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DAVID R. LEWIS
202.663.8474
david.lewis@shawpittman.com

February 24, 2000

BY HAND DELIVERY

Secretary
Att'n: Rulemaking and Adjudications Staff
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

In the Matter of
GPU Nuclear Inc., Jersey Central Power & Light Co., and AmerGen Energy Co. LLC
Oyster Creek Nuclear Generating Station, Docket No. 50-219, License No. DPR-16
(License Transfer Proceeding)

Dear Ms. Vietti-Cook:

Your February 22 letter to the Nuclear Information and Resource Service (NIRS) in this proceeding asks NIRS to provide a schedule for filing a publicly released version of a U.K. Nuclear Installations Inspectorate (NII) Report (an unauthorized draft of which was an attachment G to NIRS' January 3 Petition) along with certain information on any changes from the earlier draft. Applicants are concerned that this letter may allow NIRS to delay a ruling on its petition, which could adversely affect the schedule contemplated by our transaction. Our concern is heightened by the lack of any explanation by NIRS why it has not already provided the publicly released version after communicating with the Secretary's office on this subject three weeks ago, particularly since the final NII report was publicly released and made widely available on the Web on January 27, before that communication occurred. See www.hse.gov.uk/nsd/beaudit.htm. To expedite this process, a copy of the final NII report is enclosed. Please note that neither the preliminary or final versions of this report address any activities of AmerGen or the Oyster Creek organization, but instead are confined to matters in the United Kingdom. In view of the irrelevance of this report to Oyster Creek or the AmerGen organization that will be operating Oyster Creek after the license transfer, Applicants respectfully suggest that there is no need to delay a decision on NIRS' petition or await any

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further information from NIRS. Instead, the NRC should rule expeditiously on NIRS' petition, consistent with the purpose of the streamlined Subpart M procedures.

Sincerely,

David R. Lewis
Shaw Pittman
Counsel for GPU Nuclear, Inc.

Kevin P. Gallen
Morgan Lewis & Bachius, LLP
Counsel for AmerGen Energy Co. LLC

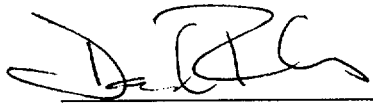
I hereby certify that copies of attached letter were served upon the persons listed below by e-mail, and by hand delivery, this 24th day of February, 2000.

Office of the Secretary
U.S. Nuclear Regulatory Commission
Attn: Rulemakings and Adjudications Staff
Washington, D.C. 20555
(E-mail: secy@nrc.gov)

Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
(E-mail: ogclt@nrc.gov)

Office of the Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
(E-mail: hrb@nrc.gov)

Michael Mariotte
Nuclear Information and Resource Service
1424 16th Street, NW, #404
Washington, DC 20036
(E-mail: nirsnet@nirs.org)



David R. Lewis

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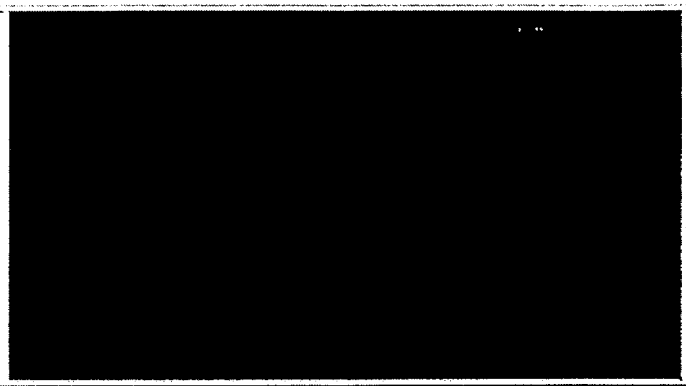
An audit by the HSE on British Energy Generation Limited and British Energy Generation (UK) Limited 1999



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ACKNOWLEDGEMENT

Audit team members included:

D.Derbyshire	A.Bleeze	P.Maxwell	D&SGibson	R.Slominski	N.New	P.Harvey	C.Patchett	A.I
M.El-Shanawany	M.Bassett	R.Nicholson	J. Murray	C.Reiersen	M.Jeal	P.Woodhouse	A Lindley	R.'

Invaluable support was provided by many staff, in particular:

A.Cain	N Tunstall
S.Jones	C Jones

The audit team would also like to record their thanks to all of their colleagues who provided input to the audit and covered other work during the audit, and to the staff of British Energy Generation Limited and British Energy Generation (UK) Limited and their contractors without whose co-operation the audit would not have been successful.

FOREWORD

This report sets out the key findings of the team which carried out the safety audit of British Energy Generation Limited and British Energy Generation (UK) Limited, the two nuclear Licensees within British Energy plc. The audit was undertaken to review the capability of each Licensee to continue to discharge its responsibilities in the light of reductions in staff.

A multi-disciplinary team carried out a comprehensive review of both Licensees. The audit covered corporate management aspects, management of safety, ownership and control, retention of expertise, use of contractors and the proposed integration of the two Licensees. The main audit team comprised eleven nuclear inspectors from HSE's Nuclear Installations Inspectorate (NII), supported by other nuclear inspectors and an inspector from HSE's Operations Unit. The team started work at British Energy Generation Limited in March 1999 and moved on to British Energy Generation (UK) Limited in April 1999. This was followed by visits in May 1999 to some of the key contractors used by the Licensees.

The report presents a thorough analysis of the results from this work and makes recommendations for action to ensure the capability of British Energy Generation Limited and British Energy Generation (UK) Limited to discharge their responsibilities as nuclear Licensees is maintained or improved. The issues raised by the audit, whilst significant over the medium to long term, do not challenge the immediate safety of the operating nuclear power stations.

British Energy Generation Limited and British Energy Generation (UK) Limited have so far shown a positive response to the findings and are in the process of addressing the recommendations arising from the audit. Their action plans, setting out the proposals and timescales for resolving the recommendations, are to

be produced within four weeks of receipt of this report. HSE's Nuclear Installations Inspectorate will monitor progress to expedite a timely and satisfactory completion.

If you have any comments or would like further information on the issues discussed in this report, please write to the Chief Inspector of Nuclear Installations at the address below.

Laurence Williams
Director of Nuclear Safety and
HM Chief Inspector of Nuclear Installations
St Peter's House
Balliol Road
Merseyside
L20 3LZ

EXECUTIVE SUMMARY

As part of restructuring and privatisation of the nuclear industry, the advanced gas cooled reactor (AGR) power stations and the single pressurised water reactor (PWR) station passed into the private sector in 1996. A holding company, British Energy plc (BE), was formed with two wholly owned subsidiaries, Nuclear Electric Limited and Scottish Nuclear Limited. The subsidiaries were responsible for operating the power stations and therefore were granted the nuclear site licences in line with the HSE policy (derived from the requirements of the Nuclear Installations Act) that the user of the site must hold the licence.

Staff numbers in the two subsidiaries had been reduced in the run up to privatisation. Shortly after privatisation, both Nuclear Electric and Scottish Nuclear instigated a systematic programme of further staff reductions. The downsizing process was known as 'Vision 2000' within Nuclear Electric and 'Route 21' within Scottish Nuclear. In 1997 and early in 1998, the Nuclear Installations Inspectorate (NII) undertook a series of inspections of the Licensees' arrangements for managing the staff reductions. These inspections established that the Management of Change processes were generally acceptable; however, in certain safety areas questions were raised about the application of the processes to already depleted staffing levels.

It had been NII's intention to undertake further (follow up) inspections in late 1998. Before the work was started, BE approached NII with proposals to integrate Nuclear Electric and Scottish Nuclear into a single Licensee. To demonstrate that an integrated organisation would function effectively as a single Licensee, BE proposed to integrate the technical management and the technical teams of the two Licensees for a limited period before formally applying for relicensing. This process would result in some loss of management posts. The target date proposed by BE for the integration of the central functions was 1 January 1999.

Towards the end of 1998, at a late stage in the relicensing discussions, BE divulged there were commercial obstacles which made transfer to a single Licensee unattractive. Although BE recognised it could be some years before relicensing became commercially attractive, they still wished to proceed with the integration of the central functions on the proposed date namely, 1 January 1999. BE's intention is to retain two Licensees but to use an integrated management and central technical team to support the operation of the nuclear power stations of both licensees. This type of arrangement has not been used previously in the UK nuclear industry and presents NII with questions about the validity of the approach.

NII agreed to integration at the Board level and for some non-safety significant company functions; these changes took place in January 1999. However, agreement to integration in safety significant areas was

withheld until an audit could be completed. The aim of the audit was to confirm that downsizing had not reduced the Licensees' capability to discharge their responsibilities and to deliver acceptable safety performance. The audit would also provide a baseline against which to judge further changes (including integration).

Another change took place on 1 January 1999. Nuclear Electric was renamed British Energy Generation Limited (BEGL) and Scottish Nuclear became British Energy Generation (UK) Limited (BEG(UK)L). The change of names did not invalidate the existing nuclear site licences and, hence, there was no need for applications for new licences.

In March and April 1999, NII audit teams visited the headquarters and technical centres of BEGL and BEG(UK)L. Visits were then made to some of the principal contractors who provide technical support to the Licensees. The NII teams interviewed a wide cross section of staff to gather information on which to make a judgement regarding the current situation in both Licensees. We were afforded unfettered access to talk to the staff. Their co-operation and openness greatly facilitated the work of the NII team. This report describes the findings from that work and makes recommendations for BEGL to BEG(UK)L to address.

