr D R Lewis
Mr Carr
Mr Neilson

INCIDENT AT BNFL SELLAFIELD

The Nuclear Installations Inspectorate was informed by telephone on the afternoon of 6 October 1981 that on 4 October 1981 the iodine monitor that samples aerial effluent from the separation plant indicated an abnormal release of iodine 131. The Plant was promptly shut down.

Initial investigations suggest that some fuel which had not been stored for the required period in the cooling ponds had been inadvertently fed to the plant thus causing a small release of iodine 131. (The normally required time of storage in the cooling ponds ensures that the iodine 131 in the irradiated fuel, with a half life of 8 days, has decayed to an acceptably low level

The plant was started up again within 24 hours and operations continued under careful operator surveillance with further expecte releases of iodine. The release of iodine occurred at a rate of 1 - 2 CI/Day and is now steadily declining.

Environmental monitoring has indicated some uptake of activity into cows milk at two farms within two miles of the site. The highest level of iodine in milk measured to date is above the current level recommended by the National Radiological Protection Board some years ago for continuous drinking, although a significar upward revision of this limit is expected shortly. Milk sampling continuing at twelve farms close to the site.

The circumstances of the incident are being investigated. DOE and MAFF have been consulted and they are considering the environmental consequences. On the basis of the present information MAFF do not regard a restriction on the use of milk from the farms is necessary but is following the environmental monitoring results on a daily ba

Staff and Trade Union representatives have been informed.

W S Gronow
Deputy Chief Inspector

8 October 1981

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File

DSG

cc: Press Office

Cab Affairs

8 April 1981

The Prime Minister has seen the enclosures to your letter of 7 April about the Windscale review.

She is content that the Answer and Press Notice should be issued as proposed.

M. A. PATTISON

J. V. Price, Esq.,
Department of Energy.

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6.

DEPARTMENT OF ENERGY
THAMES HOUSE SOUTH
MILLBANK
LONDON SW1P 4QJ

01-211 3000
01-211 4953

FROM THE
PARLIAMENTARY SECRETARY

Prime Minister

HSE give Windscale a good overall report, whilst identifying some scope for further improvement. Their report will be published on Thursday. Mr Lamont intends to draw attention to this by means of the attached Press notice and P.Q. Content? MF 7/4

Yes

Tim Lankester Esq
10 Downing Street
LONDON SW1

7 April 1981

We spoke earlier this afternoon about our intention to draw Parliament's attention to publication by the Health and Safety Executive of the review of safety management arrangements at Windscale undertaken by a Review Team. You may recall that this Review mounted following a number of safety incidents at Windscale culminating in the identification in March 1979 of a leak of highly active radioactive liquid from a building at Windscale. This particular incident was the subject of a separate thorough NII investigation and report published and reported to Parliament last July. I attach a draft Departmental press notice and one which the HSE propose to put out which are self explanatory over the outcome of the recent Review.

As I mentioned, we would like to announce publication of the review at 2.30 on Thursday since the review itself is a fairly substantial document. I understand that your own press office cleared this with your Private Office last Friday. I hope that you can accept this (we will, of course, provide briefing for question time).

yours

Jonathan Price

J V PRICE
Private Secretary

DRAFT

Reference No 63

April 9, 1981

(Out of hours: 01-215 7877)

REPORT ON SAFETY AT WINDSCALE

Mr Norman Lamont, Parliamentary Under Secretary of State for Energy, today welcomed the Health and Safety Executive's authoritative reassurance that British Nuclear Fuels Ltd's Windscale works "should not be regarded as a dangerous place at which to work or near which to live".

Replying to a Parliamentary Question from Mr MP, Mr Lamont told the House of Commons that the Government attached great importance to safety at Windscale and had already held discussions with both HSE and BNFL about the HSE report on Windscale safety*, which is published today.

Mr Lamont said that the company had implemented many of the HSE's recommendation already. He said, "I am satisfied that such of the report's recommendations as have not so far been implemented will be implemented by BNFL as a matter of high priority and that HSE have devised effective arrangements for the independent monitoring of this follow-up to the report. I have also full confidence in the ability and capacity of BNFL's and Windscale's management to control effectively the safety operations at the Windscale site."

The full text of Mr Lamont's Parliamentary Answer is attached.

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*"Windscale: The Management of Safety", published by the Health and Safety Executive.

Text of Mr Lamont's Parliamentary Answer

"The Health and Safety Executive (HSE) have today published the Review Team's full report. I have arranged for copies to be placed in the Library of the House.

