

HM NUCLEAR INSTALLATIONS INSPECTORATE

**BNFL SELLAFIELD AND DRIGG AND UKAEA WINDSCALE LOCAL LIAISON
COMMITTEE REPORT**

QUARTERLY REPORT FOR 1 JANUARY TO 31 MARCH 2001

FOREWORD

This report is issued as part of the Health and Safety Executive's commitment to make information about inspection and regulatory activities relating to the above sites available to the public. It is for distribution to members of the Sellafield Local Liaison Committee (LLC) and covers activities associated with the regulation of safety at BNFL Sellafield and Drigg and UKAEA Windscale.

These reports are distributed quarterly and will be available on the Internet. (They can be found at <http://www.hse.gov.uk/nsd/nsdhome.htm>). Site Inspectors of HM Nuclear Installations Inspectorate (NII) attend LLC meetings and will be happy to respond to any questions raised there. Any other person wishing to inquire about matters covered by this report should contact HSE, Nuclear Safety Directorate Information Centre on 0151 951 4103.

1 INSPECTIONS

Inspectors from HMNII made a total of 73 visits to the Sellafield, Calder Hall, Windscale and Drigg sites during the quarter. This involved a total of 275 inspector days on site (see table 1 for details).

Visits

Two representatives of the Canadian Nuclear Safety Commission (CNSC), the nuclear safety regulatory body in Canada, visited BNFL Sellafield and UKAEA Windscale during February. This visit was in association with the formal exchange agreement between NII and CNSC.

Promoting Health and Safety

Inspectors attended a number of the BNFL Safety Representatives Forums as part routine work. The nominated site inspector made a presentation to the Site Safety Reps Forum on NII's planned programme of co-ordinated inspections for next year.

2 ROUTINE MATTERS

2.1 SITE INSPECTION PROGRAMME

A summary of the work undertaken to meet Site Inspection Programmes (SIP) for the BNFL Sellafield, Drigg and UKAEA sites during the planning year 2000/1 is addressed in this section of the report.

Basic Inspection Programme

The Basic Inspection Programme consists of inspections to verify that BNFL and UKAEA are complying with the conditions attached to their respective licences. The more significant issues identified during these inspections are summarised below.

An inspection of the Sellafield site's arrangements for meeting the requirements of licence condition 24 was undertaken during January 2001. It was concluded that, following the issue of an Improvement Notice two years earlier, significant improvements to the systems for preparation, use and review of instructions had been achieved. However, whilst areas of good practice were found, the arrangements were not being consistently applied across the site. As the inspection only covered a small sample of the 40,000 instructions held on the site BNFL has been asked to review our findings with those from their own inspections/audits and to provide a programme of improvements. These improvements will be in line with the company's programme of work to address Team Inspection recommendation 5.

An inspection of the Sellafield site's arrangements for meeting the requirements of the Ionising Radiation Regulations 1999 (IRR99) was undertaken during February 2001. The inspection identified that although there was evidence of compliance with some of the new requirements, there was insufficient evidence to demonstrate that risk assessment and contingency plans were being prepared and implemented. It also appeared that not all the requirements of IRR99 had been fully identified and that the site arrangements were not wholly adequate. BNFL were advised to prepare a compliance matrix of IRR99 against its own arrangements to demonstrate their completeness. A revised and prioritised IRR99 implementation programme is expected to be provided during April 2001.

The site inspection programme for 2001/2 has been prepared. Inspections will be targeted in areas where safety performance is considered to be in need of improvement or where action is judged to be necessary to ensure the long term safety of the site. Monitoring of BNFL's actions

to discharge the requirements of the 1999 Team Inspection report and the outstanding Improvement Notices are included in this programme. The programme also includes work to encouraging the active participation of the workforce in implementing health and safety improvements.

Work to review the company's plans to address the historic legacy on the site, including the timely treatment of Magnox fuel and associated waste streams will also be included in next year's programme. A second assessment of the site safety culture is planned for the early part of 2002.

Emergency Exercises and Arrangements

Meetings to review BNFL's progress on improving the existing emergency arrangements have been held. Overall NII are encouraged by the progress during the past year and have formed the view that there is a willingness to address issues some of which have been long standing.