The audit findings are focused on the areas for action to ensure the capability of BEGL and BEG(UK)L to discharge their responsibilities as Licensees is maintained or improved. Nevertheless, we have also highlighted a significant number of good points we found (or confirmed) during the audit. In particular, staff at all levels were committed to safe operation of the nuclear power stations. These good points have been taken into account in deciding upon the necessary regulatory action.

We consider the appropriate regulatory action is to require the downsizing process to stop whilst the recommendations arising from the audit are addressed. However, we judge that the issues which have been identified, whilst significant over the medium to long term, are not such that they challenge the immediate safety of the operation stations. The key issues are as follows.

The staff reduction programme in both Licensees had been predicated on the assumption that, in a privatised environment, they could reduce the amount of work (eg on plant modifications). In BEGL, staff reductions have in fact taken place even though there has not been the expected reduction in work load. The shortfall in resource has been met by placing greater reliance on contractors, some of whom are actually Licensee staff recently released under the downsizing programmes. In BEGL, the supervision of contractors is adding to the work load on the remaining in-house staff and in some areas we judge the staff reductions have gone too far. In BEG(UK)L, staff levels have been reduced in line with a reduction in the planned work load, but emergent work is at a much higher level than anticipated. BEG(UK)L has an even greater reliance upon contractors for technical support and, in some areas, its own staffing levels need to be increased.

In BEGL, we found no formal process by which the minimum skills base had been established (ie that which must be retained within the Licensee to enable it to discharge its duties under the licence). Thus the downsizing exercise was taking place without knowing the minimum resource requirements, or having a process to ensure they can be sustained over time. This has resulted in specialist expertise in several key areas (specific to the nuclear industry) being vested in single experts. Staff leaving to pursue their careers elsewhere have exacerbated this position since BEGL cannot easily find replacements with the requisite expertise and experience.

BEG(UK)L has developed a definition of its skills base by means of a register of posts which require suitably qualified and experienced people (SQEP) to fill them. The register identifies people who have the necessary qualifications and experience against the various posts. This approach to defining the skills base is welcomed, but it needs further development. For example, we found there are no formal criteria for

judging whether qualifications and experience are adequate nor are there procedures to ensure removal of a person from the register if a skill is no longer being practised. In addition, BEG(UK)L does not have staff who can discharge the full range of identified skills and is reliant on external support to fulfill some SQEP roles. BEG(UK)L is thus unable, in all areas, to make decisions on safety matters based on the expertise of its own staff.

Neither Licensee has policies on the use of contractors to define, for example, the circumstances under which they should be employed and on what type of work, the level of responsibility that could be delegated to contractors, and the level of monitoring required to maintain Licensee ownership of the work. A variety of contractual arrangements exists. The closest relationships - namely partnerships in BEGL and satellite offices for BEG(UK)L - pose challenges with respect to loss of Licensee control, ownership of work and decisions derived therefrom, and loss of corporate memory.

In both BEGL and BEG(UK)L, the records show that some staff are working significant amounts of overtime. There is also under reporting of overtime so that the true situation must be worse than shown. Taking everything discussed above into account our judgement is that in some key safety areas in both BEGL and BEG(UK)L staff levels are at, and in a limited number of areas, below that required to sustain the work load and discharge the requirements of Licensees.

Our review of the application of the management of change process in BEGL and BEG(UK)L revealed flaws in both the processes and in their application. The way in which the processes have been applied has allowed preconditions (enablers), which should have been met before staff were released, to be relaxed to ongoing commitments. For example, a requirement to provide a trained replacement before someone leaves becomes simply 'provide training', which is open-ended. This has allowed staff to leave without having a ready replacement. We found examples of misapplication of the management of change process, including retrospective sign-off to justify release of staff who had already left (without completion of all the enablers) and examples where ongoing commitments had yet to be signed off long after someone had left.

We require BEGL and BEG(UK)L to address the recommendations arising from the audit. The Licensees need to provide an action plan within four weeks of receipt of this report, with proposals and timescales for resolving the recommendations. The key areas for action by the Licensees are as follows:

BEGL and BEG(UK)L to stop the planned reduction of in-house staff numbers until they can demonstrate their forward work predictions are reliable, and demonstrate that the Management of Change processes will not adversely affect the safety of nuclear plants. BEGL and BEG(UK)L to ensure that business plans are matched to the in-house staff capability and perceived work load. BEGL and BEG(UK)L to formalise, record and resource the skills base that each requires to underpin the duties of a Licensee to retain ownership and control of its operations. BEGL and BEG(UK)L to develop and promulgate policies to identify the key considerations and to guide decision making on why, when and how to utilise contractor resource - including their 'intelligent customer' requirements. BEGL and BEG(UK)L to investigate the reasons for the high level of overtime worked in certain areas (including estimates of that not reported), and take steps to prevent excessive hours being worked by staff handling nuclear safety related work. BEGL and BEG(UK)L, as a matter of urgency, to critically review their Management of Change processes in order to ensure they will incorporate the lessons learned from the change process (including the findings of this audit).

As part of the audit, we also explored the potential impact of integration. To ensure there is a seamless transition into the integrated organisation with no diminution of standards of work or loss of control of the Licensees' operations, all staff require a clear understanding of revised responsibilities, changes in methods of work, and additions to their workload before integration goes ahead. We found that, although the proposed structure of the integrated organisation has been defined and the managers for the joint team have

been selected, few of the staff below senior level seem to know what additional responsibilities they might have to undertake following integration. We were also told that there is no explicit allowance within most work programmes to cater for the extra demands of integration - which will include additional travel between the two central offices at Barnwood (Gloucester) and Peel Park (East Kilbride). These demands will be over and above the normal workload, which is already high in many areas. We wish to be reassured that the two Licensees are ready to integrate. BEGL and BEG(UK)L therefore need to clearly define their state of readiness for integration and demonstrate that adequate control of operations can be maintained in both Licensees.

The integration proposals put forward by British Energy (maintaining two separate Licensees for the foreseeable future) are novel and raise a potential problem which we had not previously considered in detail. The crux of the issue is the question of the acceptability, in nuclear licensing terms, of individuals in the central (integrated) team who work for one Licensee providing advice to the operating stations in the other Licensee. Each Licensee is expected to maintain control of its own operations and have its own intelligent customer capability. The arrangement proposed by British Energy could violate these principles. Resolution of these issues will be necessary before our agreement to the deferred integration proposals can be considered. The simplest way to overcome the problem would be to form BEGL and BEG(UK)L into a single Licensee.

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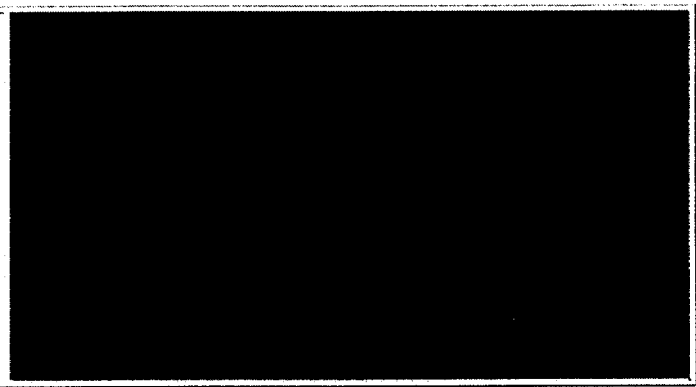

SECTION 1 : INTRODUCTION

1.1 Circumstances Leading Up to the Audit

1. Prior to the privatisation of the electricity generation industry, the operators of nuclear installations were primarily government-owned organisations: they had expertise, financial security and considerable technical resources. The operators - the nuclear Licensees - were characterised by their high technical competence which was in keeping with their responsibility for safety under UK law (Reference 1). It is also consistent with the non-prescriptive nature of the UK regulatory regime. The same characteristics of expertise, financial security and technical resources are still required of any new organisation requesting a licence.

2. The UK nuclear generating industry has evolved from the former Central Electricity Generating Board (CEGB) and the South of Scotland Electricity Board (SSEB). Over recent years the industry has been restructured. HSE's Nuclear Installations Inspectorate (NII) has responded by assessing the proposals for each stage of major change to ensure that standards of safety are not compromised.

3. Under the restructuring of the industry in 1996, the Advanced Gas cooled Reactor (AGR) power stations and the single Pressurised Water Reactor (PWR) power station passed into the private sector. A holding company, British Energy plc (BE), was formed with wholly owned subsidiaries (Nuclear Electric and Scottish Nuclear) responsible for operating the AGR and PWR power stations. These subsidiaries (not the holding company) were granted new licenses for the nuclear station sites in line with HSE's policy that the user of a site must hold the licence (Reference 4). Nuclear Electric and Scottish Nuclear were subsequently renamed British Energy Generation Limited (BEGL) and British Energy Generation (UK) Limited (BEG(UK)L).

4. Licensing involves a detailed consideration of all the factors that establish prospective Licensees are capable of fulfilling their duties and responsibilities as a user of a nuclear licensed site. Licensees need to have in place the policies, structures, systems and resources necessary to ensure that safety is not, and will not be, compromised. The licensing of British Energy's subsidiaries is explained in more detail in Reference 2.

5. Prior to the granting of new Licences in 1996, NII undertook a series of inspections to establish that the companies as constituted had sufficient staff and material resource and adequate systems and structures to be able to continue to discharge the responsibilities of a nuclear Licensee. While the situation was

considered acceptable for the purpose of granting licences, there were issues which the NII decided would require to be checked as the experience of running the companies developed. Such issues were the level of resource in certain specialist areas and the extent and nature of their use of contractors.