"I welcome this important report which describes the very thorough review conducted by the Team into all aspects of the arrangements for the management of safety at Windscale, including procedures for design safety assessment and those for surveillance of safety in operating plants and during maintenance. It is comprehensive, constructive and balanced, covering the whole spectrum of safety organisation from management systems down to shop floor safety procedures. It makes clear that BNFL and their employees at all levels co-operated fully with the Team and that throughout the Review a constructive dialogue was maintained between the Team, the company, the NII and the Radio-chemical Inspectorate.

"The report shows that serious deficiencies have existed in the past and that it has taken time to overcome these. However, in the course of their review the Team identified a number of important areas where safety systems and procedures still needed improvement and managerial responsibilities required clarification. Accordingly a series of detailed recommendations have been made. Of these the main matters identified as needing attention relate to the review and up-dating of procedures; the strengthening of technical support groups on the site; the developing and strengthening of the quality assurance organisation; and the implementation of a particular system of safety audit.

"Because the Government attaches great importance to safety at Windscale I have discussed the report and its recommendations with the HSE, together with the Executive's plans to follow up the report's conclusions. They have assured me that, as the report records, BNFL's management at Windscale and the company's Risley headquarters have made strenuous efforts to improve arrangements for achieving a high standard of safety. Some of the conclusions reached had already been considered by Windscale's management and were being implemented while the Team were at work. The Team communicated others to the company and the NII as they arose during the course of the Review. Consequently most of the report's recommendations have been, or are in the process of being, implemented. The HSE are satisfied with the company's plans for the orderly implementation of the remaining recommendations and will maintain close contact with the company on their progress.

"I have also discussed the Report's conclusions and recommendations with BNFL, emphasizing the importance the Government attaches to early implementation of these and the maintenance of effective control over safety at Windscale. They too accept the report as fair and constructive and have thought it right to publish their formal response to the report. I welcome this and have arranged for copies

"As to the future BNFL recognise the importance of line management responsibilities for safety at all stages of a plant's design, construction, operation and maintenance and that primary responsibility for the safety of all thei operations rests with the company. Their policy is one of positive self-regulation in safety matters, rather than reliance on meeting conditions imposed by regulatory bodies. In developing and extending this policy they will continue to take full account of the Review Team's recommendations particularly in relation to internal safety audit systems, the strengthened role of the Directorate of Health and Safety and the provision of technical support. They have assured me that they see no difficulty in providing adequate resources for this purpose.

"I understand that the HSE have proposed, as an important part of the follow-up, that BNFL shall provide the Executive, in six months time, with a full report on progress towards implementation of the Review Team's recommendations. This will be published. At the same time, the NII, who attach great importance to their surveillance role at Windscale, will take full account of the Review Team's findings during normal inspection work relating to the site's activities.

"I draw attention to the HSE and Review Team's respective conclusions that Windscale should not be regarded as a dangerous place at which to work or near which to live and that they see no reason, on safety grounds, why the programme for the development of the Windscale site should not continue. The Government welcomes this authoritative reassurance. I am satisfied that such of the report's recommendations as have not so far been implemented will be implemented by BNFL as a matter of priority and that the HSE have devised effective arrangements for the independent monitoring of this follow-up to the report. I also have full confidence in the ability and capacity of BNFL's and Windscale's management to control effectively the safety of operations at the Windscale site."

IN CONFIDENCE

BEFORE 1430 HOURS - 9 APR 1981

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April 9, 1981

REVIEW OF SAFETY MANAGEMENT AT BNFL'S WINDSCALE WORKS PUBLISHED

A review of safety management at the Windscale works of British Nuclear Fuels Ltd (BNFL), Cumbria, is published in a report* by the Health and Safety Executive (HSE) today.

It was carried out by a three-man team appointed by the HSE, which endorses all the conclusions and recommendations (annexed to this release).

The review was announced by the Executive in July 1979 following concern about the number of incidents with safety implications which were being reported from Windscale and, in particular, two incidents** which involved major releases of radioactive materials into the ground. The team had the following terms of reference:

- to review the arrangements for the management of safety at the Windscale site of BNFL;
- to review the procedures for surveillance of safety in operating plants;
- to review the procedures for plant safety assessment;
- to report.

In a foreword to the report, the Health and Safety Executive says: "The report shows that at the time the Nuclear Installations Inspectorate of HSE were given responsibilities for Windscale in 1971 the standard of the plants there had deteriorated to an unsatisfactory level. It also shows that the management of BNFL, both at Windscale and at the company's headquarters at Risley, have been making strenuous efforts to improve the arrangements for achieving a high standard of safety.