The effectiveness of the arrangements for roll call and accountability of personnel on the Sellafield site was demonstrated to a number of NII inspectors on 6 March 2001. The exercise was judged to be a success in that all personnel who may have been in the affected area were accounted for within an acceptable time.

The site level 1 emergency exercise on 27 June 2000 revealed problems with the access control arrangements in Pile 1, building B2 (see LLC report for Quarter 2 2000). Inspection has shown that UKAEA have carried out considerable work to improve the layout and management of B2. A partial repeat exercise was observed on 28 March 2001 and this was deemed to be a satisfactory demonstration of UKAEA's emergency arrangements.

2.2 TEAM INSPECTION OF OPERATIONS AT SELLAFIELD

Work to review and monitor BNFL's actions to respond to the "Team Inspection" report has continued. A summary of NII's work and BNFL's progress was included in the "One Year On" report published in February 2001. The status of recommendations and "key deliverables" has not changed since the publication of the report. Overall we are content that BNFL is giving this matter a high priority. However, it will be necessary for NII to see that the revised systems are effective before we can be in a position to "close out" the recommendations.

Monitoring of BNFL's progress and actions will continue to place a high workload on inspectors during the coming months. A number of co-ordinated inspections have been planned for the next 12 months to verify that improvements have been implemented at the workplace.

2.3 FALSIFICATION OF DATA IN THE MOX DEMONSTRATION FACILITY

BNFL has responded to all of the 15 recommendations contained in our report. Following a series of assessments and inspections NII has accepted BNFL's responses to all of these recommendations. A summary of our work in this area was included in the "One Year On" report published in February 2001.

BNFL has submitted a commissioning safety report in support of the restart of the plant and this currently being reviewed. Inspection will focus on the plant, its staff and the supporting procedures so as to demonstrate that future activities are in compliance with the relevant site licence conditions and that an appropriate monitoring and audit regime is in place. Future reporting of this work will be included in the MoX business section of the LLC report.

2.4 HIGHLY ACTIVE LIQUOR (HAL) STORAGE

BNFL has made satisfactory responses to all of the 22 recommendations contained in our report. A summary of our work in this area was included in the "One Year On" report published in February 2001. NII have agreed a "tank emptying curve" for the HAL stocks with BNFL and a specification under licence condition 32 was issued in January 2001 to formalise the delivery of the stock reductions. A detailed report providing more information on this topic will be published later in 2001.

2.5 CONTINUED OPERATIONS SAFETY REPORTS (COSR)

BNFL have developed a programme to prepare Continued Operations Safety Reports (COSR) for each plant and service on the site. These documents are submitted to NII in accordance with an agreed programme and to date BNFL has submitted the COSRs on time. In order to provide assurance that the safety case is adequate a selective number of COSRs have been subject to examination and assessment by NII. This work is aimed at providing assurance that the COSRs have been prepared and reviewed in accordance with agreed process and it ensures that an action plan for implementing risk reduction measures has been issued.

Experience has shown that it can take up to 18 months, rather than twelve months as previously assumed, to achieve full implementation of the actions from COSRs. Consequently, BNFL is seeking to reprogramme the timescale for the implementation of COSR actions and is currently under consideration by NII management.

The following summarises the status of the work completed by NII since the last report.

B315

An initial review of the COSR has been completed and some aspects of the case have been selected for detailed assessment. Inspection of the plant and equipment has been undertaken. The COSR is of a high standard, but the plant itself is showing signs of age. As it is a central routing point (and potential bottleneck) for Intermediate Level Waste (ILW) liquors and sludges, it plays a significant part in BNFL's strategy for ILW reduction. These concerns have been communicated to BNFL site management.

B331

Assessment work has been completed.

B355 (WVP lines 1 & 2)

The COSR was submitted in December 2000 and an initial assessment scope of work has been completed. Detailed assessment is scheduled for early in 2001.

B550

In line with the agreed strategy no assessment of COSR the has been undertaken. However, an acknowledgement to enable implementation of the COSR has been issued.

3 NON-ROUTINE MATTERS

3.1 GENERAL SITE MATTERS

Licence Administration

Work to progress relicensing of the BNFL and UKAEA sites to accommodate a change to the site boundaries has been undertaken. Both BNFL and UKAEA now appear to have addressed all the identified requirements, but NSD are awaiting clarification of internal HSE policy. Whilst the target date for the issue of the new licences had been set as 1 January 2001 a decision date for resolving this policy issue can not be obtained.