6. The total numbers of Nuclear Electric and Scottish Nuclear staff were being reduced in the run up to privatisation, in part as other companies were being split off as part of the restructuring process. Shortly after restructuring in 1996, Nuclear Electric and Scottish Nuclear each instigated a systematic programme of staff reductions. The downsizing process was known as 'Vision 2000' within Nuclear Electric and 'Route 21' within Scottish Nuclear. In 1997 and early 1998, NII undertook a series of inspections on the Licensees' arrangements for managing their staff reductions. The process was amended in the light of NII's findings. NII was satisfied that, if applied rigorously, the outcome of the Management of Change process should lead to staff numbers sufficient to ensure that safety performance would not be compromised. However, the inspections highlighted a number of areas needing further consideration and/or action by the Licensees. These were progressed to an agreed position with the Licensees in early 1998, with NII intending to undertake a follow-up inspection later in the year.

7. Prior to the follow-up taking place, British Energy approached NII with proposals to integrate Nuclear Electric and Scottish Nuclear into a single Licensee. As part of these proposals, the intended structure of the new Licensee was to be demonstrated as acceptable by an interim period of operation using the new integrated structure, leading to licensing. It was recognised that the licensing process could be protracted because of other factors such as renegotiation of discharge authorisations.

8. British Energy proposed a target date of 1 January 1999 to move to the integrated position. In essence the proposal involves the bringing together of the technical management and resources across both Licensees with the concomitant loss of some of the existing management team. At a late stage in the discussions with NII, British Energy divulged there were commercial obstacles which made transfer to a single Licensee unattractive in the short term. The period of delay could not be accurately defined, and it was suggested that it could be some years before the commercial situation would allow a cost effective integration.

9. In spite of the obstacles British Energy still wished to proceed with the integration of the technical teams on the proposed date. They proposed to run the two companies using an integrated management and central technical team to service the operating stations. NII agreed to the integration at Board level, and with respect to certain non-safety related corporate functions. However, because of concerns about safety performance in BE, NII withheld agreement to full integration pending an audit of the two Licensees. The audit was intended to fulfill two main objectives, namely to determine if downsizing of the Licensees had reduced their capability to deliver acceptable safety performance, and to provide a baseline against which to judge future changes (notably integration).

10. NII was concerned with the performance of the two Licensees because of a variety of problems. These included the quality of recent Periodic Safety Review (PSR) submissions, the inability of the Licensees to deliver promised PSR modifications to programme, the inability to offer longer term commitments in areas such as research and the quality of some technical advice. These problems were followed up individually, but the frequency and consistency of the observed problems started to suggest a systemic underlying weakness.

11. Experience, both national and international, indicates that downsizing and contractorisation can have a detrimental effect on safety performance which is not always immediately obvious. However, it should be emphasised that NII has for some time recognised the increasing trend in industry to transfer work to contractors including management activities. NII is not opposed to contractorisation per se, provided it does not undermine the ability of Licensees to fulfill their responsibilities and the safety interfaces with

contractors are properly defined and managed.

12. This report highlights good points found during the audit, then focuses on the key issues we found and makes recommendations for action by the Licensees. The report starts by outlining the terms of reference and methodology for the audit and the legal requirements of the Licensees.

1.2 Terms of Reference for the Audit

13. The terms of reference given to the audit team were:

To audit the capability of British Energy's two nuclear Licensees - British Energy Generation Limited (BEGL) and British Energy Generation (UK) Limited (BEG(UK)L) - to continue to discharge their responsibilities in the light of staffing reductions from the Vision 2000 and Route 21 processes;

To report to HM Chief Inspector of Nuclear Installations.

1.3 Audit Methodology

14. The audit team comprised a core of 10 nuclear inspectors, led by a Superintending Inspector from NII. The core team was supplemented when required by other nuclear inspectors and also had the assistance of an inspector from HSE's Operations Unit. The focus of the audit was the BEGL headquarters and technical centre at Barnwood, Gloucester and the BEG(UK)L centre at Peel Park, East Kilbride. The audit addressed the key safety areas - Corporate Management, Engineering Division, Health Safety and Environment Division, and Operations Division.

15. Some of the team members had been involved in the previous inspections of British Energy in 1996 (for privatisation) and in 1997/98 (for the management of change process) and were familiar with the Licensees' key documentation such as Management of Change procedures, the Safety Management Prospectus and the Company Manual. The team also comprised members who had experience of similar audits at other Licensees (eg Dounreay). The audit approach was based upon collecting information by interviewing personnel at all levels, and checking the findings against relevant documentation provided by the Licensee. The key difference compared with the previous inspections in 1997/98 was that this audit focused on the outcome and implications of downsizing rather than the process for managing change.

16. As part of the preparations, one team had visited a station prior to starting the audit to examine the interface between the station and the central functions. NII site inspectors had also undertaken some preliminary work on sites to identify any issues that the team should pursue prior to the start of the audit.

17. In addition to the Licensee's corporate functions, the audit also included organisations providing significant technical support to the Licensee. Following on from and informed by the time spent within the Licensees, members of the audit team visited some of the principal contractors used by either BEGL or BEG(UK)L. This enabled us to examine the relationship between the Licensees and principal contractors from both ends and, in particular, to establish how the Licensees were meeting the 'intelligent customer' requirement (see Section 3.3).

18. Any audit is a sampling process and this was no exception. However, at some levels within BEGL and BEG(UK)L we interviewed all the staff. At others we interviewed sufficient staff to ensure we had a

representative cross section of staff views across all the Divisions which we judged had a significant impact on the safe operation of the Licensees' nuclear facilities. Whenever we find problems based on a sampling approach, it is incumbent upon the Licensees to demonstrate there are no inherent weaknesses in their approach.

19. The standards against which we judged adequacy are all published material, either in the form of legislation, in a White Paper or in HSE documents which set out good practice in the management of safety, and what is expected of a nuclear site Licensee. References 1and 3 to 6 are the principal documents. Other references are shown at appropriate points in the text. We have used Reference 5 as a basis to collate and analyse information collected during the interviewing.

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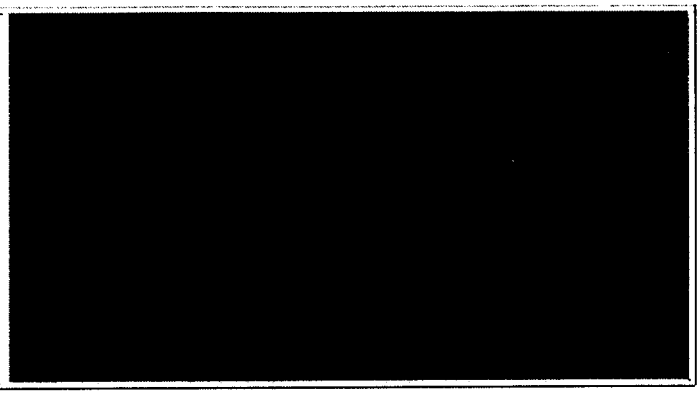

SECTION 1 : INTRODUCTION

1.1 Circumstances Leading Up to the Audit

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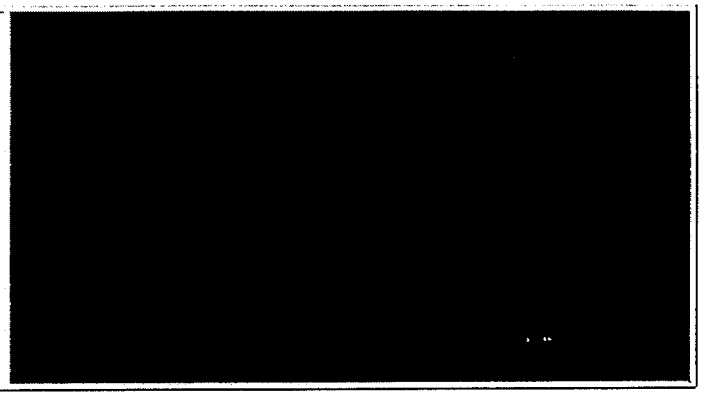

SECTION 1 : INTRODUCTION

1.1 Circumstances Leading Up to the Audit

1. Prior to the privatisation of the electricity generation industry, the operators of nuclear installations were primarily government-owned organisations: they had expertise, financial security and considerable technical resources. The operators - the nuclear Licensees - were characterised by their high technical competence which was in keeping with their responsibility for safety under UK law (Reference 1). It is also consistent with the non-prescriptive nature of the UK regulatory regime. The same characteristics of expertise, financial security and technical resources are still required of any new organisation requesting a licence.

2. The UK nuclear generating industry has evolved from the former Central Electricity Generating Board (CEGB) and the South of Scotland Electricity Board (SSEB). Over recent years the industry has been restructured. HSE's Nuclear Installations Inspectorate (NII) has responded by assessing the proposals for each stage of major change to ensure that standards of safety are not compromised.

3. Under the restructuring of the industry in 1996, the Advanced Gas cooled Reactor (AGR) power stations and the single Pressurised Water Reactor (PWR) power station passed into the private sector. A holding company, British Energy plc (BE), was formed with wholly owned subsidiaries (Nuclear Electric and Scottish Nuclear) responsible for operating the AGR and PWR power stations. These subsidiaries (not the holding company) were granted new licenses for the nuclear station sites in line with HSE's policy that the user of a site must hold the licence (Reference 4). Nuclear Electric and Scottish Nuclear were subsequently renamed British Energy Generation Limited (BEGL) and British Energy Generation (UK) Limited (BEG(UK)L).

4. Licensing involves a detailed consideration of all the factors that establish prospective Licensees are capable of fulfilling their duties and responsibilities as a user of a nuclear licensed site. Licensees need to have in place the policies, structures, systems and resources necessary to ensure that safety is not, and will not be, compromised. The licensing of British Energy's subsidiaries is explained in more detail in Reference 2.