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* 'Windscale: The Management of Safety', price £2.50, may be obtained from the Directorate of Information and Advisory Services (IAS5), Baynards House, 1 Chepstow Place, London W2 4TF. Tel: 01-229 3456.

** 'Report on the silo leak at Windscale', price 60p, and 'The leakage of radioactive liquor into the ground, British Nuclear Fuels Limited, Windscale, 15 March 1979', price £1.25, may be obtained from the Directorate of Information and Advisory Services (IAS5), Baynards House, 1 Chepstow Place, London W2 4TF. Tel: 01-229 3456.

We believe that the company will be prepared to implement all the recommendations in the report. Indeed, since the review involved a dialogue with BNFL staff, including members of senior management, many of the changes which the team considers to be necessary were put in hand and, in some cases, completed before the end of the review.

The report includes many recommendations but we would not like this to give the impression that we regard Windscale as a dangerous place at which to work or near which to live. In our view, the company shares with the best of British chemical industry the merit of devoting considerable attention to health and safety matters at board level. This attention must be maintained and reflected in managerial emphasis at all levels.

This is particularly important because the company is facing a very substantial programme of expansion and replacement which will also involve the decommissioning of obsolete plants. The report concludes, that provided the changes which the team recommends are made, the company has the capacity to control these activities effectively. There is no reason on that ground why the development programme should not proceed.

We would like to emphasise the importance of ensuring that the various health and safety services on site and at the headquarters have a sufficiently high status and sufficient resources to achieve the company's objectives. Some of the team's recommendations imply increases in these resources and we believe that the company needs to make these additional resources available as a matter of urgency.

We must also emphasise that the responsibility for establishing adequate arrangements for health and safety, and for a system of audit to ensure that it is working effectively in practice, rests with the management of the company. They are not to rely for this on the Nuclear Installations Inspectorate of the Executive. Our responsibility is providing an independent check that the company is fulfilling its own responsibilities.

The Executive has asked the Chief Inspector of Nuclear Installations to follow up the report and to ensure that an adequate response to it is achieved by the company".

NOTE TO EDITORS:

The review team, appointed by the Health and Safety Executive, comprised two senior members of HM Nuclear Installations Inspectorate, and a former Chief Scientific Officer of the Department of the Environment. They were

WINDSCALE: THE MANAGEMENT OF SAFETY

Conclusions and Recommendations

Conditions at Windscale are changing rapidly as a consequence of the efforts of management to improve plant safety and reduce the exposure of workers to radiation. Changes in staffing levels and organisation continued throughout the course of our investigation and we found it necessary to revise our views on some matters as we went along. Some of the conclusions we had reached had already been considered by Windscale management and were being implemented. Others we communicated to them and to NII, aiming at a dialogue and discussion of our views and steady implementation rather than presenting in a report a sudden catalogue of recommendations. Consequently most of the recommendations we have made in this Report have been, or are being, implemented. Some minor recommendations, which will be dealt with in the course of the reviews we recommend, have not been brought forward.

1 By the early 1970s the standard of the plants at Windscale had deteriorated to an unsatisfactory level. We consider this represented a poor base line from which to develop high standards of safety.

We are strongly of the opinion that such a situation should not have been allowed to develop, nor should it be permitted to occur again.

The present Company policy and the licensing arrangements of the NII should provide the necessary safeguards. (5.1-5.4)

2 By 1974 a significant effort was being made by BNFL to improve, refurbish and replace many of the facilities on the site while maintaining production; a decision which appears to us to have been correct. These and other problems fully stretched the resources of the site. (5.7, 5.8, 5.10)

Much has been accomplished in recent years: there have been many improvements in plant safety, average radiation dose levels have been reduced and production has been maintained. (5.10)

4 In reviewing the arrangements for the management of safety at Windscale we found that although earlier re-organisations have reduced the direct span of control of the North West Area General Manager, the existing duties of the post, and the extensive programme of work now being carried out and planned, will continue to impose a significant managerial load.

(a) The Company should consider whether the present direct span of control associated with this post should be reduced. (6.10)

(b) The organisation of the service departments, including the Research and and Development Department, is generally good with sufficient resources for the effective conduct of their work. (8.8.8.10.8.20)

5 Works Managers, and their equivalents, are responsible for the surveillance of safety of the plant or group of plants in their designated areas of responsibility. They should exercise control over all matters in their area, which must be clearly defined, and ensure that appropriate procedures and instructions are laid down. (7.2)

(a) We found that instructions as to the full extent of their responsibilites were not always clear and comprehensive and we were not convinced they were clearly understood by Works Managers and their staff or were being adequately performed. These responsibilities should be defined in formal instructions to management. (7.6. 7.8)

(b) In particular, we consider that there should be clear instructions stating that Works Managers are responsible for ensuring that all their equipment, plant and buildings are on appropriate maintenance schedules and that the scheduled work is done. (8.3)

At the same time we came to the view that resources available to Works Managers were not sufficient to allow them to deal adequately with all their responsibilities We note that the Company had already begun to appoint technical support staff to assist some Works Managers.