Site Electrical Supplies

A follow up inspection of the actions taken by BNFL following the loss of site electrical supplies in October 2000 was undertaken. BNFL appear to have addressed most of the issues and have developed an action plan to make improvements. This will be monitored as part of routine inspection.

Independent Compliance Advisors

Inspections have confirmed that the recently appointed independent compliance advisors (ICA)s are starting to have an effect and are raising significant issues with the site management.

3.2 INCIDENTS

A number of incidents were investigated by inspectors during the quarter. The details of five events are summarised below and have been reported in the Sellafield Newsletters. Some of these incidents may be included in a future edition of the HSE Quarterly Statement of Incidents.

Minor Fire in Waste Vitrification Plant (WVP)

On 24 December 2000 a small fire occurred inside a cell within WVP during the size reduction of solid waste and was brought under control without any environmental discharges or contamination to personnel. Investigation of this event was undertaken during January 2001 and identified that sparks arising from the use of grinding wheels had ignited a nearby accumulation of flammable waste. The use of grinding wheels to size reduce waste has been prohibited, flammable wastes have been removed and measures taken to control the entry of flammable materials into the plant. BNFL implemented these measures prior to the investigation being completed and hence no regulatory action was considered necessary.

Contamination of Contractor

A contractor received a high skin dose whilst working in THORP Head End Crane Maintenance Cell on 21 January 2001. Investigation has identified inadequacies in the risk assessment as well as general failings in the provision of the safe system of work. Furthermore the incident causes appear to similar to an incident which occurred during March 1999 in another plant on the site. BNFL's investigation report and action plan to address the failings are currently being reviewed. NII is currently considering what regulatory action to take.

Loss of ventilation systems to B215

On 26 January 2001 the ventilation system to the B215 high active liquid (HAL) storage tanks was inadvertently isolated whilst work to install a new ventilation system was taking place. Ventilation to the tanks was lost for approximately 3 hours and the plant emergency procedures were invoked. Our investigation identified failings in the control and supervision of operations in the plant. As a number of operations were required to be carried out in the plant to ensure

safety it was judged that it would not be in the interest of safety to issue a Prohibition Notice. However, BNFL were asked to identify those activities which were essential to support the safe operation of both the B215 plant and the Sellafield site and to cease non-essential operations.

Two Directions were subsequently issued using the powers granted to the Executive by the Nuclear Installations Acts. NII is currently considering whether further regulatory action is necessary (see section 4.2).

Contamination of Glovebox Workers

On 6 March 2001 two operators were contaminated with plutonium following the failure of a "posting bag" fitted to a glovebox in the B205 plant. This occurred whilst the operators were undertaking clean up activities on a number of gloveboxes which had become necessary following the embargo on the movement of plutonium contaminated materials (PCM). BNFL's assessment of the quantity of material released from the bag was in excess of the notification limits identified in the Ionising Radiations Regulations 1999. The NII investigation has yet to be completed.

Diesel Supplies

Water was found in the bottom of the Calder Hall bulk storage fuel tanks during an inspection. These tanks supply the fuel used by the emergency diesel generators. However, it was confirmed that no oil had been transferred to the local day tanks and so operation of the diesels in an emergency was not challenged. The water has been removed and a periodic monitoring regime adopted to ensure that this issue is managed.

3.3 MAGNOX REPROCESSING OPERATIONS

Reprocessing Operations

The reprocessing operations in B205 have been severely restricted since the completion of the maintenance shutdown in December 2000 due to a combination of factors noted elsewhere in this report. Whilst this is not of direct safety concern, NII is monitoring the situation to ensure BNFL is properly managing the potential impact on the Magnox fuel reprocessing programme.

Application of B215 Safety Case Requirements in B205

NII has issued an acknowledgement to enable BNFL to implement changes to the categorisation of B205 plant and operational controls identified by the recently completed B215 Continued Operations Safety Report (COSR).

