



HM NUCLEAR INSTALLATIONS INSPECTORATE
BNGSL SELLAFIELD AND DRIGG, AND UKAEA WINDSCALE
WEST CUMBRIA SITES STAKEHOLDER GROUP
QUARTERLY REPORT FOR 1 APRIL TO 31 JUNE 2006

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 West Cumbria Sites Stakeholder Group (WCSSG) and covers activities associated with the regulation of safety at BNGSL 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 WCSSG 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 INTRODUCTION

NII Inspectors made a total of 75 visits to the Sellafield, Calder Hall, Windscale and Drigg sites during the quarter. This involved a total of 239 days on site (see Table 1 for details). The more significant issues identified during these inspections are summarised below.

2 BNGSL SELLAFIELD

2.1 GENERAL SITE MATTERS

2.1.1 Site Wide Review

Work on the site wide review by the HSE and the Environmental Agency commenced during the quarter and a strategy for undertaking the review has been agreed. The strategy, which will involve several interventions associated with managing for safety and safety culture, will be discussed with BNGSL during the next quarter.

2.2 INCIDENTS

2.2.1 High radiation levels, Highly Active Liquor Evaporation and Storage (HALES) facility.

NII has reported that an incident occurred in the Highly Active Liquor Evaporation and Storage (HALES) facility on 4 December 2005 during which high levels of radiation were detected in the working area during routine operations to sample highly active liquor.

NII has written to BNGSL to confirm the findings of its investigation. BNGSL actions in response to the incident were considered to have been exemplary, and the BNGSL investigation report demonstrated a thorough consideration of the causes of the incident and presented appropriate improvement actions. NII accepts that the root cause of the incident was sample system line blockages and flow restrictions caused by HAST 21 basal solids.

The most significant finding was the failure to learn from previous similar sampling incidents. As a consequence BNGSL has improved its management of operational experience feedback and, from the evidence of sample inspections, NII concludes that a suitable system for learning from experience is now in place.

The incident called into question the safety of HAST sampling. Improvements have been implemented including the fitting of engineered physical isolations. On this basis NII has accepted further sampling operations.

2.2.2 Aerial discharge, Highly Active Liquor Evaporation and Storage (HALES) facility.

There was an activity release from the Highly Active Liquor Evaporation & Storage plant at Sellafield via the cell extract ventilation system on 25 August 2005. The activity was only just above the normal background radiation levels and did not exceed any statutory limits. The discharge was just detectable by the Site Perimeter Monitoring System.

A follow-up inspection was undertaken in conjunction with the Environment Agency. BNGSL appear to have carried out a suitable investigation and are pursuing the

resulting actions. The root cause of the event has not been determined, however a number of possible release mechanisms have been identified and operational improvements are in place or planned to minimise the risk of a recurrence. Completion of the actions is being monitored.

2.3 MAGNOX REPROCESSING OPERATIONS

2.3.1 Reprocessing Operations

NII continues to monitor BNGSL's progress in making improvements to the safe systems of work process in Magnox Reprocessing plants.

2.3.2 Fuel Handling Plant (FHP) and Pond Conditions

There has been a slight rise in the pond water activity level during the period that was mainly attributable to the handling of legacy fuel. The current activity level is in the 2000 – 2500 Bq/ml range. NII continues to monitor BNGSL's efforts to reduce pond water activity.

2.3.3 Magnox Product Finishing and Storage Facility (Magnox PF&S)

BNGSL's project for delivering a permanent installed neutron monitoring system to replace the current interim neutron monitoring implemented within the plant is progressing well with careful consideration being given to all aspects to ensure an adequate system is delivered. As a result there has been some further slippage from the revised commitment to deliver a fully commissioned system by 8 January 2007. The revised date of delivery is now 7 March 2007.

BNGSL agreed to write to the NII site inspector for PF&S confirming the revised date for providing the permanent installed neutron monitoring system and presenting a justification that in the intervening period risks associated with operations within PF&S would remain ALARP.

The site inspector for PF&S continues to monitor both the implementation of the interim monitoring and the delivery of the permanent installed system closely.

2.4 THORP OPERATIONS

2.4.1 Thorp Restart

A strategy for dealing with the restart of THORP has been agreed between NSD and the EA. The strategy is based upon the undertaking of readiness inspections, by NSD and EA, to ensure that the plant is compliant with those licence conditions where deficiencies were found following our investigations into the FCC event.

The readiness inspections will cover assessment and inspection work associated with the recommendations arising from our investigations, associated modifications, safety culture, the overall management for safety and retraining.