(c) We welcome these actions and wish to see these technical support groups to Works Managers brought up to strength as soon as practicable. (7.9)

The arrangements for the control of operations at the reactor plants already include a technical support section. However, progress on the comprehensive safety review to provide information on an extended period of operation of the Calder reactors has been slow.

(d) We consider BNFL should devote sufficient resources to ensure the timely completion of this review. (7.12)

6 Our analysis of Windscale incidents, some 30 per year since 1976, shows that most have occurred as a consequence of simple failures during the execution of a routine task, of which many tens of thousands are performed annually. (4.9)

About a quarter of the incidents reported resulted in the exposure of workers to levels of radiation exceeding statutory limits laid down in the nuclear site licence, pratically all of them being only slightly in excess of these limits. No incident has involved any member of the public. (4.5)

A few incidents, including the two major leakages of radioactivity into the ground, have been a cause for concern to us because of the implications of multiple failures of safety precautions. There is evidence of a failure to learn from previous events which should have been recognised as indications that these incidents might occur. (4.5, 4.6, 4.7)

(a) We conclude that many of the incidents might have been prevented, or the risk of their occurrence significantly reduced, had formal arrangements been in existence for the regular updating and review of procedures and compliance with them. (4.7)

(b) BNFL should lay down clear instructions for this purpose. The task should receive a higher priority, and BNFL should provide more resources (10.26)

7 The new procedures introduced at Windscale for dealing with plant and process modifications which are judged to affect safety significantly seem to us to be good. We consider there should be some complementary procedures for dealing with lesser modifications which are judged not to affect safety in plant or operations, bearing in mind that throughout industry there have been examples of apparently trival plant modifications resulting in serious incidents. (10.24)

(a) All modifications, however minor or apparently trivial, should be covered by an appropriate procedure which subjects them to examination and confirms that the modified plant is safe to operate. Such procedures should be introduced as soon as practicable. (10.24, 10.25)

A systematic approach for dealing with significant modifications at the design and, more especially, at the construction stage of plant is also important. The arrangements for the control of plant design and construction are changing. (9.4, 9.5)

(b) We consider that in implementing the new arrangements the responsibility for safety must be clearly defined at all stages of a project. Appropriate procedures should be laid down to ensure that all modifications during design and construction which may affect safety are reviewed. (9.5, 9.6)

8 Rules and procedures for the control of work at Windscale are contained in sever sets of documents. We found it difficult to determine the importance to safety of the system of Works Notices and we found some overlap in the content of House Rules, Standing Instructions and Plant Operating Instructions. (10.1, 10.3, 10.8)

(a) We consider that there should be clear definitions of the scope of the various series of documents and that the simplification of the various instructions should be an important part of the work of reviewing them. (10.8)

(b) We consider that information concerning safety arrangements which are to be observed by all employees should be contained in instructions issued to each employee on a personal basis. (10.3)

(c) We concluded that the system for the control of criticality is good and that it contains the elements of a quality assurance system. (10.12)

(d) We found that in some processing plants limits on some important parameters had not been specified. We consider that such limits should be established, based upon systematic safety assessments.

It was clear to us that insufficient attention has been given to instructions for dealing with reasonably forseeable abnormal plant operating conditions.

(e) We recommend that the scope of plant operating instructions in this area should be reviewed as soon as practicable. (10.15)

(f) In particular a procedure should be established for providing instructions for unusual planned operations if a significant hazard may be involved. (10.10)

9 All equipment provided to secure the safe operation of plants is required to be regularly tested, inspected and maintained by suitably qualified persons in accordance with an Engineering Scheduled Maintenance Scheme.

(a) We found the practice employed at the Calder reactors to be appropriate and generally consistent with that at other nuclear power stations in the UK. (10.16)

(b) The scheduled maintenance of instrumentation on the site generally is soundly based. (10.18)

(c) The situation was less satisfactory in the case of mechanical, electrical and civil works; for civil works we found no laid-down systematic requirement for the inspection of buildings and structures such as pipe-bridges and supports. (10.18)

(d) We recommend that all maintenance work should be the subject of central review and direction of its scope and frequency; greater use should be made of assessments of the reliability requirements for safe operation. (10.18)

(e) To assist in this a comprehensive system of analysis of defects and failures should be introduced for all plants as soon as practicable. (8.6)

10 The procedures for granting clearance for work involving risk to health and safety provide for the issue of Clearance Certificates which specify the precautions to be taken. These may be supplemented by Access Certificates if radiological protection measures are also necessary.