5. Prior to the granting of new Licences in 1996, NII undertook a series of inspections to establish that the companies as constituted had sufficient staff and material resource and adequate systems and structures to be able to continue to discharge the responsibilities of a nuclear Licensee. While the situation was

considered acceptable for the purpose of granting licences, there were issues which the NII decided would require to be checked as the experience of running the companies developed. Such issues were the level of resource in certain specialist areas and the extent and nature of their use of contractors.

6. The total numbers of Nuclear Electric and Scottish Nuclear staff were being reduced in the run up to privatisation, in part as other companies were being split off as part of the restructuring process. Shortly after restructuring in 1996, Nuclear Electric and Scottish Nuclear each instigated a systematic programme of staff reductions. The downsizing process was known as 'Vision 2000' within Nuclear Electric and 'Route 21' within Scottish Nuclear. In 1997 and early 1998, NII undertook a series of inspections on the Licensees' arrangements for managing their staff reductions. The process was amended in the light of NII's findings. NII was satisfied that, if applied rigorously, the outcome of the Management of Change process should lead to staff numbers sufficient to ensure that safety performance would not be compromised. However, the inspections highlighted a number of areas needing further consideration and/or action by the Licensees. These were progressed to an agreed position with the Licensees in early 1998, with NII intending to undertake a follow-up inspection later in the year.

7. Prior to the follow-up taking place, British Energy approached NII with proposals to integrate Nuclear Electric and Scottish Nuclear into a single Licensee. As part of these proposals, the intended structure of the new Licensee was to be demonstrated as acceptable by an interim period of operation using the new integrated structure, leading to licensing. It was recognised that the licensing process could be protracted because of other factors such as renegotiation of discharge authorisations.

8. British Energy proposed a target date of 1 January 1999 to move to the integrated position. In essence the proposal involves the bringing together of the technical management and resources across both Licensees with the concomitant loss of some of the existing management team. At a late stage in the discussions with NII, British Energy divulged there were commercial obstacles which made transfer to a single Licensee unattractive in the short term. The period of delay could not be accurately defined, and it was suggested that it could be some years before the commercial situation would allow a cost effective integration.

9. In spite of the obstacles British Energy still wished to proceed with the integration of the technical teams on the proposed date. They proposed to run the two companies using an integrated management and central technical team to service the operating stations. NII agreed to the integration at Board level, and with respect to certain non-safety related corporate functions. However, because of concerns about safety performance in BE, NII withheld agreement to full integration pending an audit of the two Licensees. The audit was intended to fulfill two main objectives, namely to determine if downsizing of the Licensees had reduced their capability to deliver acceptable safety performance, and to provide a baseline against which to judge future changes (notably integration).

10. NII was concerned with the performance of the two Licensees because of a variety of problems. These included the quality of recent Periodic Safety Review (PSR) submissions, the inability of the Licensees to deliver promised PSR modifications to programme, the inability to offer longer term commitments in areas such as research and the quality of some technical advice. These problems were followed up individually, but the frequency and consistency of the observed problems started to suggest a systemic underlying weakness.

11. Experience, both national and international, indicates that downsizing and contractorisation can have a detrimental effect on safety performance which is not always immediately obvious. However, it should be emphasised that NII has for some time recognised the increasing trend in industry to transfer work to contractors including management activities. NII is not opposed to contractorisation per se, provided it does not undermine the ability of Licensees to fulfill their responsibilities and the safety interfaces with

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SECTION 2 : BRITISH ENERGY GENERATION LIMITED

2.1 History of the UK Nuclear Generation Industry

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21. A holding company, British Energy plc (BE), was formed with wholly owned subsidiaries responsible for operating the AGR and PWR power stations. These subsidiaries, Nuclear Electric Limited and Scottish Nuclear Limited, were granted new licences for the existing nuclear power station sites.

22. Nuclear Electric operated the five AGR stations (Dungeness B, Hinkley Point B, Hartlepool, Heysham 1 and Heysham 2) and the PWR station (Sizewell B) in England. Scottish Nuclear operated the two AGR stations (Hunterston B and Torness) located in Scotland. The two Licensees have maintained common safety and technical interests. The intention of the holding company, British Energy, was always to bring all these power stations under a single management structure with integrated technical resources and create a single Licensee.

2.2 British Energy Generation Limited

23. On 1 January 1999, Nuclear Electric Limited was renamed British Energy Generation Limited (BEGL) and became a subsidiary of British Energy (UK) Limited - see below. There was no need for a new licence to be issued, since a change of company name does not invalidate the existing licence.

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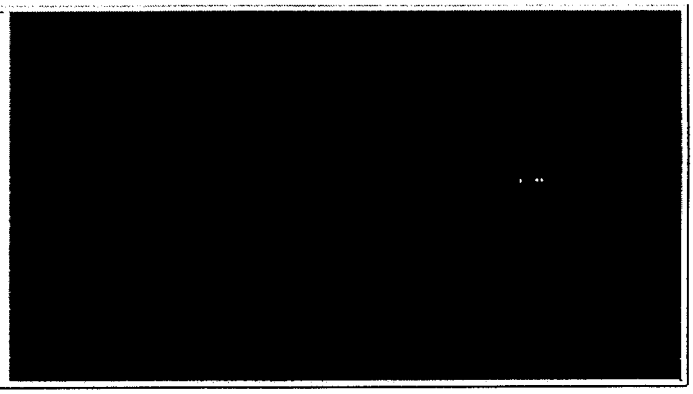

SECTION 3 : LICENCE REQUIREMENTS

3.1 Legal Framework

25. The main legislation governing the safety of employees and the general public at nuclear installations is the Health and Safety at Work etc Act (Reference 7), and its associated relevant statutory provisions which include parts of the Nuclear Installations Act 1965 (Reference 1) and the Ionising Radiations Regulations 1985 (Reference 3). Under the Nuclear Installations Act, no site may be used by persons other than the Crown for the purpose of installing or operating any nuclear installation unless a nuclear site licence has been granted by the Health and Safety Executive and is currently in force. HM Nuclear Installations Inspectorate is that part of HSE responsible for administering this licensing function.

26. The Health and Safety at Work Act places the general duty on employers to ensure, so far as is reasonably practicable, the health, safety and welfare of all their employees and also to ensure that people not in their employment are, so far as is reasonably practicable, not exposed to risk. The Act empowers the Executive to appoint inspectors having wide legal powers to ensure compliance with safety regulations. HSE Inspectors are appointed under these provisions. The Ionising Radiation Regulations impose duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation.

3.2 The Nuclear Site Licence

27. Section 4 of the Nuclear Installations Act 1965 provides the Health and Safety Executive with powers to attach to a nuclear site licence:

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28. The conditions attached to the site licences of all of the licensed nuclear sites in the UK have been standardised. A set of 35 conditions is attached to each licence and these are reproduced in Appendix 4 of Notes for Applicants (Reference 4). They deal amongst other things with:

control, supervision and training of staff;
incident reporting and emergency arrangements;
ensuring that only suitably qualified and experienced persons perform any duties which may affect safety;
the production of adequate safety cases for all operations affecting safety on the site and the preservation of records;
the periodic review and reassessment of safety cases;
the requirement to have quality assurance arrangements in respect of all matters which may affect safety; and
design, modifications, operation and maintenance.

29. These conditions require the Licensee to have arrangements to address the key safety activities associated with all the operations of a nuclear installation. In effect they encompass the arrangements for managing safety. Failure to comply with these conditions is a criminal offence.

3.3 Nuclear Safety Standards

30. Section 1.3 of this report identifies some of the principal references which are used to judge the safety of nuclear installations. They set out our expectations for nuclear Licensees and hence are directly relevant to this audit. Of special relevance to this work is the requirement for the Licensee to be 'in control' and be an 'intelligent customer' for work and services provided by others.

31. The key point, which represents a common thread through this report, is that the Nuclear Installations Act (Reference 1) requires that the Licensee shall be the user of the site, and NII interprets the user as the corporate body which:

'is in day to day control of the site, process and activities and whose staff manage the operation of the plant'. [Notes for Applicants, Ref 4, paragraph 40]

32. This requirement is derived from duties contained in the Nuclear Installations Act which stem from the absolute and no-fault liability of nuclear Licensees to meet (up to defined limits) the costs of any injury to persons or damage to property arising as a result of any nuclear occurrence connected with their licensed sites. Licensees cannot legally pass these liabilities on to others, and hence must be able to demonstrate that they are in control of activities on the licensed site through their own staff. This does not rule out the use of contractors, but in order to be in control, the Licensee should be able amongst other things to demonstrate the ability to be an intelligent customer for any goods or services supplied by others.

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34. NII also needs to be satisfied that Licensees have an adequate management structure and resources to discharge the obligations and liabilities connected with the holding of a nuclear site licence. We therefore expect, as set down in Reference 4, that a Licensee will have a 'management prospectus' in which it makes

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lines of authority leading to adequate control of activities by the Licensee, whether work is undertaken by the licensee's own staff or by contractors;
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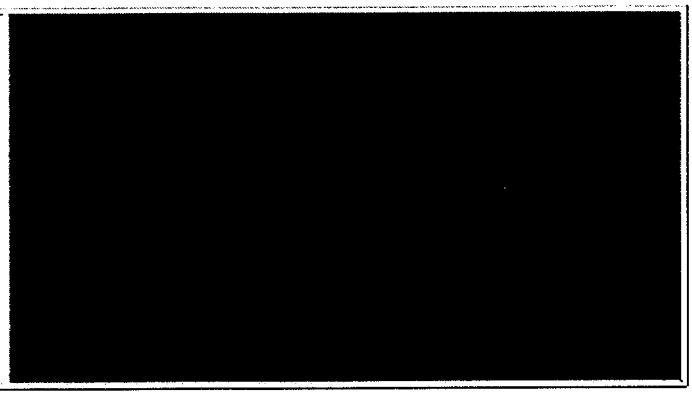

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the periodic review and reassessment of safety cases;
the requirement to have quality assurance arrangements in respect of all matters which may affect safety; and
design, modifications, operation and maintenance.