2.5 HIGH ACTIVE LIQUOR WASTE PLANTS

2.5.1 Annual Review of Safety

NII, along with representatives of the Environment Agency and the Nuclear Decommissioning Authority, participated in the Annual Review of Safety for HLWP. This was an effective meeting, which satisfactorily reviewed all of the main issues that had arisen in 2005/06 and looked forward to the challenges ahead. NII welcomed the good progress on HAL stocks reduction and on the rate of production of high level waste containers, and the work to better understand HAST and evaporator integrity. NII questioned whether HLWP has sufficient numbers of suitably qualified and experienced persons in post given the significant amount of work programmed for 2006/07 and beyond: NII and BNGSL will engage regularly on this topic.

2.5.2 HAL Stocks

BNGSL continues to provide NII with monthly reports summarising the quantities of highly active liquor (HAL) contained in the highly active storage tanks (HASTs). These figures are used by NII to judge whether BNGSL continues to meet the HAL Specification issued in 2000, which provides a limit on the amount of HAL that can be stored at any time and promotes HAL stocks reduction. Continued good performance of WVP coupled with the extended outage at THORP has meant that HAL stocks are currently at their lowest levels since the Specification was issued and well below that required by the Specification. Consequently NII is content that BNGSL has kept within the requirements of the Specification.

NII will review the Specification during 2006 and, if it appears necessary in the interests of safety, we will change it in the light of our accumulated experience and BNGSL's forward predictions of future HAL generation and WVP performance.

2.5.3 Highly Active Liquor evaporative capacity

There is an ongoing need for facilities to allow evaporation of highly active raffinates and effluents and, on the basis of current plans, this need will continue in support of site clean-up long after reprocessing operations at Sellafield cease. NII is concerned that the existing evaporators may be removed from service before completing the currently projected lifetime needs because the heating/cooling components are approaching the end of their design lives.

NII continues to maintain close liaison with BNGSL with regard to evaporator corrosion inspections, and on the preparation by BNGSL of a safety justification for the continued operation of Evaporator A beyond September 2006. There is considerable effort being expended by BNGSL to inspect for corrosion. The results to date point to corrosion rates being greater than had been originally estimated from simulated corrosion studies, particularly for Thorp liquors. The information received continues to reinforce the need for new evaporative capacity as soon as reasonably practicable.

NII strongly supports the project that is underway to build a new highly active evaporator (Evaporator D) and considers that this is fully justified on safety grounds. NII, along with the Environment Agency and the Nuclear Decommissioning Authority, have continued the regular dialogue with BNGSL in respect of this project. Recently this included the presentation by BNGSL of the Preliminary Safety Report for Evaporator D. NII considers that there is enough uncertainty in the ongoing operation of the existing evaporators that it would be prudent to consider building a second new evaporator (Evaporator E).

2.5.4 Highly Active Storage Tanks (HAST)

Testing has continued on a number of HAST cooling components. Six HAST cooling coils has been reclassified from “healthy” to “suspect”, bringing the total number of “suspect” coils to eight. As a result, NII has revised its statistical analysis of HAST coil failure rates and concludes that, although the total number of “suspect” coils is broadly in line with expectations, their distribution between HASTs is a cause for concern: coil failures in the later HASTs appear to be more prevalent and occurring sooner than in the earlier HASTs. Hence NII’s analysis suggests that the most recently constructed HASTs have shorter remaining lives than had been assumed.

NII plans to engage BNGSL early to discuss these findings. It is important that the findings are subject to confirmation by suitably qualified and experienced persons. If NII’s findings are correct, BNGSL will need to plan for the early loss of some HASTs. Meanwhile, discussions are ongoing on a proposal to apply a corrosion inhibitor to HAST cooling water and to introduce additional engineered barriers to further protect against any release of radioactivity via the HAST cooling water system arising from cooling component failures.

2.5.5 Waste Vitrification Plant (WVP) Clearance Certificate modification

BNGSL requested a change to the WVP Clearance Certificate (a document which contains the operating limits and conditions and associated safety equipment and operating instructions). The changes were limited to the deletion of two Operating Rules which are no longer required, the amendment of one Operating Rule related to the heat loading in the Vitrified Product Store, and the introduction of a new Operating Instruction.

NII carried out confirmatory inspections in conjunction with the request. NII concluded that the proposed changes were appropriate and issued a licence instrument on 11 May 2006 to permit the changes.

2.5.6 Waste Vitrification Plant (WVP) Lines 1 & 2, Operating Rule Compliance

An inspection for compliance with Licence Condition 23 (Operating Rules, ORs) was carried out. For the sample checked, it was concluded that compliance was adequate. However there were aspects which require further consideration, notably the linkage of ORs to compliance documentation; the clarity of responsibilities for demonstrating compliance; and the complexities of the documented compliance system. BNGSL is aware that the system requires revision and is looking to identify separate operating processes with associated documentation. This will be pursued in later inspections.

