

HM NUCLEAR INSTALLATIONS INSPECTORATE
BNFL SELLAFIELD AND DRIGG AND UKAEA WINDSCALE LOCAL LIAISON
COMMITTEE REPORT
QUARTERLY REPORT FOR 1 APRIL TO 30 JUNE 2002

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. 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.

This report will be put onto the HSE Website at

<http://www.hse.gov/nsd/nsdhome.htm> under "Local Liaison Committee Reports"

1 INSPECTIONS

Inspectors made a total of 65 visits to the Sellafield, Calder Hall, Windscale and Drigg sites during the quarter. This involved a total of 268 days on site (see table 1 for details).

Promoting Health and Safety

Inspectors attended all four sessions of the BNFL Sellafield Safety Conference held on 12 and 13th June 2002. The purpose of the conference was to launch the "Safety Representatives Charter" and raise the profile of safety representatives on the site. A presentation addressing our expectations of the work and role of safety representative was made at three of these sessions. Inspectors also attended a number of the BNFL Safety Representatives Forums as part of routine work.

At the request of BNFL the nominated site inspection made a presentation to the Team Leaders and provided his views on the successes achieved during the last year and highlighted the challenges ahead.

Inspectors attended meetings of the three LLC sub committees. At the "Regulatory Compliance" sub committee meeting information on the work done to address the Team Inspection recommendations was presented as well as a summary of the main findings from inspection activities. We also outlined our expectations for the long term management of the Sellafield site following the company providing details of its proposed Historic Waste Management strategy.

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 2002/3 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 revised BNFL incident reporting and investigation arrangements, including learning from experience (LFE), was undertaken. We were encouraged by the change in attitude of the site management towards this long-standing issue. Real progress has been made since the last inspection on this topic (Nov 2000) and we have some confidence that the company will be able to address the requirements of Team Inspection recommendations 14 and 15 in the near future.

A coordinated inspection to assess the effectiveness of BNFL's Independent Inspection Audit and Review processes was undertaken. The main objective was to monitor BNFL's progress in responding to Team Inspection recommendation 4 and was undertaken in two parts: ie at Sellafield site and at the corporate centre at Risley. It was clear that the workload on the company in responding to the Team Inspection recommendations had been demanding and that many new and improved systems had been put in place at both corporate and site levels. We were encouraged that progress had been made towards meeting the requirements of recommendation. Many of the building blocks for effective

Independent Inspection, Audit and Review systems are in place. A number of new good practices and arrangements had been established, were operating and were developing and maturing. However, at both site and corporate levels, we judged that further improvement and greater clarity in how these arrangements worked was necessary. We have provided advice to the company and await the response as to how it will take this forward, in order to close-out Team Inspection recommendation 4.

Emergency Exercises and Arrangements

The effectiveness of the Sellafield site emergency arrangements, based on an event associated with the failure of pipework to the B30 irradiated fuel storage pond, was observed by inspectors during exercise PSEIDON on 21 May 2002. Overall the exercise was judged to be a satisfactory demonstration of the site emergency arrangements and a number of other areas of good performance were observed. We were impressed by the test facility used to develop repair equipment used to respond to a leak from the B30 pipework. It was evident that the company had spent a considerable amount of effort developing the techniques and training personnel to respond to this specific event. However, more work is needed to develop robust contingency plans for all reasonably foreseeable accident scenarios for B30 and other high hazard plants and to train and exercise persons responding to such events on the contingency measures.

Progress against the improvements to the arrangements for the detection and alarming of criticality hazards within the Separation Area was monitored. BNFL expect the improvements to enable prompt alerting of personnel within the 500 mGray zone to be completed by August 2003. Now that the scheme has been funded we are content with the progress being made.

A desk top exercise associated with the site new emergency arrangements for responding to a seismic event was observed. This was the first time a seismic event had been exercised and follows several years of pressure from NII on this matter. The exercise was considered to be a good start, but further development work is required.

Progress against the LC11 emergency arrangements improvement plan has been monitored. The majority of the new Sellafield Site Procedures (SSP) have been approved and are in the process of being issued. These will be progressively implemented over the next 12 months with a full implementation being planned by March 2003. We are content with the progress made to date and the timetable for full implementation.

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 report summarising work completed during the past two years was issued with the July 2002 edition of the NSD Newsletter.

BNFL has submitted further claims for completion of recommendations and continued to submit claims for achievement of the work identified as "key deliverables" in their response to our report. Evidence files for recommendations 6, 24, 26 and 27 were provided during the last period. We have completed the review of the evidence file for recommendation 9 and agreed to its closure. BNFL has been requested to provide more information to support the claims for recommendations 10 and 26; work to assess the others continues.

BNFL's plans to make improvements to the training and SQEP arrangements as required by Team Inspection recommendations 11 and 12 were reviewed. We were encouraged to find

that senior management now appear to have an understanding of the scope of work necessary to address this matter and have set up a properly resourced project to address it. However, BNFL's plans to have completed sufficient work by October 2002 to enable closure of the recommendations appear to be optimistic.

Further inspections of BNFL's progress towards implementation of recommendation 23 (plant labelling, drawings and configuration control) have been completed. BNFL is making good progress towards satisfactory implementation of this recommendation.