We consider that the requirements of the Clearance Certificates in use in chemical plant operations were not sufficiently comprehensive and we are pleased to see that BNFL are making the necessary improvements. (10.20)

11 We found the arrangements made to deal with emergencies that may occur on the site, including the premises of the UKAEA, and for dealing with potential off-site consequences, were well conceived and adequate. (10.13)

12 (a) We found the provisions for training, to which the Company attaches considerable importance, to be generally good and there was a clear understanding of the safety precautions required for radiological protection. (8.25, 8.26, 8.28, 8.29)

(b) We draw attention to other factors that may help in the training and retraining of staff. (7.13, 8.31, 8.32, 8.33)

(c) Because of the increase in staff at the Risley design offices the Company should continue to give close attention to its training requirements. (9.

13 (a) We consider that an effective system of independent audit of safety is essential if high standards of safety are to be achieved and that an appropriate system should be implemented as a matter of priority. Our recommendations in this connection are fundamentally the same as those of the Fleck Committee set up following the incident at Windscale in 1957. (6.5, 6.

(b) The Directorate of Health and Safety should be strengthened so that its surveillance of the extent and content of such audits and other related functions, can be fully implemented. (6.7)

14 During the whole of the life of a nuclear plant from design to decommissioning all activities influencing safety should be governed by appropriate formal specifications, standards, codes of practice, and written procedures. Quality Assurance is the system designed to provide assurance to management that these have been complied with. Since inadequacies in procedures and their implementation have often contributed to causes of incidents on the site the adoption of a Quality Assurance programme would seem to offer a promising way of reducing their frequency. (9.9)

We strongly recommend that the Quality Assurance organisations should be developed and brought up to strength as soon as practicable. (8.5) (9.10)

15 To carry out the necessary safety assessments of the design, construction and commissioning of new plant and to assist in the review of safety of operating plants it is important to have appropriate technical and safety specialist support. We found that, prior to 1974, safety reviews of operating plants had not been made for many years and these reviews became the main task of the Safety Assessment Group then established at Windscale. Their reports provided a good response to the needs at that time. (11.7)

(a) We consider these early reports should now be updated and improved as soon as practicable. General instructions should be laid down covering the frequency and the circumstances under which such reviews should be undertaken. (11.8, 11.9)

To provide advice on safety to plant designers and operators and in response to the requirements of the nuclear site licence, BNFL has established a Safety Committee and supporting sub-committees. (11.2)

(b) We consider that this system fulfills a useful function and provides a sound source of advice to management. However, it does not provide the independent audit function which we have strongly recommended. (11.4, 11.10)

We recognise that some of the recommendations we have made will require BNFL to provide additional resources for their implementation. The main matters requiring attention are the review and updating of procedures; the strengthening of technical support groups on the site; the developing and strengthening of the Quality Assurance organisation; and the implementation of a system of safety audit. We do not think the resources to accomplish these tasks will be large in relation to the overall commitments of BNFL, but it is important that they be made available.

Because incidents have resulted from weaknesses in procedures, or in complying with them, many of our recommendations refer to ways in which procedures can be improved. However, rules alone, no matter how complete, are not sufficient; they have to be approached with the right attitude and conscientiously applied if safety is to be achieved. Morale and confidence in management are also important factors and we were encouraged to find these evident throughout the workforce. This should provide the conditions under which higher standards of safety can be achieved.

It will never be possible to eliminate entirely the occurrence of incidents, especially those in which human error or poor judgement play a contributory part. There can be no absolute assurances that incidents of the same kind as have previously been reported from Windscale will not occur in the future. Nevertheless we believe that the rate of occurrence and the potential consequences can be reduced by careful adherence to well-conceived safety precautions, and in particular by careful attention to the preparation of, strict compliance with, and regular review of safety procedures.

CONFIDENTIAL

Env Affairs

10 DOWNING STREET

From the Principal Private Secretary

30 July 1980

Dear Julian,

REPORT ON THE B701 LEAK AT WINDSCALE

The Prime Minister has seen your Secretary of State's minute of 28 July 1980 about the report by the Nuclear Installations Inspectorate of the investigation into the B701 leak at Windscale and she is content for him to proceed in the way he proposes.

The Prime Minister has taken note that your Secretary of State and the Secretary of State for the Environment are reviewing the interface between their respective responsibilities at Windscale. If, as a result of this review, there are any proposals for changing responsibilities, she looks forward to being consulted about them.