2.5.7 Residue Export Facility

The project is progressing well with all major plant and equipment installed and inactive commissioning has started. NII is engaging regularly with BNGSL on regulatory issues in advance of the start of active commissioning early in 2007. These issues include the necessary interfaces with other facilities at Sellafield to ensure the safe and timely export overseas of containers of high level waste (in accordance with government policy on waste substitution). Standards of housekeeping and health and safety on REF remain generally good, although efforts continue to be made by BNGSL to learn from a number of minor conventional safety incidents and to improve safety awareness.

2.6 MOX OPERATIONS

2.6.1 Sellafield MOX Plant (SMP) Commissioning and Operation

MOX commissioning operations continued in SMP, whilst contributing to the manufacture of further fuel assemblies. Plant inspection was again limited due to NII priorities elsewhere on site, but review of safety performance indicators and progress of the Consent to Operate Safety (CTO) case continued at the quarterly project meeting. The Regulator/Licensee Annual Review of Safety meeting was held in June. The SMP Annual Review report included successes and disappointments as learning points; safety & environmental metrics for the last year were generally positive and a number of improvements derived from the review are being embodied in the safety improvement plan.

The BNGSL review of the safety case for each plant area, as a result of commissioning experience, has been completed and the revised safety cases implemented on plant during the last quarter. An interim scoping 'readiness for Consent to Operate' inspection was carried out by NII in May 2006 and several issues emerged, which are under discussion. Discussions have been held with SMP about the higher than expected stocks of recycle MOX waiting re-feed into the process. The plant has produced a strategy for reducing this over several years. NII are monitoring delivery of this strategy and are receiving regular updates.

NII has received most of the safety case documentation, but it is for BNGSL to decide when to submit their request for Consent to Operate (CTO). In the meantime, the MOX commissioning phase will continue, until HSE/NII have completed consideration of the safety case and the anticipated request for CTO. Liaison with the Environment Agency on CTO matters has continued. Assessment of the revised CTO safety case and the undertaking of further NII readiness inspections are likely to continue to be constrained by limited NII resources.

2.7 LEGACY PONDS & SILOS

2.7.1 Legacy Ponds

BNGSL continue to make progress with the enabling measures towards ultimate sludge retrieval from the Magnox Storage Pond. The project to remove sludge from one of the bays was not a complete success in that little or no sludge was removed with the existing equipment. BNGSL's efforts are now concentrating on the further development of alternative sludge removal equipment. Installation of the Gantry Refurbishment System for the Magnox Storage Pond is now planned for Autumn 2006.

The investigation report into the circumstances of the damaged pipe in the vicinity of the Magnox Storage Pond revealed the cause to be persistent neglect of inspection and maintenance of the pipe itself and the pipe hangers connecting it to the supporting structure. NII issued an Improvement Notice in April requiring BNGSL to improve their arrangements under Licence Condition 28(1). BNGSL have proposed a suitable programme of work to comply with the notice.

BNGSL have submitted a proposal to install a local effluent treatment plant (LETP) in the Piles Storage pond. The LETP will reduce dose levels for operators at the facility and reduce radioactive discharges.

2.9 EFFLUENT & ENCAPSULATION

2.9.1 B241 Floc Retrieval Plant

NII has given Agreement to the extension of active commissioning of the Floc retrieval operations for a period of six months from re-suspension of the buffer tank. This Agreement was given following a joint inspection, between NII and EA, of B241 and other plant associated with the Floc retrieval process.

2.9.2 ILW

A meeting was held with BNGSL at which they presented NII with their strategy for future storage in EPS2 and EPS3 following NII's concerns over progress on delivery of EPS3, the intent to use the transport aisles in EPS2 and the proposal to review the scope of EPS3 to accommodate both reprocessing and retrievals arising.

The first phase of the project, site preparation and foundations, has been sanctioned by NDA, the contract for this phase has been let and work commenced in June 2006.

The target date for delivery of EPS3 (May 2010) is based on not requiring the use of the transport aisles in EPS2. However, BNGSL judge that it may be necessary to have the option of using EPS2 transport aisles during the transition from using EPS2 to EPS3 and to allow for some contingency if delays are encountered in delivering EPS3.

NII have continued to maintain the position that BNGSL need to protect the outlets for their commercial operational feeds and accelerate delivery of EPS3 to ensure that suitable and sufficient storage is available when required.