2.3 CONTINUED OPERATIONS SAFETY REPORTS (COSR)

BNFL has developed a programme to meet the requirements of licence condition 15 (periodic review and reassessment of safety) to prepare Continued Operations Safety Reports (COSR) for each plant and service on the site. These COSR documents are submitted to NII in accordance with an agreed programme. 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.

BNFL has continued to progress satisfactorily its programme for preparing and delivering COSRs. However, following the implementation of the COSR for the B303 salt evaporator facility in 2001 the number of recorded failures of safety equipments increased. At our request BNFL has carried out a review of the B303 COSR implementation process which has revealed some problems with respect to the interpretation of outputs from safety analysis into safety equipment requirements on plant. NII has asked BNFL to apply the lessons learnt from B303 COSR implementation to its COSR programme. One further COSR covering Ducts and Trenches was submitted during the reporting period; 23 have been submitted to date. BNFL has also completed its preparations for integrating the safety cases for two of its highly active waste storage facilities (the main tanks and the buffer storage tanks). BNFL is finalising the integrated Plant Maintenance Schedule for the combined plants.

At our request, BNFL has brought forward its preparation of the periodic safety review of the old Magnox fuel storage pond, so as to be able to address early likely major difficulties. BNFL is also progressing methodically its preparations to start emptying in 2003 six sludge tanks in its Floc Retrieval Plant. These hold some 8000 tonnes of sludge which is to be progressively removed and transferred for encapsulation. 'Encapsulation' involves mixing the sludge with a cement grout for safe passive long term storage in stainless steel drums to modern standards. However a problem with the integrity of air supply lines on the plant may delay the start of retrieval of sludges by several months.

3 NON-ROUTINE MATTERS

3.1 GENERAL SITE MATTERS

Relicensing Windscale/Sellafield

Previous reports to the LLC have referred to the proposed relicensing of Windscale and Sellafield. This will give effect to several boundary changes, including the transfer of B14.1 from UKAEA Windscale to BNFL Sellafield. The necessary clearances have now been received to enable relicensing to proceed. Completion of relicensing is now expected October 2002.

Fire Safety Action Plan

A review of progress against the Fire Safety improvement plan identified that the majority of the new Sellafield Site Procedures (SSP) have been approved and in the process of being issued. We understand that these will be progressively implemented over the next 8 months with a full implementation being achieved by December 2002. We are content with the progress made to date and the timetable for full implementation.

Control of Nuclear Matter – Licence Conditions 4 & 5

Progress against the issue raised by last years inspection were reviewed. This identified that work is behind programme and we remain concerned that the full scope of the work has yet to be understood by the company.

Control of Software Modifications – Licence Condition 22

Inspection has confirmed that BNFL had implemented sufficient work to address the requirements of Improvement Notice I/2000/NSD/HKR/001 to enable it to be discharged.

Operating Instructions - Licence Condition 24

Monitoring of progress against the Operating Instructions improvement plan identified that that the Revenue Expenditure Proposal (REP) for the work had not been sanctioned and consequently a 6 week slippage in the programme had occurred. BNFL subsequently provided confirmation in mid May that the REP had been approved and supplied a copy of the revised improvement plan. We highlighted that several slippages to the improvement plan had already occurred and enforcement action would be considered if any further slippage occurred.

Arrangements for Maintenance – Licence Condition 28

BNFL's response to the LC28 Maintenance inspection and proposed improvement plan was discussed. The newly created Civil Engineering Authority has completed the review of the inspection findings from the 19 high hazard plants. Whilst this has reduced the number of outstanding actions a number of significant actions remain and these need to be given priority. We await BNFL's report of the review and programme to implement improvements on plant.

Decommissioning Arrangements - Licence Condition 35

In July 2000 BNFL undertook to revise the Sellafield site decommissioning arrangements as required by licence condition 35 to take account of our concerns. New site arrangements were expected to be issued in November 2001 with implementation being achieved by March 2002. Inspection in February 2002 identified that the new site arrangements had not been issued. A subsequent inspection in May found that the arrangement had still not been formally issued and that the earliest date for full compliance is now December 2002. Subsequent discussion with BNFL senior managers identified that a further delay in achieving full implementation of the new arrangements may occur since the recently appointed Head of Site Remediation would need to be involved. We are currently reviewing the available regulatory options to resolve this long standing and important compliance issue.

Risk Assessments

BNFL's progress in addressing the requirements of the Risk Assessment Improvement Notice has been monitored. Work appears to be on programme to meet the November 2002 compliance date.

Improvement to the Separation Area

BNFL outlined proposals for the future of part of the site known as the Separation Area. We were encouraged to learn that action is to be taken to reduce the size of the Separation Area and that a number of controlled zones are to be created. Each zone will be supported by dedicated changerooms and office accommodation; when completed this will enable the various temporary building and structures to be removed. BNFL is to provide details of these plans by letter.

BNFL's progress in addressing the requirements of the Separation Area Improvement Notice and issues associated with the control of contamination of wild life were monitored. Work appears to be on programme to meet the Improvement Notice and a sample inspection of the new arrangements in place in LAEMG will take place in July.