29. These conditions require the Licensee to have arrangements to address the key safety activities associated with all the operations of a nuclear installation. In effect they encompass the arrangements for managing safety. Failure to comply with these conditions is a criminal offence.

3.3 Nuclear Safety Standards

30. Section 1.3 of this report identifies some of the principal references which are used to judge the safety of nuclear installations. They set out our expectations for nuclear Licensees and hence are directly relevant to this audit. Of special relevance to this work is the requirement for the Licensee to be 'in control' and be an 'intelligent customer' for work and services provided by others.

31. The key point, which represents a common thread through this report, is that the Nuclear Installations Act (Reference 1) requires that the Licensee shall be the user of the site, and NII interprets the user as the corporate body which:

'is in day to day control of the site, process and activities and whose staff manage the operation of the plant'. [Notes for Applicants, Ref 4, paragraph 40]

32. This requirement is derived from duties contained in the Nuclear Installations Act which stem from the absolute and no-fault liability of nuclear Licensees to meet (up to defined limits) the costs of any injury to persons or damage to property arising as a result of any nuclear occurrence connected with their licensed sites. Licensees cannot legally pass these liabilities on to others, and hence must be able to demonstrate that they are in control of activities on the licensed site through their own staff. This does not rule out the use of contractors, but in order to be in control, the Licensee should be able amongst other things to demonstrate the ability to be an intelligent customer for any goods or services supplied by others.

33. It should be emphasised that being an intelligent customer (in terms of this report) is not a matter of whether the Licensee is able to manage its relationships with contractors in a commercial sense. It is essentially a question of whether there is sufficient competence and knowledge within the Licensee's organisation to understand the safety features of the plant and to set, interpret and ensure the achievement of safety standards. Although the terminology might vary (eg intelligent customer, informed customer, informed client) the principle remains the same. NII's thinking in this area has been developing since Reference 4 was published. Appendix 1 provides further detail on the expectations of the intelligent customer function, as used for guidance in this audit, and also includes a list of published material on the subject.

34. NII also needs to be satisfied that Licensees have an adequate management structure and resources to discharge the obligations and liabilities connected with the holding of a nuclear site licence. We therefore expect, as set down in Reference 4, that a Licensee will have a 'management prospectus' in which it makes

a commitment to health and safety and which demonstrates:

lines of authority leading to adequate control of activities by the Licensee, whether work is undertaken by the licensee's own staff or by contractors;
adequate staff resources;
precise definition and documentation of duties;
integration of health and safety responsibilities into job functions;
appropriately trained and experienced staff ensuring adequate in-house expertise; and
the provision of, or access to, a high level of health and safety expertise used in an active role for the peer review of the safety case, audit and review.

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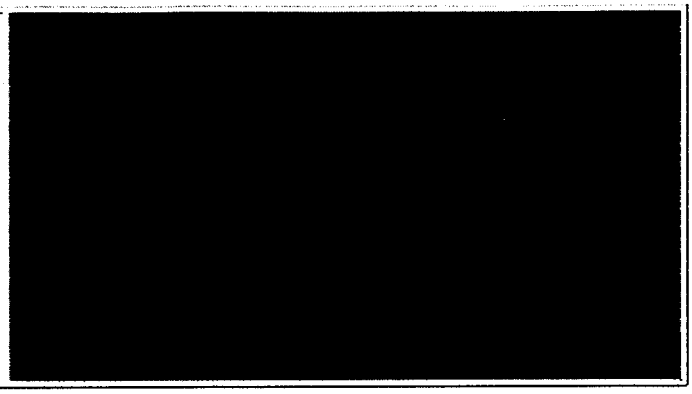

SECTION 4 : AUDIT FINDINGS

35. This section presents a summary of the key findings from the audit. The findings have been drawn from the results of our confidential interviews with a large number of staff within BEGL and BEG(UK)L and in key contractors; over 250 people in total. We were afforded unfettered access to talk to staff. Their co-operation and openness greatly facilitated the work of the NII team, and contributed to the success of the audit.

36. The findings are focused on the areas for action to ensure the capability of BEGL and BEG(UK)L to discharge their responsibilities as Licensees is maintained or improved. However, good practices we found or confirmed during the audit are also noted. These have been taken into consideration in deciding the regulatory action which needs to be taken, as discussed in the Conclusions (paragraph 77). It is important that the Licensees maintain and build upon these areas of good practice

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45. We found other noteworthy examples of good practices within different areas in the two Licensees. In BEG(UK)L, there is a formal register of Suitably Qualified and Experienced Personnel (SQEPs) - this will provide the basis for identifying and maintaining the requisite skills base within the Licensee. BEG(UK)L makes effective use of Technical Development Committees as a vehicle for co-ordinating work and linking between the centre and the stations. In BEGL there is a general philosophy to retain in-house technical specialists, rather than rely more upon generalists, which accords with the intelligent customer requirement placed upon Licensees.

46. Both Licensees expressed their desire to achieve world class standards, which is a laudable aim. The senior management are committed to improving all round performance in striving towards this aim.

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48. The audit has revealed a number of areas where the Licensees need to take action to address problems or concerns. The key issues are discussed in this section, against each Licensee. The specific recommendations arising from the audit are set out in Appendix 3.

BEGL

49. A key factor in the Vision 2000 downsizing process was a predicted reduction in workload - 'doing less, with less'- which overall has not transpired. Nevertheless staffing levels have been reduced. Shortfalls in resource have been made up by employing additional contract staff, some of whom are ex-BEGL staff recently released on voluntary severance terms. In some of the key safety areas this has resulted in the work load on BEGL staff increasing, since they now have to deal with the safety issues plus supervision of contract staff.

50. We found that systems for work recording do not accurately reflect the number of hours being worked by staff. Our interviews with staff at different levels within BEGL revealed that some are working significant amounts of overtime or unpaid excess hours to keep abreast of the workload. Excessive and persistent demands upon the staff carry the potential for degradation of the quality of the product. Whilst BEGL recognise there is under-reporting of hours worked, which goes against company policy, it is not clear that it can gauge the extent of the problem. Further effort is required to match work loads with staffing levels and to ensure that there is an accurate measure of the hours staff are working (whether paid or not).

51. The inability to reliably predict the forward work load, as evidenced by the failure to achieve the 'doing less' (ie work reduction) prerequisite for Vision 2000, has clear implications for any future decisions on staff downsizing. When combined with the uncertainty over the actual numbers of hours being worked by staff, this emphasises the need for BEGL to ensure there is a firm foundation upon which to base its forward plans and staffing levels.

52. We had expected to find that BEGL had a clear definition of the skills base it needs to retain to enable it to discharge the responsibilities of a Licensee. Regardless of the impetus to downsize, BEGL cannot delegate these responsibilities to any other organisation. BEGL needs to maintain expertise within its own staff. We did not find a clear definition of the requisite skills base. The downsizing process has thus been taking place without knowing the overall limit - the minimum necessary skills base. BEGL needs to expedite the provision of a clear and accurate baseline for the range and depth of expertise it needs to retain as a Licensee. This needs to be combined with effective, long term succession planning to maintain and develop its technical expertise in nuclear matters over the lifetime of its nuclear facilities including decommissioning.

53. Downsizing has resulted in knowledge and expertise in some technical areas specific to the nuclear industry being vested in individuals (singleton experts) within BEGL. This leaves BEGL particularly vulnerable to loss of expertise - for example if such staff leave to pursue their careers elsewhere (as has happened). BEGL has found it difficult to find replacements with the necessary expertise and nuclear experience. BEGL cannot rely upon a policy that it will always be possible to buy in specialist nuclear expertise from the labour market. This needs to be taken into account when setting the baseline for the in house skills base (with some element of 'defence-in-depth'). During the audit we identified areas where we consider BEGL needs to increase staffing levels to counter vulnerabilities such as singleton expertise or over reliance upon contractors.

54. BEGL has a variety of relationships with contracting organisations, from the employment of individuals from agencies, through standard contracts for specific pieces of work, to longer term partnership arrangements. However, BEGL does not have a formal policy setting down why, when and how to use contractor support (taking into account its responsibilities as a Licensee). We believe the lack of such a policy, combined with the lack of a clear baseline for the in house skill levels, has led to the situation where the present staffing levels in some areas in BEGL need to be increased (as above). BEGL needs to clearly define, and apply, an appropriate policy governing the use of contractors.

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partner organisations are well established in the nuclear field and undoubtedly can provide both expertise and experience. Nevertheless, regardless of the close relationships with BEGL, the partners must still be seen as contractors and BEGL cannot delegate any of its responsibilities as a Licensee under such arrangements. The use of partnerships is not ruled out in principle, however it raises issues such as loss of the Licensee's corporate knowledge and expertise, reduction in opportunities for technical development of Licensee staff, and ultimately the potential for loss of control and ownership of safety cases by the Licensee. In pursuing and developing partnerships (and in any other arrangements with external bodies), BEGL must ensure it retains the necessary range and depth of in house expertise to be able to subject work or advice received from external sources to informed and critical review before acting on it. Based on the audit findings, we believe the relationship between the BEGL and its partners needs to be reviewed as part of the development of an overall policy on the use of contractors.