I am sending a copy of this letter to David Edmonds (DOE).

Yours ever,

Robin Butler

J.D. West, Esq.,
Department of Energy.

CONFIDENTIAL

DEO.

1.

Prime Minister.

The report of the Safety Review Team will be a key document. Content for Mr Hurd to proceed on the proposals? Also for him and Mr Heseltine to put to you any proposals they may eventually have for changing their responsibilities (paragraph 7)?

CONFIDENTIAL

PRIME MINISTER

Yes ok

1. The report by the Nuclear Installations Inspectorate (NII) of its investigation into the B701 leak at Windscale will be published on 29 July. This leak was a high activity leak; essentially a container containing spillage overflowed and liquor seeped into the ground. Although an interim NII report concluded that the leak posed no safety hazard to the work force or the public, the full report will confirm that over the years a number of deficiencies in safety management in relation to the B701 buildings have occurred and that BNFL did not comply with a number of site licence conditions. It will also bring out that the HSE considered prosecuting BNFL under the relevant legislation but decided that there was insufficient justification for this.

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2. Publication of the report may revive public fears about the safety standards of Windscale generally. These have a long history, which can be traced to successive periods, in the 1950s, of intense development (for defence purposes) and subsequently lack of investment. The Royal Commission on Environmental Pollution in its 6th Report (1976), while stating that they had no reason to think that the operations at Windscale were not conducted with every attention to safety, nevertheless commented on the desirability of maintaining the highest standards of housekeeping and urged that this aspect should be given more attention by Windscale's management. I attach, at Annex, a note on the problems and what is being done to overcome them.

3. When the NII report on B701 is published, therefore, I shall emphasise that the Windscale safety record has been good, and that the report concluded that the existence of the leak, although serious, posed no safety hazard to the workforce or the public. I shall also point out that in view of the importance of safety at Windscale, and with the agreement of the Secretary of State for the Environment, I arranged with the Health and Safety

Commission for the HSE to appoint an independent Safety Review Team headed by the Deputy Chief Inspector of the NII, and including a representative of the DOE, to conduct a comprehensive evaluation of safety management arrangements at Windscale. The setting up of this Review was announced to Parliament in July last year and the HSE expect to publish the Report in the Autumn. An interim confidential report to me and to the Secretary of State for the Environment has confirmed that no major deficiencies in Windscale safety management arrangements have been identified and that such deficiencies as have been identified have been brought to the Company's attention and are being acted upon.

4. The Secretary of State for the Environment has, however, recently visited Windscale, accompanied by Tom King. He has given me his impressions which were far from favourable. He saw a number of things, small in themselves, which in their totality suggested to him that the existing plant was not being supervised and managed with the rigour that such situations demand. He found the explanations given to him, in the presence of Sir John Hill and the BNFL Managing Director, wholly defensive and unconvincing. In his judgement therefore, and on the admittedly brief evidence of a six hour visit, the attitudes to safety and the resources devoted to safety fall far below the level necessary to command the Government's confidence. He has expressed to me his strong concern that any indifference or complacency bred by the poor legacy of the past should not be allowed to continue or carry over into the new plant now under construction. A specific suggestion he has made is that the manager responsible for safety should be relieved of line management duties in order to devote more time to safety matters.

5. This report is disturbing, but I am bound to say that I reject the conclusions reached by the Secretary of State for Environment, in particular about complacency over safety at Windscale. These conclusions cannot be justified by the instances which he quoted to the management and to me after his tour of Windscale. I am sure

that the right way to approach this problem is to expedite the Safety Review Team's report, and I have asked the HSE to take into account in that report the points which the Secretary of State has raised. It would certainly not be right at this stage for me to say anything to the BNFL management which prejudices that report. And I intend to convey that message to them. The site has a new top management team which is striving hard to overcome current problems. The time to consider whether there is a need to tighten up that structure will be when we have the Safety Review Team's report.

6. The continuation of reprocessing at Windscale is vital to the continued operation of our existing nuclear power stations. If for any reason Magnox reprocessing had to be suspended for a lengthy period, Magnox stations would have to close. Windscale is, therefore, a target for those who oppose the nuclear programme, and they will not hesitate to exploit any opportunities open to them. The Government, therefore, has a major interest not only in supporting BNFL management, but also in ensuring that the management is fully effective and that the highest standards of safety are maintained. This is particularly important over the publication next week of the report on the B701 leak.