Two reports identifying options to reduce aerial discharges from the B30 and B310 open fuel ponds have been provided. We are currently reviewing these reports and will work with the Environment Agency to encourage BNFL to implement appropriate measures to reduce the uncontrolled discharges from these ponds.

Improvements to Alarm Management

BNFL progress to make improvements to the alarm management of its plants has been monitored. Our inspection work is currently being limited by shortage of resources, but this project remains an improvement project for the site.

Shield Door Improvement Project.

A meeting was held to discuss BNFL's site wide shield door improvement project. This identified that whilst technical assessment reports have been generated, little has been achieved in tangible engineering improvements as of late. We have required BNFL to submit an improvement programme by the end of September 2002. We understand that this has prompted the project team to seek funding for the required engineering improvements and that the site Nuclear Safety Committee has requested regular progress updates.

Historic Waste Management

BNFL is following a structured Front End Loading process to define delivery options for managing legacy wastes. Our assessment has confirmed that the process is likely to identify suitable options for dealing with wastes, but was very concerned about lengthy delays to existing projects. Currently, BNFL is at the Business Planning Stage, which sets objectives and defines an overall programme of requirements and needs. Until this is completed, BNFL is holding back from later stages, which identify facilities needed and consider delivery options.

3.2 INCIDENTS

A number of incidents were investigated by inspectors during the quarter. The details of one event is summarised below and this has been reported in the Sellafield Newsletter. This incident may be included in a future edition of the HSE Quarterly Statement of Incidents.

Fall through fragile roof

An investigation of the actions taken by BNFL personnel in the planning and supervision of the work undertaken by a contractor who fell through a fragile roof was undertaken. This identified significant failings in the implementation of BNFL's Safe Systems of Work arrangements. Statements were provided by eleven individuals and a number of documents obtained. We are currently reviewing the available evidence to determine whether further regulatory action is to be taken.

3.3 MAGNOX REPROCESSING OPERATIONS

A meeting to review safety performance within the Magnox Reprocessing group was attended by a number of the site inspection team. We were encouraged by the open manner in which the review was conducted and made a number of suggestions for improving the effectiveness of the process.

B205 Operations

During this quarter, reprocessing operations have continued at a rate that is compatible with the declared lifetime programme for the Magnox facilities. The Magnox Reprocessing plants are due to shutdown for essential maintenance and project work from September to December this year. NII intends to issue a specification requiring BNFL to apply for our Consent to resume active operations. Work is in hand to identify the specific requirements to be addressed during the shutdown and in the restart submission package. Extra inspection resource has been allocated to B205 and B268 for the duration of the shutdown. We have commenced assessment of significant modification proposals that are to be implemented during the shutdown period.

Fuel Handling Plant

Inspection has confirmed that BNFL has made progress with improving the conditions in the Fuel Handling Plant pond and with recovering the backlog of poor condition fuel. In particular, good progress has been made with developing more reliable decanning equipment for damaged fuel. However, progress has been disappointing in the area of re-establishing the storage container gas seal that prevent the contamination of the bulk pond water by corroded and leaking fuel. This has been due to a series of factors that have not all been foreseeable.

Inspection has identified that BNFL has made some progress with interface arrangements between the Magnox power stations and Sellafield in areas such as avoiding problems of contaminated fuel skips and fuel burnup issues.

Wet Inlet Facility

BNFL has submitted the pre-active safety commissioning report for the Wet Inlet Facility that is being constructed to replace part of the function of the older B27 pond. BNFL is expected to apply for our agreement to enter the active commissioning phase in November

this year. Our assessment of both the safety justification and the operational readiness has commenced.

3.4 THORP OPERATIONS, INCLUDING HIGH LEVEL WASTE PLANTS

Thorp Operations

As described the previous report, THORP shut down at the end of March for a planned maintenance outage. During this period the control of work during the outage was inspected. This included inspection by the plant inspector and radiological protection specialist inspector, to monitor BNFL's progress in IRRs compliance (risk assessment etc) and how work was controlled and supervised during an outage. This was partly to assure that lessons had been learned from the 'scaffolder contamination event' in 2001 (see 1st quarter report for 2002). Our view was that significant progress had been made with risk assessment and work control since that event. Plant personnel, Supervisors and Safe System of Work Controllers were seen to be well aware of their responsibilities. Dose control was good and the general standard of topics inspected was satisfactory.

Subsequently, the plant has made a phased start up and is operating normally to programmed throughputs, subject to the constraints of Highly Active Liquor stocks.

Reduction of Gadolinium Poisoning in the Thorp Dissolvers

A major project has been in development for several years and concerned proposed modifications for the reduction of Gadolinium poisoning in the Thorp dissolvers. NII has been involved in ongoing discussions and assessment of the project. Following assessment of the safety case and on plant inspection, NII was satisfied with the proposals. A Licence Instrument was issued this quarter which permissioned BNFL to proceed with this project. After the April maintenance outage, the first and subsequent fuel batches sheared in the Thorp Head End Plant were subject to the revised operating conditions.

This modification involves reducing the concentration of gadolinium nitrate in the THORP reprocessing process. Gadolinium is an inert diluent and is primarily used as a neutron poison for criticality control purposes, principally in the dissolvers. As a compensatory measure for reducing the gadolinium concentration BNFL, proposed a safety approach based upon a methodology that includes fuel burn-up credit, ie taking credit for the loss in reactivity in fuel elements arising from the reactor dwell-time. This type of safety approach was relatively novel in the UK because it moves away from the traditional and conservative 'fresh fuel' assumption.