56. Given the extent to which BEGL utilises contractors and partners, we had expected to find the concept of 'intelligent customer' and the requirements of the role to be well defined. However, we found only one manager who had anything formally written down on the role. BEGL needs to promulgate a company-wide policy on the intelligent customer role and requirements. Appendix 1 sets out the basis on which the intelligent customer capability was evaluated by the NII audit team.

57. During the audit, we focused on the outcome from BEGL's downsizing and management of change process rather than the process itself (which had been considered in previous inspections). However, some aspects of the execution of the management of change process did come under review. Based on past understanding, we expected that specific pre-conditions (enablers) would have to be satisfied before the person was released on voluntary severance, to ensure the organisation would be able to cope without that individual. Key amongst these enablers was a reduction in work, or establishing that a role was no longer required. In exceptional situations, we were aware that compensating measures such as work deferral, reallocation of responsibilities, deferring severance dates, or filling gaps with contractors would be deployed.

58. We found that these compensating measures have tended to become the norm, which explains how staff have been released under the management of change process without the concomitant reduction in work load. The process has also been misused in that some enablers have been met by means of changing pre-conditions to ongoing (open ended) commitments, which are not then always met before someone is released - for example, a requirement to 'provide a trained replacement before release' becomes simply 'provide training'. The small sample of records that we checked did not provide confidence that the principles of the process had been honoured and the procedure followed rigorously. In our view a management of change process which can reduce a scarce resource down to a single person must, in any case, be open to question. BEGL needs to carefully review its management of change process to address these shortfalls.

BEG(UK)L

59. Under the downsizing (Route 21) process, the planned work load within BEG(UK)L has reduced, although the reduction does not quite meet the prediction. The management of change process in BEG(UK)L required staff to be retained in post until the work had actually reduced and we found this requirement had been honoured. However the amount of emergent work has been substantially underestimated and in some areas individual work loads are high.

60. Some staff are working significant amounts of overtime or unpaid excess hours. We also found that there is under-reporting of hours worked. The downsizing decisions are suspect when the forward work load cannot be accurately foreseen, even over reasonably short periods (2 or 3 years), and the amount of effort being applied with the present staffing levels has not been accurately determined. BEG(UK)L

therefore needs to ensure that it has a sound basis for establishing its staffing levels needed to meet current and future requirements.

61. The register of Suitably Qualified and Experienced People (SQEPs) provides the means for establishing and maintaining the requisite skills base within BEG(UK)L. However, we found that in some technical areas there are no BEG(UK)L staff on the SQEP register, only contractors. We also found areas covered only by singleton BEG(UK)L experts, albeit backed in most cases by SQEP staff from the contractor support, and in at least one case there is a gap in the SQEP coverage (ie no cover by either Licensee or contractor staff). BEG(UK)L told us its formal objective is to have all SQEP posts covered by two staff, at least one of which is a BEG(UK)L employee. It needs to expedite the necessary action to meet this objective - this should be viewed as a minimum requirement but it would still leave BEG(UK)L vulnerable to loss of key specialist staff. In addition, BEG(UK)L needs to establish a clear baseline for the range and depth of expertise it needs to retain as a Licensee. This needs to be combined with effective, long term succession planning to ensure its technical expertise in nuclear matters is maintained throughout the full lifetime of the nuclear stations, including decommissioning.

62. When we examined the process for placing staff on the SQEP register, we found that practice varied in different sections of the organisation. We had expected to find specific criteria for each SQEP topic area, combined with requirements for refresher training. There should also be criteria covering removal from the register - for example, if individuals do not actively practice in an area of work for a given period the SQEP register entry should lapse. Overall, none of the sections in BEG(UK)L had all the criteria which we had expected to find. The SQEP register is a good concept but implementation of the concept needs further consideration and development.

63. Since its formation, BEG(UK)L (formerly Scottish Nuclear) has had a close relationship with external organisations which possess relevant expertise. These organisations are contracted to provide technical expertise, but under 'satellite office' arrangements whereby BEG(UK)L is able to nominate specific individuals to work on the contracts. These individuals meet the BEG(UK)L SQEP requirements and are included on the SQEP register. There are clearly potential advantages in such an arrangement, not least in ensuring the quality and consistency of the technical support. However, we found that in some areas BEG(UK)L is now over-reliant upon this support. Overall, downsizing has resulted in a greater proportion of contractors filling SQEP roles, combined with an increase in the number of contractor staff on the SQEP register. This situation erodes the ability of the Licensee to demonstrate that it is in control through its own staff. BEG(UK)L needs to redress the balance, taking into consideration what is required within the Licensee.

64. BEG(UK)L does not have a formal policy on the use of contractors, nor on its 'intelligent customer' role. The lack of such policies, combined with the lack of a clear baseline for the in-house competence requirements, have no doubt been significant factors which have led to the present situation. BEG(UK)L needs to adopt a clear policy on the use of contractors, together with its intelligent customer role and requirements, which take into account the limitations on the extent that reliance can be placed upon contractors due to BEG(UK)L's responsibilities as a Licensee.

65. The management of change process within BEG(UK)L was not targeted specifically during the audit. Previous inspections by NII had looked at the process itself; the focus this time was on the outcome from the process. However some aspects of the process did come under review. Our interviews revealed a similar picture to BEGL in that we found enablers requiring pre-conditions to be met had been relaxed to ongoing commitments. Also, as with BEGL, the process has led to singleton experts (or none at all) in some areas - notwithstanding BEG(UK)L's efforts to reduce the areas of singleton coverage. BEG(UK)L needs to carefully review its management of change process to resolve these problems.

Integration of BEGL and BEG(UK)L

66. As discussed in Section 1, British Energy has put forward proposals to integrate the technical management and resources of the two Licensees, BEGL and BEG(UK)L. We have not yet agreed to these proposals and the potential impact of integration was one of the areas we explored during the audit.

67. We consider that all staff require a clear understanding of their revised responsibilities, changes in methods of work, and any additions to their workload before integration goes ahead. This is to ensure that there is a seamless transition into the integrated organisation with no diminution of standards of work or loss of control of the Licensees' operations. We found that, although the proposed structure of the integrated organisation has been defined and the managers for the joint team have been selected, few of the staff below senior level seem to know what additional responsibilities they might have to undertake following integration. We were also told that there is no explicit allowance within most work programmes to cater for the extra demands of integration - which will include additional travel between the two central offices at Barnwood (Gloucester) and Peel Park (East Kilbride). These demands will be over and above the normal workload, which is already high in many areas. We wish to be reassured that the two Licensees are ready to integrate. BEGL and BEG(UK)L therefore need to clearly define their state of readiness for integration and demonstrate that adequate control of operations can be maintained in both Licensees.

68. The integration proposals put forward by British Energy are novel and raise a potential problem which we had not previously considered in detail. The crux of the issue is additional responsibility placed on managers, the additional workload and hence their ability to adequately control and supervise safety related activity. Additionally, there is the question of the acceptability, in nuclear licensing terms, of individuals in the central (integrated) team who work for one Licensee (eg BEGL) providing advice to the operating stations in the other Licensee. Each Licensee is expected to maintain control of its own operations and have its own intelligent customer capability. The arrangement proposed by British Energy could violate these principles. Some common functions already exist between the two Licensees - notably civil engineering and electrical engineering expertise - and the audit has raised questions in these areas. Whilst these specific changes were not deemed unacceptable by NII in the past, the current proposals for integration on a much broader scale have caused us to look closely at the wider licensing implications. Resolution of these issues will be necessary before our agreement to the deferred integration proposals can be considered.

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64. BEG(UK)L does not have a formal policy on the use of contractors, nor on its 'intelligent customer' role. The lack of such policies, combined with the lack of a clear baseline for the in-house competence requirements, have no doubt been significant factors which have led to the present situation. BEG(UK)L needs to adopt a clear policy on the use of contractors, together with its intelligent customer role and requirements, which take into account the limitations on the extent that reliance can be placed upon contractors due to BEG(UK)L's responsibilities as a Licensee.

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Integration of BEGL and BEG(UK)L

66. As discussed in Section 1, British Energy has put forward proposals to integrate the technical management and resources of the two Licensees, BEGL and BEG(UK)L. We have not yet agreed to these proposals and the potential impact of integration was one of the areas we explored during the audit.

67. We consider that all staff require a clear understanding of their revised responsibilities, changes in methods of work, and any additions to their workload before integration goes ahead. This is to ensure that there is a seamless transition into the integrated organisation with no diminution of standards of work or loss of control of the Licensees' operations. We found that, although the proposed structure of the integrated organisation has been defined and the managers for the joint team have been selected, few of the staff below senior level seem to know what additional responsibilities they might have to undertake following integration. We were also told that there is no explicit allowance within most work programmes to cater for the extra demands of integration - which will include additional travel between the two central offices at Barnwood (Gloucester) and Peel Park (East Kilbride). These demands will be over and above the normal workload, which is already high in many areas. We wish to be reassured that the two Licensees are ready to integrate. BEGL and BEG(UK)L therefore need to clearly define their state of readiness for integration and demonstrate that adequate control of operations can be maintained in both Licensees.

68. The integration proposals put forward by British Energy are novel and raise a potential problem which we had not previously considered in detail. The crux of the issue is additional responsibility placed on managers, the additional workload and hence their ability to adequately control and supervise safety related activity. Additionally, there is the question of the acceptability, in nuclear licensing terms, of individuals in the central (integrated) team who work for one Licensee (eg BEGL) providing advice to the operating stations in the other Licensee. Each Licensee is expected to maintain control of its own operations and have its own intelligent customer capability. The arrangement proposed by British Energy could violate these principles. Some common functions already exist between the two Licensees - notably civil engineering and electrical engineering expertise - and the audit has raised questions in these areas. Whilst these specific changes were not deemed unacceptable by NII in the past, the current proposals for integration on a much broader scale have caused us to look closely at the wider licensing implications. Resolution of these issues will be necessary before our agreement to the deferred integration proposals can be considered.