7. I am also concerned about our respective Ministerial responsibilities at Windscale. The Secretary of State for the Environment has a direct responsibility for authorising radio active discharges and for the environmental impact of any discharges whether authorised or not. On the other hand, I am solely responsible, with the independent assistance of the NII, for the safety of operations and also for the effectiveness of the management. Both of these, however, have an inevitable bearing on the likelihood or otherwise of the Secretary of State for the Environment's responsibilities becoming directly engaged. For that reason, we have both instructed our officials to consider and let us have advice on the interface between our respective responsibilities at Windscale.

D14

Secretary of State for Energy
28 July 1980

ANNEX

SAFETY AT WINDSCALE

1 The Nuclear Installations Inspectorate report on the leak of highly radioactive liquor at Windscale (the B701 incident of 1979) is to be published on 29 July. Publication of the report may lead to renewed criticism of safety arrangements at Windscale. This paper describes BNFL's difficulties at Windscale and the steps being taken to remedy them.

Background: Windscale's origins and present difficulties

2 Underlying all Windscale's current difficulties is the site's history. The original two plutonium producing reactors and reprocessing plant for extracting plutonium were designed, built and commissioned in four years, at a time when nuclear safety arrangements were in their infancy, to enable the first UK bomb test to take place in 1952. The pressures in the 1950s to meet urgent defence requirements were followed in the 1960s and early 1970s by a period of uncertainty for the nuclear reprocessing industry; there were large-scale cuts in defence requirements; the economics of nuclear power were in the blanace; Windscale was enjoined to act commercially and money for renovation, improvement and new plant was short. Despite the commissioning of new Magnox chemical reprocessing plant in 1964 and the plutonium fuel fabrication plant in 1970, Windscale was no longer a modern plant when BNFL was created in 191 and assumed responsibility for the site.

3 Thus, in its early years, the new Company faced a legacy of very difficult problems: short-term decisions had been taken without regard to future requirements and consequences; management and staff were stale; morale was poor (the site had its first total strike in 1973); "housekeeping" was at its nadir; outside factors (including the three day week) disrupted the programme for the provision of highly active storage tanks and other new plant; reprocessing had

had to be curtailed for months; government pay policies made recruitment of high-calibre staff very difficult.

4 The turning point came early in 1974 when the Company, recognising that the problems of reprocessing had been underestimated, introduced plans to refurbish the plant to provide for:-

(a) reprocessing of Magnox fuel until the end of the century;

(b) reprocessing of oxide fuel;

(c) plutonium storage under new, very stringent security conditions;

(d) more efficient effluent and decontamination arrangements in line with increasingly stringent regulating controls.

5 To overcome the difficulties described earlier and to implement the refurbishment programme, the Company has overhauled, developed and strengthened the management structure. The result is that Windscale now has an essentially new senior management team. This has redefined priorities; reorganised engineering work to make it effective; introduced improved planning, control of resources and awareness by line management of responsibility and performance: restored morale and discipline. The Company will continue to strengthen this team in the light of the site's needs and the development of operations there.

6 Nonetheless, much remains to be done. The Company's operations require it to:-

(a) keep the existing elderly chemical reprocessing plant (the Magnox plant) going, to service an important section of UK electricity capacity;

(b) complete a major investment programme to refurbish and improve that plant;

(c) build the large new ozide plant (THORP) to reprocess UK AGR fuel and to fulfil valuable overseas contracts.

At the same time, the Company has to give priority to maintaining nuclear safety and the prevention of nuclear incidents; and to avoid any excessive discharges of radioactivity to the environment. The management is also concerned to improve the appearance of the site (housekeeping) insofar as it is possible to do so while maintaining ageing plant in safe working condition and conducting major refurbishment and construction operations.

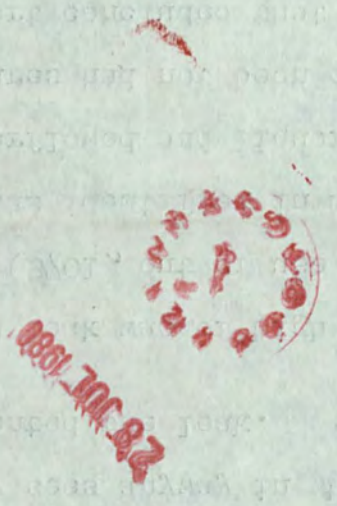
7 It will be clear from the above that the Company has formidable problems. But in addition, it will have to continue to counter a sustained and virulent campaign of criticism mounted by dedicated opponents of nuclear power. In doing so, the Company will need the full support of the Government, in particular in defending it against charges concerning safety at Windscale.