Our review of the safety case considered a number of pertinent factors including the basis of the burn-up methodology, the means by which BNFL demonstrate compliance with their own safety criteria and the use of overall risk arguments to demonstrate that the net benefits of such an approach is worthwhile. Whilst at first sight it might be of concern that safety margins are apparently being eroded in the dissolvers, there is still considerable defence in depth with respect to criticality safety, and the current approach is supported by operating experience gained over a number of years of operation.

BNFL also linked the proposed gadolinium reduction to the acceleration in the programme for vitrification of highly active liquid (HAL) waste. The reason is that less gadolinium added, means less HAL produced and thus less vitrified waste. This leads to an overall decrease in site risk when gadolinium reduction is taken into account.

THORP Head End Plant Dissolver Basket Replacement Project

As reported last quarter, work on the THORP Head End Plant Dissolver Basket Replacement Project has continued. These baskets need replacing because of corrosion of the basket mesh. The corrosion was expected and has been very gradual. Each basket weighs ~ 3 tes and is 5m high and will be lifted out of cell into a shielded container, then out of the plant and will be transferred to and be stored in the B27 pond. The safety significant work will be undertaken during the outages this year. Preparations have been made for the next stage of the project which involves completing the steelwork structure, which will eventually locate the shielded transport containers for basket removal. An inactive proving run of the flasking and transport arrangements is planned during the next maintenance outage in August 2002. BNFL Project Management liaison arrangements with NII continue satisfactorily.

Return of Takahama 4 Fuel to Thorp for Pond Storage

The eight MOX fuel assemblies supplied to Japan's Takahama 4 facility, are to be returned to BNFL Sellafield later in 2002. The fuel was loaded onto a transport ship, which left Japan at the beginning of July for the trip to the UK. The fuel elements will go into temporary storage in Thorp's receipt pond.

Last year, we considered BNFL's modification proposal and safety case for this activity. Our assessment of the safety documentation did not identify any significant safety concerns associated with the proposals and acknowledged the proposal, which thus allows this modification to proceed. BNFL are considering the options for recovery of the fissile material and reusing it. The implementation of any recovery processes will be subject to the further submission of a modification proposal/safety case and NII coming to a view on the proposal.

In June 2002, the return of the fuel was challenged by Greenpeace, who made a case that the material was 'waste' and queried whether EA had permissioned the return of this material (under the Transfrontier Shipment of Radioactive Waste Regulations 1993 (SI.1993 No. 3031), which came into force on the 1st January 1994). EA considered the matter and as part of their deliberations, BNFL provided an Options paper on how BNFL would deal with the returned fuel. All of these involved re-use of the fissile material. EA concluded that the material was not 'waste' and therefore not covered by the Transfrontier Shipment of Radioactive Waste Regulations.

High Active Liquid Storage.

BNFL's prudent management of the stocks of Highly Active Liquor, (HAL), stored within the Highly Active Storage tanks, (HASTs), continues to be inspected to ensure compliance with the HAL stock reduction Specification No. 343 issued in January 2001. Ongoing poor vitrification performance, combined with the need to prioritise the accommodation of Magnox reprocessing waste liquors, means that Oxide fuel reprocessing continues to be constrained for the foreseeable future by vitrification performance.

Assessment continues of the safety case to support the continuing receipt of THORP waste liquors into B215. This is shortly to be supplemented by further planned submissions, relating to the management of localised elevated temperatures, observed within the Highly Active Liquor storage tanks from time to time. We are actively encouraging the translation

of BNFL's R&T development work into further improvements to plant operations. Similarly, NII is to undertake further assessment of the rate of failure of HAST cooling coils.

BNFL has submitted an interim safety case for the management of "hot spots". The case is both complex and multi faceted and also requires BNFL to carry out further work to reduce uncertainties. Our assessment of the interim case has confirmed that it takes account of previous experience and sets in hand prudent safety measure to prevent and control "hot spots".

An unannounced silent hours emergency exercise, based on the loss of several cooling water supplies to the HASTs, was conducted. This provided the opportunity for the plant operators to demonstrate a good knowledge of the appropriate emergency response measures.

Vitrification Plant (Lines One and Two).

BNFL continues to make progress towards installing the important safety upgrades, to bring the hydraulic shield doors up to best modern standards. The licensee's proposals to similarly improve the shield door control systems were also discussed in this quarter, likely to lead to further plant improvements within the next year, which should also substantially reduce the radiation exposure risk to plant operators.

Progress towards the planned implementation of the plant COSR continues to be inspected. Adequate progress continues to be achieved in delivering a range of plant engineering improvements that have been derived from the COSR.

Both vitrification lines having operated during this quarter, but also had extended down times for maintenance. It is of some concern that production of containers remains below the annual target of 250 for the current year. However, we continue to be encouraged by evidence of BNFL's improved planning of major plant maintenance activities and it is hoped that these may lead to some required improvement in vitrification performance.