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SECTION 4 : AUDIT FINDINGS

35. This section presents a summary of the key findings from the audit. The findings have been drawn from the results of our confidential interviews with a large number of staff within BEGL and BEG(UK)L and in key contractors; over 250 people in total. We were afforded unfettered access to talk to staff. Their co-operation and openness greatly facilitated the work of the NII team, and contributed to the success of the audit.

36. The findings are focused on the areas for action to ensure the capability of BEGL and BEG(UK)L to discharge their responsibilities as Licensees is maintained or improved. However, good practices we found or confirmed during the audit are also noted. These have been taken into consideration in deciding the regulatory action which needs to be taken, as discussed in the Conclusions (paragraph 77). It is important that the Licensees maintain and build upon these areas of good practice

4.1 Areas of Good Practice

37. The principal organisational structures of both Licenses have not changed fundamentally from what was in place at the time of privatisation in 1996. For example, both Licensees have maintained Health, Safety and Environment Divisions that are independent from the Engineering Divisions which produce technical work and safety cases. These organisational structures can be considered as 'tried and tested'.

38. Staff at all levels were committed to safe operation of the nuclear facilities; indeed the statement that 'safety is non negotiable' was put to us in many ways in the various interviews. This is an attitude that we had expected to find in the staff of nuclear Licensees. To back this up, we were given examples of situations where commercially advantageous work was being delayed to allow completion of safety related projects, and we found no indications that safety related issues were being suppressed.

39. The experienced staff we interviewed were of a uniformly high standard, technically proficient in their fields, and professional in their approach. They were of the expected calibre and are one of the Licensees' essential strengths.

40. The Directors and senior managers indicated they were aware of the potential pitfalls that downsizing can introduce. In particular, Directors confirmed they were aware of the problems encountered in nuclear companies elsewhere that have undergone downsizing. Directors also told us they recognised that the Licensees were the holders of a special technology and would ensure that no contractor would know more

about an area than the Licensees.

41. The majority of managers had in place all the measures available to them to mitigate adverse impacts of the downsizing exercise. For example, in BEGL a management decision was taken to disseminate specialised graphite expertise to more than the one remaining expert. Other examples are the retention of the world class expertise in structural integrity methodology, the development of experience sharing programmes, and training programmes aimed at achieving professional recognition in new recruits and maintaining technical and managerial competence of more experienced staff. There is also a policy of bringing in new graduates to renew and refresh the technical core of the company.

42. The initial targets set for downsizing had, in some areas, been revised when managers had made cases to limit the reduction in staff numbers. Managers had also taken other steps to maintain threatened capabilities within the Licensees - for example by bringing research work in-house and holding internal technical groups at the minimum critical number to ensure functional expertise was not lost.

43. We found groups within the Licensees who consider that the downsizing has produced a better focus on both commercial and safety work, and improved their efficiency and effectiveness. They highlighted improved co-ordination on outage work (due to better definition of roles and responsibilities) and a reduction in the number of different technical groups involved in decision making.

44. We were encouraged by the development of policies on mental health of staff. In some Divisions, these have been translated into guidance on overtime. Senior managers were clearly aware of the potential problems of excessive overtime. It was also recognised at senior level that the staff need more 'time to think', an important factor particularly in specialist technical areas. We were told that there will be a period of stability, without large scale changes, once the current downsizing processes (Vision 2000 and Route 21) have been completed.

45. We found other noteworthy examples of good practices within different areas in the two Licensees. In BEG(UK)L, there is a formal register of Suitably Qualified and Experienced Personnel (SQEPs) - this will provide the basis for identifying and maintaining the requisite skills base within the Licensee. BEG(UK)L makes effective use of Technical Development Committees as a vehicle for co-ordinating work and linking between the centre and the stations. In BEGL there is a general philosophy to retain in-house technical specialists, rather than rely more upon generalists, which accords with the intelligent customer requirement placed upon Licensees.

46. Both Licensees expressed their desire to achieve world class standards, which is a laudable aim. The senior management are committed to improving all round performance in striving towards this aim.

47. This brief overview picture identifies many of the characteristics we expect to find in the management and staff of nuclear Licensees. Further examples of good practices are provided in Appendix 2.

4.2 Areas for Further Action

48. The audit has revealed a number of areas where the Licensees need to take action to address problems or concerns. The key issues are discussed in this section, against each Licensee. The specific recommendations arising from the audit are set out in Appendix 3.

BEGL

49. A key factor in the Vision 2000 downsizing process was a predicted reduction in workload - 'doing less, with less'- which overall has not transpired. Nevertheless staffing levels have been reduced. Shortfalls in resource have been made up by employing additional contract staff, some of whom are ex-BEGL staff recently released on voluntary severance terms. In some of the key safety areas this has resulted in the work load on BEGL staff increasing, since they now have to deal with the safety issues plus supervision of contract staff.

50. We found that systems for work recording do not accurately reflect the number of hours being worked by staff. Our interviews with staff at different levels within BEGL revealed that some are working significant amounts of overtime or unpaid excess hours to keep abreast of the workload. Excessive and persistent demands upon the staff carry the potential for degradation of the quality of the product. Whilst BEGL recognise there is under-reporting of hours worked, which goes against company policy, it is not clear that it can gauge the extent of the problem. Further effort is required to match work loads with staffing levels and to ensure that there is an accurate measure of the hours staff are working (whether paid or not).

51. The inability to reliably predict the forward work load, as evidenced by the failure to achieve the 'doing less' (ie work reduction) prerequisite for Vision 2000, has clear implications for any future decisions on staff downsizing. When combined with the uncertainty over the actual numbers of hours being worked by staff, this emphasises the need for BEGL to ensure there is a firm foundation upon which to base its forward plans and staffing levels.

52. We had expected to find that BEGL had a clear definition of the skills base it needs to retain to enable it to discharge the responsibilities of a Licensee. Regardless of the impetus to downsize, BEGL cannot delegate these responsibilities to any other organisation. BEGL needs to maintain expertise within its own staff. We did not find a clear definition of the requisite skills base. The downsizing process has thus been taking place without knowing the overall limit - the minimum necessary skills base. BEGL needs to expedite the provision of a clear and accurate baseline for the range and depth of expertise it needs to retain as a Licensee. This needs to be combined with effective, long term succession planning to maintain and develop its technical expertise in nuclear matters over the lifetime of its nuclear facilities including decommissioning.

53. Downsizing has resulted in knowledge and expertise in some technical areas specific to the nuclear industry being vested in individuals (singleton experts) within BEGL. This leaves BEGL particularly vulnerable to loss of expertise - for example if such staff leave to pursue their careers elsewhere (as has happened). BEGL has found it difficult to find replacements with the necessary expertise and nuclear experience. BEGL cannot rely upon a policy that it will always be possible to buy in specialist nuclear expertise from the labour market. This needs to be taken into account when setting the baseline for the in house skills base (with some element of 'defence-in-depth'). During the audit we identified areas where we consider BEGL needs to increase staffing levels to counter vulnerabilities such as singleton expertise or over reliance upon contractors.

54. BEGL has a variety of relationships with contracting organisations, from the employment of individuals from agencies, through standard contracts for specific pieces of work, to longer term partnership arrangements. However, BEGL does not have a formal policy setting down why, when and how to use contractor support (taking into account its responsibilities as a Licensee). We believe the lack of such a policy, combined with the lack of a clear baseline for the in house skill levels, has led to the situation where the present staffing levels in some areas in BEGL need to be increased (as above). BEGL needs to clearly define, and apply, an appropriate policy governing the use of contractors.

55. BEGL is developing closer relationships with key contractors - known as partners. In most cases, the

partner organisations are well established in the nuclear field and undoubtedly can provide both expertise and experience. Nevertheless, regardless of the close relationships with BEGL, the partners must still be seen as contractors and BEGL cannot delegate any of its responsibilities as a Licensee under such arrangements. The use of partnerships is not ruled out in principle, however it raises issues such as loss of the Licensee's corporate knowledge and expertise, reduction in opportunities for technical development of Licensee staff, and ultimately the potential for loss of control and ownership of safety cases by the Licensee. In pursuing and developing partnerships (and in any other arrangements with external bodies), BEGL must ensure it retains the necessary range and depth of in house expertise to be able to subject work or advice received from external sources to informed and critical review before acting on it. Based on the audit findings, we believe the relationship between the BEGL and its partners needs to be reviewed as part of the development of an overall policy on the use of contractors.

56. Given the extent to which BEGL utilises contractors and partners, we had expected to find the concept of 'intelligent customer' and the requirements of the role to be well defined. However, we found only one manager who had anything formally written down on the role. BEGL needs to promulgate a company-wide policy on the intelligent customer role and requirements. Appendix 1 sets out the basis on which the intelligent customer capability was evaluated by the NII audit team.

57. During the audit, we focused on the outcome from BEGL's downsizing and management of change process rather than the process itself (which had been considered in previous inspections). However, some aspects of the execution of the management of change process did come under review. Based on past understanding, we expected that specific pre-conditions (enablers) would have to be satisfied before the person was released on voluntary severance, to ensure the organisation would be able to cope without that individual. Key amongst these enablers was a reduction in work, or establishing that a role was no longer required. In exceptional situations, we were aware that compensating measures such as work deferral, reallocation of responsibilities, deferring severance dates, or filling gaps with contractors would be deployed.