Nuclear Safety

8 Much of the concern about nuclear safety at Windscale has resulted from two leakages of radioactive liquid. The first, of contaminated water from a radioactive waste storage silo B38, identified in October 1976, was the subject of a full report by the NII published in February this year. That report concluded that the leakage was

m a crack below ground in a silo built long before BNFL came into existence; that the best way to stop the leak is to empty the silo; that work is in hand to develop a means of doing so, and that in the meantime, there is no safety hazard to the workforce or the public. Nobody sees anyway in which the Windscale management could have prevented the leak.

9 The second leak was of high activity waste from equipment in an old building (B701), out of use for 20 years, The leak was stopped immediately it was identified in March 1979. A container collecting spillage had overflowed and liquor seeped into the ground because emptying procedures had not been complied with over the years. An interim NII report concluded that the existence of the leak posed no safety hazard to the workforce or the public. The NII's full report will be published on 29 July. It will confirm that, over the years, a number of deficiencies in safety management in relation to that building have occurred and that the Company did not comply with a number of site licence conditions. The HSE considered prosecuting BNFL under the Health and Safety at Work, etc. Act 1974 or for breaches of licence conditions imposed under the Nuclear Installations Act 1965 (as amended). They concluded, however, that prosecution under the 1974 Act would not be justified because the Company's general radiological protection arrangements would have prevented any significant hazard to employees or the public, even if the leakage had been above ground level. They concluded with regard to the 1965 Act that, in view of the plant's history, BNFL's prompt remedial action and the effectiveness of radiological arrangements, the most appropriate action would be enforcement of necessary remedial measures and publication of full details of the incident.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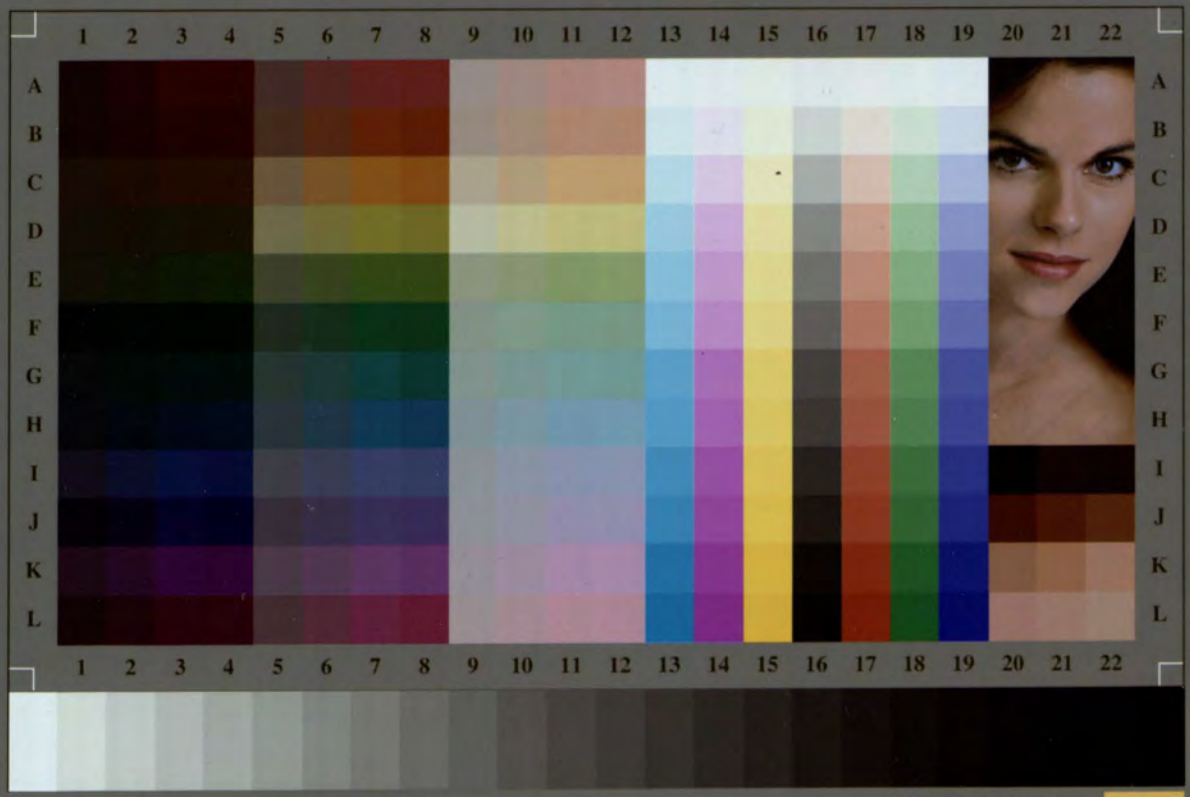
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