3 CALDER HALL

3.1 ROUTINE MATTERS

3.1.1 Defuelling

Defuelling of the reactors is an important aim for Calder Hall as this will progressively reduce the main nuclear hazard on the site. Consequently, in the past, the NII has required sites to defuel as soon as possible after ceasing electricity generation. However, Calder Hall is one of several magnox stations that will be defuelling in the coming years. To deal with this, British Nuclear Group has made changes to the Magnox Operating Programme. This is the Programme developed by British Nuclear Group to help it manage spent magnox fuel that is arising either from normal operation to generate electricity or from the defuelling of reactors at the end of their life. The Programme manages the whole fuel cycle from production, to usage in reactor, transport, and reprocessing at Sellafield, and sets out for Stations when and how much spent fuel they send to Sellafield. It is a good Programme. Calder Hall is part of this Programme and recently, British Nuclear Group decided that Calder Hall should defuel at a slower rate than originally envisaged. We discussed this change with British Nuclear Group and were satisfied that it was necessary for the overall Magnox Operating Programme. We are discussing with Calder Hall the steps it needs to take to maintain safety for the longer period of defuelling as a result of this change.

3.1.2 Defuelling Safety Case

In previous reports, we have mentioned the underlying reasons for the extensive modifications to the Calder Hall fuel route to allow final defuelling. One of the issues was the dropping of a basket of fuel at Chapelcross in 2001 during routine refuelling operations. This event confirmed that the discharge of spent fuel at Calder Hall and Chapelcross did not meet modern standards. One particular area of concern was the heavy reliance on the performance of the operator. Recently, we discussed this issue with the Fuel Route Transition Project Team, which is managing this work for both

stations, to gain confidence that the modifications would meet modern standards regarding the role of the operator. We were satisfied with the responses provided, as in keeping with modern standards, reliance on the operator for the safety of significant routine operations has been “designed out”. We are also discussing the issue of manning of the fuel routes and the training of staff to gain confidence that the licensee is giving proper consideration to the human performance aspects of the operations to achieve final defuelling.

4 UKAEA WINDSCALE

4.1 B13

4.1.1 Improvement Notices

The two Improvement Notices that were served on UKAEA and Nexia Solutions for operations in B13 had a scheduled date for compliance of 30th November, now extended to 1st September 2006.

NII has monitored progress with both Notices during the quarter.

4.1.2 Operational Safety Case

The present safety case for B13 expires at the end of December 2006. UKAEA has discussed a way forward with both NII and its Nuclear Safety Committee. The present Care and Maintenance Safety Case has been modified to allow specific operations from the new OSC to be carried out, but specifically embargoed other operation. NII is satisfied that the same specific operations and embargoes can, via a new modification, be transferred to the new OSC and hence allow its adoption. Other operations, and removal of embargoes, would be controlled as necessary with further modifications.

4.1.3 B13 Events

Two events have been reported by UKAEA relating to control of nuclear/radioactive material within B13. NII has sent a Regulatory letter to Nexia Solutions regarding the work instructions used to control this work. NII asked that Nexia Solutions should take the following steps:

- Withdraw all relevant work instructions for controlling movement of nuclear and radioactive material until such time as an adequate system can be demonstrated to both UKAEA and NII.
- Revoke the arrangements for people who can sign as sender or receiver of such material until such time as Nexia can demonstrate the adequacy of arrangements for demonstrating the competence of the individuals signing the forms to both UKAEA and NII.

Nexia Solutions has confirmed to NII that it has taken these steps.

4.2 Pile 1

NII has completed its assessment of the new Operational Safety Case (OSC) for Pile 1.

NII is satisfied that scientific information and assessment techniques now demonstrate that the Pile 1 facility does not pose the risks that had been previously considered. NII has therefore issued a Licence Instrument Agreeing that this new OSC can be Adopted.

4.3 Emergency Exercises

The annual demonstration exercise was observed at Windscale this quarter. The scenario for this exercise was based on the response at Pile 1 to a seismic event. The exercise demonstrated both the response at Pile 1, and also the joint working with BNGSL that occurs as part of the joint emergency arrangements. NII was satisfied that this was an adequate demonstration of the Windscale emergency arrangements.

4.4 Leases

Building B546.1 occupied by the BNGSL demolition group. NII has now been informed that BNGSL will vacate this building, and no further NII involvement is necessary.

Buildings B12 and B14. The lease arrangement that permits Nexia Solutions to occupy and use parts of B12 and B14 expired on 31st March 2006. NII has now issued two Consents under Licence Condition 3 to allow Nexia Solutions to have access to these two buildings.