Storage of Magnox Fuel

NII has two areas of concern regarding the problem BNFL is experiencing with the control of the B311 fuel pond conditions. The first is associated with the elevated dose rates in the pond hall which could result in increased radiation doses to the operating staff. The radiation dose exposure information has been reviewed by NII and we judge that BNFL is properly controlling access arrangements so to minimise the impact of the higher dose rates on the operators. The second concern relates to the rate at which leaking fuel is being handled. Inspection has shown that BNFL have made some progress in reducing the release of fission products into the water during fuel handling. We continue to monitor BNFL's progress in addressing the short and medium term problems preventing the faster treatment of the leaking fuel.

SIXEP

NII have monitored BNFL's actions following the identification of damaged internals to one of the ion-exchange vessels. These are used in the process to remove fission products from the fuel ponds purge water prior to it being discharged from the site. The pond water purge rates were reduced whilst this matter was investigated. Whilst we did not consider the vessel damage to be an immediate safety issue the pond water conditions are a safety issue (see above).

3.4 THORP OPERATIONS, INCLUDING MOX PLANTS

NII is currently assessing two significant modifications to the safety case for THORP. The first concerns the use of "burn-up credit" within the safety case. This involves the reduction of the concentration of gadolinium (a neutron absorber) in the irradiated fuel dissolution process. Should the safety case be accepted this could result in a significant reduction to the quantity of Highly Active Liquor waste generated from reprocessing operations. The other modification is to support an Advance Fuels Trial Programme involving reprocessing of some fuel with a burn-up slightly greater than the current limit for the plant.

MOX Plants

An inspection programme for confirming SMP's readiness to enter plutonium commissioning has been developed. During the next quarter NII will be involved in the assessment and inspection of BNFL's safety case to enter plutonium commissioning.

MOX Fuel Return

NII has asked BNFL to provide details of the optioneering carried out for the short and medium term handling of MOX fuel from its customers.

3.5 WASTE MANAGEMENT AND EFFLUENT TREATMENT

B215

The plant remains shutdown following the loss of ventilation event of 26 January 2001 (see section 3.2). NII have reviewed the safety case and associated procedures to enable the new ventilation systems to be connected using a revised method. A number of plant inspections have been completed to provide confidence that the revised working methods will be acceptable. When BNFL have resolved all the relevant issues and submitted adequate safety documentation NII will issue a Consent to enable the work to be implemented. NB. This was issued after the reporting period on 20 April 2001.

B211

A further meeting was held to confirm that progress on the development of contingency arrangements for B211 medium active tank farm is being maintained. Satisfactory progress had been made on both roof strengthening and replacement facility options. BNFL has reported that it has met its 2000/2001 target for conditioning Medium Active Concentrate (MAC) stored in B211.

Drigg

BNFL's progress on construction work associated with the Drigg Retrieval Project has been satisfactory. An inspection of the first of the new magazine retrieval modules to be installed was undertaken which confirmed that arrangements for containment and ventilation were adequate.

Retrieval operations have stopped again due to further work being required on fissile material assay equipment.

3.6 WASTE RETRIEVAL AND DECOMMISSIONING ACTIVITIES

Waste Retrieval & Decommissioning Plans

The approval of the current site decommissioning programme has been withdrawn since this was significantly out of date and not considered to be comprehensive. A revised and improved site decommissioning programme is expected to be submitted before the start of the next financial year. Inspection has confirmed that BNFL are on target to issue the revised arrangements for licence condition 35 (decommissioning) in line with the programme prepared to address recommendation 5 of the Team Inspection.

Meetings with senior BNFL management have taken place to review progress on the development of an Integrated Waste Retrieval Plan for the Sellafield site. BNFL have informed NII that these plans will be presented to NII by the end of 2001.

B38

BNFL's plans to ensure that sufficient systems are available to provide cooling to the silo compartments have been reviewed following the problems experienced during last year. The need to ensure the availability of these systems has had an affect on the work needed to prepare the plant for decommissioning.

B41

BNFL has been working for some years on a project to empty and decommission the waste silo. An important first step in this process is the provision of permanent argon inerting of the contents. An agreement to allow work to be carried out in preparation for the argon inerting of the vaults within B41 was issued in February. This work has started and it is understood that inerting is scheduled for later this year.

B209

A number of decommissioning projects have been affected by the PCM embargo. Inspections have confirmed however that steady progress has been made with the decommissioning of the DGPP.

B212 Cs Extraction Plant

Inspection has confirmed that progress with active commissioning of new plant has been delayed due to the ventilation problems in the B215 plant.