An improvement in the rate of transferring the accumulated solid radioactive waste from within the plant to the site store has been delivered in this quarter. The improved local fire fighting facilities within the plant were inspected. We concluded that, subject to a further minor safety modification, the fire fighting measures were adequate.

Waste accumulation within the plant remains a chronic problem, the disposal of which will warrant continued attention.

Vitrification Plant Line Three.

Active commissioning has continued during this period, vitrifying Highly Active Liquor (HAL) from B215 and transferring the vitrified containers to store. Phased active commissioning operations are continuing to be inspected and assessed. We are supportive of the careful, measured approach being taken to the active commissioning of Line Three.

Vitrified Product Store

Inspection of the records and procedure for the waste containers held within the store provided confirmation that the Quality Assurance arrangements were satisfactory.

BNFL's proposals to rectify the corrosion of the civil structure of the store have been discussed and progress will be monitored throughout 2002.

3.5 MOX OPERATIONS

Sellafield MOX Plant

Uranium commissioning of SMP continued during the quarter. After clean-out of commissioning uranium from the front end of the plant, Plutonium Oxide was introduced to the plant for the first time at the end of April, following readiness inspections by both BNFL and the NII. Plutonium commissioning is being carried out on a phased basis along the production line and it is understood that this is intended to last for about another 18 months. After this time BNFL will review its safety case in the light of the commissioning results and apply to NII for permission to commence full operation. We continue to monitor progress of the work and advancement of the MOX material along the production line.

The progression of Plutonium through the production line was also a milestone for NII's inspection processes. The Project Inspectors who had been regulating the commissioning of the plant, handed over regulation to one of the Sellafield Site Inspectors at the end of June. The plant will now be inspected routinely throughout the active commissioning phase, in the same manner as other plants on the Sellafield site.

MDF

An inspection of the operational records associated with criticality safety in B33 was undertaken. The actions taken to address issues raised during a previous inspection were also reviewed.

3.6 SOLID WASTE MANAGEMENT

PCM Strategy

A satisfactory understanding has been reached between regulator and licensee through an exchange of letters on PCM strategy and has been well received by NII as it offers significant prospects of progress to meet Licence Instrument (LI) No 324. This understanding will be formalised in an agreement following production of a Nuclear Safety Committee paper. Review of progress against the Specifications since their issue in August 2000 is currently taking place; findings to date are summarized below.

B100 series PCM stores

Demonstrable commitment and commendable progress is being made towards emptying the B100 series stores. We issued an exemplar Improvement Notice (IN) in December 2000 because of the unsatisfactory conditions within B136. Since this time, BNFL has made excellent progress to prepare for PCM recovery has been made, the programme and plans for retrieval appear properly resourced, and are presently on track to meet the Specification deadline.

B158 traditionally forms a compound constituting a hard standing area, the Specification targetted the accumulation of PCM crates present on the hard standing area. Inspection has shown that good work to completely clear the B158 hard standing area of PCM crates and store them in an improved location has been effected. This part of the Specification has been effectively discharged ahead of schedule.

B300 series PCM stores

These stores could not be included in Specification (LI No 324) as there had been problems identified with their structural condition, such that the timeframe for emptying the contents of the stores needed to be accelerated by BNFL. The difficulties were appreciated by BNFL

and we summarized the regulatory position at that time in correspondence. Following protracted, extensive correspondence and an unannounced inspection, we have now reached a satisfactory understanding through an exchange of letters. This understanding will be formalised in an agreement following production of a Nuclear Safety Committee paper. Substantial progress towards the emptying of these stores will be made by the end of 2005.

Drigg PCM Magazines

The Drigg Magazines were also omitted from LI No 324 because we had been impressed by BNFL's firm public commitment to empty them by 2006. This situation has not changed: good progress continues to be made and active commissioning is soon to start on one of the new pods to facilitate safe emptying. A similar firm commitment to empty the B720 PCM stores at Drigg on the same timescale has also been made and is being closely monitored by NII.

3.7 LIQUID EFFLUENT TREATMENT, WASTE RETRIEVAL AND DECOMMISSIONING

Review Meeting

A six monthly meeting to review health and safety performance within this Operating Unit was held.. We asked local management included to address a number of matter, including the categorisation of plant modification proposals, recent incidents in B38 plant, and the lack of Safety Representatives in the Decommissioning Unit.

B6, B206, B207, B277

Progress with decommissioning of these facilities has been monitored and found to be progressing steadily.

B209

Progress with decommissioning of B209S solvent cells has been monitored. An inspection of the preparatory work for waste retrieval was made, including the preparation of safety documentation. Although progress here is satisfactory, decommissioning work in other areas of B209 such as Line 3 is at a standstill due to lack of BNFL resources.

B212 CEP Decommissioning

Systems for the Receipt, Despatch and Movement of Materials, and Control Rooms and Alarm Panels have been inspected. No significant deficiencies were identified. Issues from commissioning have been satisfactorily resolved, and a Licence Instrument permitting the project to move to normal operations was issued.

B29

An inspection was made on progress of development of emergency arrangements, implementation of COSR recommendations and development of programmes to support POCO activities on the plant. Steady progress is being made.