5 Drigg

5.1 LLWR at Drigg

NII is content that relative ground settlement beneath the higher stacks of Half Height LLW iso containers does not prejudice their being retrievability. BNGSL are now storing containers in six high stacks.

NII's inspection programme aimed at ensuring that a stand-alone Site Licence Company can operate independently of the Sellafield organisation is underway. It is anticipated that a period of shadow working will begin in the next month or two and this process should provide firm evidence that the SLC has adequate capability.

HM NUCLEAR INSTALLATIONS INSPECTORATE

TABLE 1

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

DURING THE QUARTER

1 JANUARY TO 31 MARCH 2005

	BNGSL SELLAFIELD ¹	BNGSL CALDER HALL ²	BNGSL DRIGG	UKAEA WINDSCALE
NUMBER OF VISITS	57	8	3	7
INSPECTION DAYS ON SITE	202	9.5	2	25.5
ENFORCEMENT ACTIONS ³	1	0	0	0
Incidents in the quarter likely to be published in HSE's quarterly "Statement of Nuclear Incidents at Nuclear Installations"	0	0	0	0
CONSENTS, APPROVALS	0	0	0	2
LICENCE INSTRUMENTS	12	0	0	2

¹ The figures shown for BNGSL Sellafield are those for BNGSL'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 BNGSL 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 DURING THE QUARTER**

1 JANUARY TO 31 MARCH 2005

Date	Type	Ref. No.	Description
BNGSL DRIGG Nuclear Site Licence no. 29A			
BNGSL Sellafield (and Calder Works) – Nuclear Site Licence no. 31G			
BNGSL Windscale – Nuclear Site Licence no. 46B			
02/06/06	Consent	515	Consent to occupy parts of building B12 Windscale site
02/06/06	Consent	516	Consent to occupy parts of building B14 Windscale site

TABLE 3

LICENCE INSTRUMENTS ISSUED DURING THE QUARTER

1 JANUARY TO 31 MARCH 2005

Date	Type	Ref. No.	Description
BNGSL DRIGG Nuclear Site Licence no. 29A			
BNGSL Sellafield (and Calder Works) – Nuclear Site Licence no. 31G			
03/04/06	Acknowledgement	578	Acknowledgement of receipt of safety documentation for: modification to existing plant via pmp B299/275: B299 psr phase 1 implementation - implementaion pmp
11/04/06	Acknowledgement	579	Acknowledgement of receipt of safety documentation for periodic review of the B259 decontamination plant safety case: B259 COSC implementation - implementation PMP
13/04/06	Acknowledgement	580	Acknowledgement of receipt of safety documentation: for modification to existing plant and notification of intent to examine implementation of THORP head end safety case strategy to enable restart of operations following the feed clarification cell event
02/05/06	Agreement	584	Agreement to change PSR programme delivery dates for periodic review of the liquid effluent plants interconnections safety case
01/06/06	Acknowledgement	585	Acknowledgement of receipt of safety documentation for modification to waste encapsulation plant (B368) safety case: B368 COSC implementation - implementation pmp
11/05/06	Acknowledgement	586	Acknowledgement of receipt of safety documentation for implementation of the WVP lines 1 & 2 clearance certificate
16/05/06	Acknowledgement	587	Acknowledgement of receipt of safety documentation for modification to existing plant via PMP PFS/065 (Stores Inventory Retrieval Project, Store 6 to Store 9 Export)
12/05/06	Acknowledgement	588	Acknowledgement of receipt of safety case documentation for the third encapsulation product store (eps3) and notification of intention to examine
22/05/06	Agreement	589	Agreement to change PSR programme delivery date for the overarching site safety report for the LLWR at Drigg
22/05/06	Agreement	590	Agreement to extension of stages 4&5 active commissioning of the FLOC retrieval plant
19/06/06	Acknowledgement	591	ACKNOWLEDGEMENT OF RECEIPT OF SAFETY DOCUMENTATION FOR MODIFICATION TO EXISTING PLANT VIA PMP B209/397

			(IMPLEMENTATION OF OSM 10472 - RESUMPTION OF ENTRIES TO STORE 17, B209S) L.I. NO.591
13/06/06	Acknowledgement	592	Acknowledgement of PMP number 1000/345p "implementation of sm cult number 10196 criticality assessment of chronic and acute liquor leaks into cell 336, area 300, thorp" and notification of intent to examine the pmp
UKAEA WINDSCALE – Nuclear Site Licence no. 46B			
22/05/06	Agreement	517	Agreement to inactive commissioning for receipt and processing of b29 fuel in B13
07/06/06	Agreement	518	Agreement to implementaion of pile 1 OSC