Box Encapsulation Plant

Potential safety issues due to the possible evolution of hydrogen during the waste grout operation have been identified. This has caused BNFL to review the technical basis of the plant for handling some of the planned feed material. It is understood that this work will be incorporated in the Waste Retrieval Plan for the site (see above). BNFL have been asked to inform NII if this potential problem will affect the availability of the plant for operations.

Sellafield "Dry Pac" Plant (SDP)

In the light of technical issues, relating to the drying of the waste and the timing of active feeds from the donor plants, BNFL have initiated a review of the programme for the construction and commissioning of this plant. NII have concerns that a delay in the availability of the plant will impact upon the current waste retrieval and decommissioning programmes. BNFL have been asked to provide further information and this is expected to be included in the site Waste Retrieval Plan reference earlier.

3.7 CALDER HALL OPERATIONS

An inspection of the arrangements for managing the requirements of the Fire Certificate and compliance with these arrangements, was carried out in conjunction with a fire safety inspector. This identified that significant improvements had been made since the previous visit in March 2000. Some minor improvements are still needed but HSE is generally satisfied with BNFL's improvements.

Considerable NII effort has been expended into investigating the Boron Dust incident that took place in December 2000 (see report for Q4 2000). The investigation revealed the failure mechanism to be crystallisation of the powder due to moisture absorption which created a crust to the powder. The investigation has confirmed that enough usable powder existed on the site in a form that would allow it to be distributed through a reactor in the timescales required. NB The problem is not localised to Calder Hall but has been subsequently identified throughout the MAGNOX fleet. BNFL has made arrangements to replenish stocks and periodically monitor the condition of the powder.

An increased number of operating rule breaches has been observed at Calder Hall. Although NII is always concerned about operating rule breaches, it would appear that the significant reason is the enhanced challenge the new BNFL Site Inspector role provides to BNFL's established view. NII is therefore satisfied that this change will improve safety once it has settled out aligning Calder Hall and Chapelcross Operating Rule format with the rest of the reactor community.

The refuelling programme for the Calder Hall reactors has been affected by the current difficulties associated with the storage and treatment of Magnox fuel (see section 3.3). Multiple outages per reactor and carrying out refuelling in two stages are now planned. These proposals have been reviewed and are not regarded as presenting a significant safety issue. BNFL have also introduced a team of contractors from Mitsui Babcock to support local staff during the maintenance outages at Calder Hall. This use of contractors parallels the approach elsewhere in the reactor community and has so far not raised any significant safety issues.

The Calder Hall / Chapelcross Annual Review Meeting was held during this quarter. Analysis of the review of the Reactor Pressure Vessel, The Reactor Core and the Shutdown Devices demonstrated no new ageing features and so supported continued operation of the reactors for a further year. Analysis of Health and Safety matters demonstrated good management of doses to workers and particularly good non nuclear safety management.

3.8 UKAEA WINDSCALE OPERATIONS

Pile 1 decommissioning

Following a number of non-compliances related to the Pile 1 decommissioning project a meeting was arranged on 23 March to discuss the implications. UKAEA responded positively to the issues raised and have proposed improvements which will strengthen supervision and control. NII will monitor the effectiveness of these changes.

Radioactive source event - joint inspection

Last quarter it was reported that that defective shielding had been found on a thickness gauge containing a redundant radioactive source. NII's investigation was completed with a joint inspection on 16 January with an inspector from DETR's Radioactive Materials Transport Division. The key matter for NII related to Licence Condition 7 (Incidents on the Site) and the site inspector has written to UKAEA raising several generic concerns.

Unguarded Machinery

A series of planned inspection of conventional safety hazards on the UKAEA site was undertaken on 31 January and 1 February during which an unguarded milling machine found. This was in premises leased from UKAEA and a Prohibition Notice was served on Johnson Controls Limited. Several other issues arose during the inspection and these will be progressed with UKAEA during future visits.

Inspection of radioactive sources

An inspection of compliance with Ionising Radiations Regulations 1999 in respect of radioactive sources was carried out on 7 and 8 March. To promote consistent regulation the NII team included the specialist inspector responsible for assessing the adequacy of sources at BNFL Sellafield. Areas of good practice were found and no serious deficiencies were identified.