B30

Inspection has confirmed that control of the radioactive materials held in the B30 pond is poor significant and aerial discharges direct to atmosphere are occurring. As there was no routine direct monitoring of these discharges both NII and the Environment Agency had required sampling equipment to be installed. Recent measurements have confirmed that the aerial discharges are in excess of the reporting levels required by regulation 30 of the

Ionising Radiations Regulations 1999 (IRR99) for uncontrolled aerial discharges. However, as these discharges are covered by the "Approved Places" section of the current Environment Agency authorisation they are not required to be reported as a loss of control under IRR99 regulation 30. We are working with the Environment Agency to encourage BNFL to implement measures to reduce the uncontrolled discharges from the open ponds.

Meetings were held to discuss options to improve secondary containment to the B30 fuel pond and the availability and reliability of make up water supplies. We are to request BNFL to provide improvement plans for these areas.

B38

Preparations for the implementation of a revised safety case were inspected and found to be satisfactory; accordingly a Licence Instrument was issued.

An extended trial of the nitrogen inerting system to the plant was observed. The trial demonstrated that BNFL could manage a temperature / hydrogen excursion in one of the third extension compartments. A demonstration on the older (more challenging) compartments is planned for this autumn.

An inspection of B38 records showed that the requirements of Specification LI 385 had been met, but there was scope for further indexing work and some records needed relocating as their current storage conditions were unsatisfactory.

An inspection of Safe Systems of Work arrangements in the plant covering a range of job-types was carried out. We were informed that local management are in the process of recruiting and training five dedicated Safe System of Work Controllers to supplement the six Shift Team Leaders that currently perform this task.

Progress with B38 compartment 7 clean-up was inspected. Development work has been progressing steadily and work on B38 itself should start in August. Installation of the chiller for compartment cooling has proved a more challenging task than envisaged; it is now unlikely to be available until end of July. The equipment to make a direct connection between the cooler and compartment 7 is now available. Work to install a permanent connection to the central diffuser before next summer is generally on programme.

B41

A meeting was held to discuss the Safety Case Strategy Overview Report (SCSOR) recently issued for the plant. This report sets out BNFL's strategy for reducing the risk from B41 to a more acceptable level and for preparing the silo for waste retrieval operations. We considered the SCSOR to be a useful report, and found the strategy to be acceptable. Nevertheless the need remains for the work to be done as quickly as reasonably practicable. A visit was made to a development rig for the tunnel clearance, charge-hole plugging work

B158 North Group Compound

Progress with B136 decommissioning has been monitored, and the B166 facility (for the receipt and processing of PCM waste retrieved from B136) has been inspected. Arrangements for controlling the safe re-entry into B136 and preparatory work prior to the commencement of waste retrieval operations have also been inspected. A Licence Instrument was issued for the first stage of the work. However, there are a number of

technical issues with the safety case which must be resolved before the start of waste retrieval will be permitted.

B303

We have asked BNFL to review the implications of a number of events involving the failure of equipment in the plant which is identified as having a safety function and provide a report to NII. The number of failures appears to have increased significantly since the implementation of the B303 COSR in 2001 and the lessons learnt from difficulties on this plant should be applied to future COSRs.

B804 (EARP) Liquid Effluent Treatment Plant

Meetings have been held between NII/EA/BNFL to consider options for further treatment of effluents in EARP using tetraphenyl phosphonium bromide (TPP) to reduce Technetium concentrations in discharge waste streams. We have assessed BNFL's proposals for the trial use of TPP and concluded that a long term radioactive waste management issue remains since technetium may be incompatible with NIREX. However, no other safety issues were identified; environmental issues are being considered by the Environment Agency. Further meetings will be required to agree and establish a preferred option for further treatment of effluents.

3.8 SITE AND PLANT SERVICES, INCLUDING RESEARCH & DEVELOPMENT

B229 Technical Laboratories

Significant progress has been made by BNFL in improving the system for receipt of analytical samples into B229 following a number of incidents where samples received from B205 had been mislabelled. Conditions for Acceptance (CFA) have been developed and are being issued to customers. A site wide auditing system against the CFA is also under development. We will be paying close attention to implementation of these arrangements and also to adequate control of samples within B229.

B235 High and Medium Active Laundry

A review of progress against the Laundry COSR Improvement programme identified considerable slippage from the previously agreed programme timescales. We have obtained a revised programme from BNFL against which we will monitor progress and consider regulatory action if there is further slippage.

An inspection was undertaken to review air-line operations following an incident where an air line had become disconnected. We had concerns on the use of a particular type of airline suit and on the maintenance arrangements for air-line suits in general which we are pursuing with BNFL. Control and supervision arrangements for Safety Equipment Section workers responsible for dressing/undressing air-line suit operators were considered to be reasonable. We did however identify information gaps in local safe systems of work with respect to risk assessment. BNFL has been asked to take corrective action.

Site Railways

Inspection revealed that many non-maintained flatrol vehicles were being used by BNFL for movement of radioactive materials around Sellafield. BNFL has responded to the request for urgent corrective action and subsequent inspection has indicated that these internal flatrols are being maintained. No concerns were raised on maintenance arrangements for flatrols used off-site on the main rail line or for locomotives (on or off-site). BNFL has

already recognised deficiencies in track maintenance and is addressing these as part of its COSR implementation work.