4 REGULATORY ACTIVITY

4.1 PROSECUTION

None

4.2 LICENCE DIRECTIONS

A Direction, under LC22(5) requiring the modification to the B215 ventilation systems to be halted was issued on 5 February 2001.

BNFL were directed under LC15(4) to review the staffing and organisation of the operations being undertaken in B215 and to provide a report by 5th March 2001.

4.3 PROHIBITION NOTICES

None issued in respect of BNFL. For UKAEA Windscale, Prohibition Notice P/2001/NSD/PSW001 served on Johnson Controls Limited on 1 February 2001: a milling machine in B37 was found not to have guards fitted.

4.4 IMPROVEMENT NOTICES

None

TABLE 1

**QUARTERLY RETURNS FOR
SELLAFIELD, CALDER HALL, DRIGG AND WINDSCALE**

**DURING THE QUARTER
1 JANUARY - 31 MARCH 2001**

	BNFL SELLAFIELD ¹	BNFL CALDER HALL ²	BNFL DRIGG	UKAEA WINDSCALE
NUMBER OF VISITS	58	5	2	8
INSPECTION DAYS ON SITE	236	16	1	22
ENFORCEMENT ACTIONS ³	2	Nil	Nil	1
Incidents in the quarter likely to be published in HSE's quarterly "Statement of Nuclear Incidents at Nuclear Installations"	Nil	Nil	Nil	Nil
CONSENTS, APPROVALS	3	Nil	Nil	Nil
LICENCE INSTRUMENTS	12	Nil	1	1

¹ The figures shown for BNFL Sellafield are those for BNFL's chemical plants. They do not include figures for the plants within the Electricity Generation Group (see note 2 below)

² The figures shown for BNFL Calder Hall are those for the plants on the Sellafield site operated by (or for) the Electricity Generation group, primarily Calder Hall nuclear power plant.

³ An enforcement action may be a Direction issued by HSE under the nuclear site licence, an Improvement Notice, or a Prohibition Notice, or the laying of information in pursuit of a prosecution.

TABLE 2

**APPROVALS, CONSENTS, DIRECTIONS AND WITHDRAWALS
ISSUED
1 JANUARY - 31 MARCH 2001**

REF No	DESCRIPTION
BNFL Sellafield - Nuclear Site Licence No. 31F	
64	Approval of Operating Rule 6 for Calder Hall reactors
Direction No.2	Direction to halt the modifications to the B215 ventilation plant
Direction No.3	Direction to undertake a review of safety with the management and organisation of operations within the B215 area
Withdrawal No. 1	Withdrawal of approval 45 - Sellafield arrangements for LC3 decommissioning
Withdrawal No. 2	Withdrawal of approval 46 - Sellafield Decommissioning Milestone Programme

TABLE 3

LICENCE INSTRUMENTS ISSUED DURING THE QUARTER

1 JANUARY - 31 MARCH 2001

REF NO	DESCRIPTION
BNFL Drigg - Nuclear Site Licence No. 29A	
16	Specification of arrangements for complying with licence condition 36 control of organisational change
BNFL Sellafield - Nuclear Site Licence No. 31F	
343	Limitation of the accumulation or storage of liquid high level radioactive waste in B215
344	Specification for the submission of the arrangements for complying with licence condition 36 (Control of organisational change)
345	Acknowledgement of receipt of safety documentation for the active ductwork connection from the peabody scrubber to the new caustic scrubber
346	Acknowledgement of receipt of safety documentation relating to the operation of the B215 caustic scrubber
347	Acknowledgement to enable the implementation of B215 continued operation safety report
348	Agreement to commence active commissioning of B215 caustic scrubber
349	Acknowledgement of safety documentation for Street 3 ventilation system
350	Acknowledgement of safety documentation for the implementation of the B215 continued operations safety case
351	Agreement to start active commissioning of the B41 Argon inerting system
352	Acknowledgement of B355 and B364 waste vitrification plant lines 1 and 2
354	Acknowledgement of safety documentation for the B550 continued operations safety case
355	Acknowledgement of PCSR for B38 Mk5 cooler to compartment 7 flow assessment
UKAEA Windscale - Nuclear Site Licence No. 46A	
56	Acknowledgement to Cat B modification to re-categorise the B52 plant