A meeting was held and an inspection undertaken to establish BNFL's progress against the COSR. The process in place to ensure COSR delivery and progress made to date were considered reasonable. An unannounced out of hours inspection gave confidence in BNFL's control and supervision and emergency response arrangements.

Active Liquor Pipebridges

An inspection was undertaken of arrangements for containment and leak detection within active liquor pipebridges. These arrangements were considered adequate. However, we have advised BNFL to improve communication arrangements between donor plants responsible for maintaining the pipe work and Plant Services responsible for maintaining the supporting civil infrastructure.

3.9 CALDER HALL OPERATIONS

Compliance inspections

During these visits NII's site inspector carried out planned sample inspections of the licensee's compliance with the conditions attached to the Site Licence and other relevant health and safety legislation. Where these inspections revealed that improvements to the site's arrangements were required the site inspector raised them with the Station Manager and is regularly monitoring the Station's response.

Incidents on Site

As part of NII's planned inspections its site inspector examined the licensee's arrangements for the recording and investigation of events on the station, and undertook independent investigations to the extent that was warranted by the significance of the event. In general the site inspector was content with how these matters had been progressed and no events occurred which warrant highlighting.

Emergency Exercises

There were no routine witnessed emergency exercises held during the period. Progress towards addressing improvements identified during observation of exercise REDLAC 28 has been reviewed and judged to be satisfactory. Development of the exercise scenario for the next Calder Hall demonstration exercise planned for 16 January 2002 has been progressed by the site inspector during this period.

Refuelling Reactor 1

Refueling activities on Reactor 1 resumed in May under active commissioning arrangements following the event on 8 February 2002. Defuelling had been suspended until BNFL confirmed how it proposed to regain confidence in the recommissioning process and provide reassurance to both itself and NII that there should be no further uncontrolled and unplanned events during the recommissioning of the fuel routes on each reactor. Prior to the resumption of defuelling BNFL demonstrated to our satisfaction that it had completed a satisfactory programme of work to address issues associated with the commissioning fault. No significant problems occurred during the remainder of the refueling operation.

Cessation of Generation at Calder Hall

On Friday 21 June BNFL announced that for business reasons none of the 4 Calder Hall reactors will be operated beyond 31 March 2003. Calder Hall will remain a licensed nuclear installation and continue to be regulated by NII during the next phases of its life which, following final closure, are defuelling and decommissioning.

Safety Case Arrangements

A specialist inspection of the joint arrangements for the production and assessment of safety cases for Calder Hall and Chapelcross was carried out. This identified the need to complete a programme of work and a letter defining NII's requirements was sent on 21 May. The Stations were aware of the majority of shortfalls identified by the inspection but these were brought into sharper focus by NII requesting a programme of work.

A specialist inspector made a general inspection of the essential electrical systems during June. Although a number of good practices were observed some points of detail were identified where improvement could be made.

Chapelcross Dropped Fuel Incident

Recommendations 9, 10, 11 and 12 in NII's investigation report of this incident required work to be completed after the resumption of routine defuelling at Calder Hall. Recommendation 9 has been cleared and the remaining three remain on target for completion within the defined time-scales.

Reactor 1 Start -up

On 4 July Reactor 1 returned to service following the discovery of chargepan tilting on Chapelcross Reactor 1 and completion of routine refueling and maintenance schedule activities associated with the non-statutory outage which started on 9 December 2001. As defined within BNFL's licence compliance statements and arrangements this did not require our Consent. However we attended the reactor startup meeting and through inspection confirmed that BNFL had complied with the requirements of the outage arrangements for non-statutory routine refueling and maintenance.

Chargepan Tilting

Licence Instrument 396 provided our Agreement to the safety case for Reactor 1 chargepans. The agreement covers a period of 9 months from reactor startup. Reactors 2, 4, & 4 remain shutdown and in a safe and stable condition. Restart of each reactor will require our agreement to a chargepan safety case and satisfactory completion of any identified plant modification requirements

3.10 UKAEA WINDSCALE OPERATIONS

Windscale Annual Review Meeting, 27 June.

This was a well organised meeting which was open and constructive and served to take forward a wide range of issues. Our comments centred on radwaste management and decommissioning, in particular the need for UKAEA to take action on a number of small-scale decommissioning projects across the site. The meeting included presentations from the tenants and safety representatives on the site.

Pile 1 - Phase 2 Decommissioning

UKAEA made a presentation on the current status and future direction of the project to decommissioning Pile 1. UKAEA proposes to make use of a US Department of Energy procedure for identifying hazards, and we expressed a view that although it appeared to be rigorous it had the potential to lead to divergence unless appropriate checks and balances are applied. The expected further delays mean that we will place considerable emphasis on the forthcoming facility safety case, which will need to provide adequate justification as to the safety of the facility through to decommissioning.

The issues were discussed further with UKAEA senior management and project staff. UKAEA is to write to NII outlining the processes that UKAEA will use to reach a level of definition that will lead to a decommissioning option, and will provide a range of dates for each process. This information should help us to understand the way in which UKAEA will drive optioneering to a conclusion in reasonable time. UKAEA explained the basis of the revised operational safety case. We also discussed the scope of the work that UKAEA plans to carry out to improve the existing means to fight fires and in the longer term to review the fire suppression system, work which should lead to a more robust system for fire fighting.

Inspection of Pile 1 essential electrical equipment

An inspection of the essential electrical system for Pile 1 was undertaken with a specialist electrical engineering inspector. Generally good standards of safety were evident. We found that the safety case claimed the use of a mobile diesel alternator although this had never been fully tested and the arrangements for connecting the equipment needed review. Also an unprotected fall hazard was noted in a B4 switch room which we asked for urgent remediation – this was subsequently installed.

B13 radioactive waste management

NII wrote to UKAEA to question the management of radioactive waste on the B13 cave roof, noting that B13 is an operating facility and not a radwaste store. In particular NII asked whether UKAEA is minimising the rate of production and total quantity of radwaste and whether suitable records exist. Knowing that UKAEA recognises that improvements are necessary, NII also asked UKAEA to explain the action it proposes to manage the radwaste and dispose of it as soon as is reasonably practicable. UKAEA's response acknowledged the issues, confirmed that preparatory work has already taken place to define the radwaste inventory and obtain the funds necessary to effect disposal, and provided an outline programme. This is a matter that will take time to fully resolve, but NII welcomes UKAEA's positive response.

Management of radioactive materials

An inspection was conducted on 22 and 23 April of the management of radioactive materials at Windscale. The inspection was undertaken because of concerns expressed on the efficacy of transferring redundant radioactive sources between Harwell and Windscale. There did not appear to be any local issues of significance but questions remain at a more strategic level. NII noted that UKAEA may not be minimising the total quantity of radwaste accumulated, because of the absence of an agreed disposal route from B13 to B399 (Miscellaneous Beta Gamma Waste Store). NII is aware that UKAEA has made efforts to resolve this matter, and NII now proposes to try to make B399 more readily available to UKAEA through improved interaction between UKAEA and BNFL.

WAGR waste box issues

A meeting with UKAEA was held on 12 April to further discuss WAGR waste box issues. NII considered that the research and development to investigate caesium migration had advanced sufficiently to justify encapsulation of the ILW arising from the next campaign, graphite core and restraint structure. Encapsulation of further campaigns was linked to the production of the final version of UKAEA's paper on the proposed inspection and monitoring regime in the interim ILW store, B64.

4 REGULATORY ACTIVITY

4.1 PROSECUTION

None

4.2 PROHIBITION NOTICE

None

4.3 IMPROVEMENT NOTICES

Satisfactory Discharge of I/2000/NSD/HKR/002 associated with control of modifications to software

Inspection has confirmed that BNFL has implemented sufficient measures to control the modification to software systems used in safety and safety related systems.

4.4 SPECIFICATION

None.

TABLE 1

QUARTERLY RETURNS FOR
SELLAFIELD, CALDER HALL, DRIGG AND WINDSCALE

DURING THE QUARTER

1 APRIL - 30 JUNE 2002

| | BNFL SELLAFIELD ¹ | BNFL CALDER HALL ² | BNFL DRIGG | UKAEA WINDSCALE |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------|---------------|--------------------|
| NUMBER OF VISITS | 55 | 2 | 2 | 7 |
| INSPECTION DAYS ON SITE | 221 | 20 | 4 | 23 |
| ENFORCEMENT ACTIONS ³ | Nil | nil | nil | Nil |
| 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 | Nil | nil | nil | 2 |
| LICENCE INSTRUMENTS | 6 | 2 | nil | nil |

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 APRIL - 30 JUNE 2002

| REF No | DESCRIPTION |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------|
| BNFL Drigg - Nuclear Site Licence No. 29A | |
| | None |
| BNFL Sellafield - Nuclear Site Licence No. 31F | |
| | None |
| UKAEA Windscale - Nuclear Site Licence No.46A | |
| 28 | Consent to the granting of a supplemental lease for part of Building B14 to AEA Technology PLC |
| 29 | Consent to the granting a Deed of Variation of Building B13 |

TABLE 3

LICENCE INSTRUMENTS ISSUED DURING THE QUARTER

1 APRIL - 30 JUNE 2002

| REF NO | DESCRIPTION |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| BNFL Drigg - Nuclear Site Licence No. 29A | |
| | None |
| BNFL Sellafield - Nuclear Site Licence No. 31F | |
| 389 | Agreement to commencement of operation of the B212 Caesium Extraction Plant facility |
| 390 | Acknowledgement of safety case associated with the Decommissioning of the B212 Caesium Extract Plant |
| 391 | Acknowledgement of safety documentation associated with the reduction of Gadolinium poisoning to the B570 dissolvers |
| 392 | Acknowledgement of B38 "Live Safety Case" Summary |
| 393 | Agreement to the installation of new auto start system for reactors 2 and 3 emergency diesel generators |
| 394 | Acknowledgement of Pre Active Commissioning Report associated with EDS2 |
| 395 | Acknowledgement of safety documentation associated with the retrieval of wastes from the B136 plant |
| 396 | Reactive Review Justifying Return to Power of Calder Hall Reactor 1 Following the Observation of Chargepan Translation on Chapelcross Reactor 1 |
| UKAEA Windscale - Nuclear Site Licence No. 46A | |
| | None |