58. We found that these compensating measures have tended to become the norm, which explains how staff have been released under the management of change process without the concomitant reduction in work load. The process has also been misused in that some enablers have been met by means of changing pre-conditions to ongoing (open ended) commitments, which are not then always met before someone is released - for example, a requirement to 'provide a trained replacement before release' becomes simply 'provide training'. The small sample of records that we checked did not provide confidence that the principles of the process had been honoured and the procedure followed rigorously. In our view a management of change process which can reduce a scarce resource down to a single person must, in any case, be open to question. BEGL needs to carefully review its management of change process to address these shortfalls.

BEG(UK)L

59. Under the downsizing (Route 21) process, the planned work load within BEG(UK)L has reduced, although the reduction does not quite meet the prediction. The management of change process in BEG(UK)L required staff to be retained in post until the work had actually reduced and we found this requirement had been honoured. However the amount of emergent work has been substantially underestimated and in some areas individual work loads are high.

60. Some staff are working significant amounts of overtime or unpaid excess hours. We also found that there is under-reporting of hours worked. The downsizing decisions are suspect when the forward work load cannot be accurately foreseen, even over reasonably short periods (2 or 3 years), and the amount of effort being applied with the present staffing levels has not been accurately determined. BEG(UK)L

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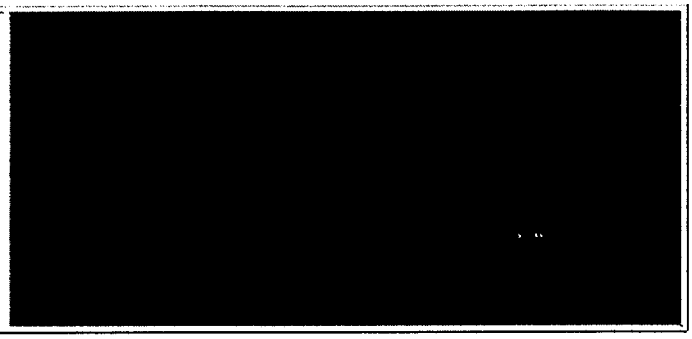

SECTION 5 : CONCLUSIONS

69. The objective of the audit was to establish whether the resources and the overall capabilities of BEGL and BEG(UK)L were such that they could continue to discharge their responsibilities as nuclear Licensees in the light of their staff reduction programmes. The findings are based on the information we obtained from confidential interviews with a wide cross section of the staff within BEGL and BEG(UK)L, focused upon the headquarters and technical centres at Barnwood in Gloucester (BEGL) and Peel Park in East Kilbride (BEG(UK)L, and in key contractors.

70. The audit has identified issues which could impact on the licensability and safety performance of BEGL and BEG(UK)L unless effective corrective actions are taken. The report focuses on the areas for action to ensure the capability of BEGL and BEG(UK)L to discharge their responsibilities as Licensees is maintained or improved. However, we have also identified aspects of good practice or characteristics of the type we expect from nuclear Licensees.

71. The overriding issue is the lack of a clear definition of the requisite skills base that must be retained within both BEGL and BEG(UK)L to fulfill their responsibilities as Licensees. This is combined with the absence of formal policies covering the use of contractors to provide technical resources and expertise, in particular to define the extent to which reliance upon contractors is allowable.

72. There are related issues which include the need for a long term strategy to ensure retention and development of the expertise required within the Licensees throughout the lifetime of the nuclear power stations (including decommissioning). Also, there is a lack of formal and viable contingency plans to address the Licensees' vulnerability to loss of key contractors.

73. The management of change process in both Licensees is in need of urgent review. In each Licensee there are flaws in both the process and in its application. For example, the change process has not prevented the creation of areas of singleton expertise, which makes both Licensees vulnerable to loss of key individuals. There are also cases where staff have been released without the necessary prerequisites having been achieved (eg a reduction in work, or the provision of a suitably qualified and experienced replacement).

74. A reduction in work load was a principal factor in the downsizing aims of both Licensees. However, forward predictions of the work load (taking into account emergent work) is difficult to achieve accurately. The staffing level targets in both Licensees and their management of change process need to recognise this uncertainty.

75. There are issues to be resolved before the proposed integration of the management and technical teams in BEGL and BEG(UK)L could be agreed by NII. The primary issue is the ability of each Licensee to demonstrate it will retain control of its operations, as required under the nuclear site licences. The additional work load and responsibilities placed upon staff are part of the issue.

76. The key areas for action by the Licensees are as follows (the specific recommendations are presented in Appendix 3):

BEGL and BEG(UK)L to stop the planned reduction of in-house staff numbers until they can demonstrate their forward work predictions are reliable, and demonstrate that the Management of Change processes will not adversely affect the safety of nuclear plants.
BEGL and BEG(UK)L to ensure that business plans are matched to the in-house staff capability and perceived work load.
BEGL and BEG(UK)L to formalise, record and resource the skills base that each requires to underpin the duties of a Licensee to retain ownership and control of its operations
BEGL and BEG(UK)L to develop and promulgate policies to identify the key considerations and to guide decision making on why, when and how to utilise contractor resource - including their 'intelligent customer' requirements.
BEGL and BEG(UK)L to investigate the reasons for the high level of overtime worked in certain areas (including estimates of that not reported), and take steps to prevent excessive hours being worked by staff handling nuclear safety related work
BEGL and BEG(UK)L, as a matter of urgency, to critically review their Management of Change processes to ensure they incorporate the lessons learned from the shortfalls in the processes (including the findings of this audit).
BEGL and BEG(UK)L to resolve licensing, control and state of readiness issues before seeking NII agreement to the proposed integration of the technical management and resource teams within BEGL and BEG(UK).

77. We judge that the issues raised, whilst significant over the medium to long term, are not such that they challenge the immediate safety of the operating stations.

78. BEGL and BEG(UK)L are producing action plans to address the recommendations arising from the audit. These action plans are to be completed within four weeks of receipt of this report. We will progess this work with the two Licensees to expedite a satisfactory resolution of the recommendations.

79. The commercial pressures on BEGL and BEG(UK)L will remain, if not increase. Both Licensees will need to remain aware of the issues raised in this report and their need to have an adequate management structure and sufficient of their own resources to discharge the obligations and liabilities associated with the holding of a nuclear site licence.

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APPENDIX 1 : INTELLIGENT CUSTOMER FUNCTION

Introduction

1. Recent commercial developments in the electricity industry have increased the commercial pressure on the Licensees - who have responded by downsizing and delayering. There is a limit to this process because the Licensees cannot delegate the responsibility for safe operation of any nuclear facility. To discharge this responsibility they need to retain sufficient internal expertise to be able to discharge their duties and responsibilities under their Nuclear Site Licenses.

2. The requirements of Nuclear Site Licensees are set down in Notes for Applicants (available from HSE Books: ISBN-0-7176-0795-X). The principles regarding a Licensee's own capability and expertise are set out on pages 9 and 10 of this document (paragraphs 39 to 43 and 46). NII's thinking on the specific requirements behind the principles has been developing since the publication of Notes for Applicants in 1994 - a list of relevant references is given at the end of this Appendix.

3. The trend in the nuclear industry is towards a higher reliance on external - usually contractor - expertise and staff. How then does the regulator decide whether the internal staffing retained within a Licensee is sufficient to meet the requirements of the Licensee's duties, in particular to understand and own work undertaken by others? Different terminology has been used to describe this particular requirement - intelligent customer, informed customer, informed client - but the principle remains the same. NII has chosen to use the term 'intelligent customer'. The basic concept of the 'intelligent customer' role and its requirements, as used for guidance in this audit, are set out below. The thinking on this subject continues to be developed within NII.

Intelligent Customer

4. It is the regulatory view that the Licensee needs to retain an 'intelligent customer' capability, whatever else is outsourced. It is judged that if this capability is lost the Licensee is in danger of losing - or already has lost - the ability to understand the nuclear facility safety cases. As a result, the ability to operate the facilities safely is called into question.

5. What then does an intelligent customer group (ICG) have to be able to do? Clearly this group has to be able to understand the safety basis on which the Licensee operates. The ICG needs to be able to understand not only the information in the safety case, but also what is not there and to know what should be there. It has to be able to recognise the strengths and weaknesses in the case and how these will change over time, or when new problems arise. It has to be able to integrate the reality on the facility with the assumptions and requirements of the safety case - and spot the discrepancies.

6. This capability has to apply across the full range of the safety issues which are pertinent to the operation of the facility or facilities for which the Licensee holds nuclear site licenses. While information can be captured by a records system, the knowledge to interpret the information and apply it to new or changed situations resides solely in suitably qualified and experienced staff.

7. It is suggested that knowledge retention can be achieved if the Licensee maintains within its own organisation a core technical and managerial team that has, as a minimum, the following capability:

to set, interpret and deliver safety and engineering standards relevant to the business; to understand and support all aspects of the safety case and the facility operation over the full facility lifetime - including decommissioning and disposal; to maintain and develop the corporate memory; and to ensure suitably qualified and experienced staff are available to make the judgements pertinent to safety both now and in the future.

How is this achieved?

Resources

8. To achieve this capability, the Licensee will have to maintain a broad and up-to-date skills base within its organisation. This team can enable the Licensee to guarantee that, for work done in house or by a contractor, all the possible safety implications have been considered and are understood. This includes, for example: explicit and implicit assumptions, the suitability and limitations of chosen methodologies, the validity of input data and the use of approximations.

9. This requires the team to know what they don't know - and to know how significant is that lack of knowledge to the judgement being made. To do this, they need to be fully up to date; key detail can be lost without continuing 'hands on' practice.

10. It is suggested that, to remain suitably qualified and experienced, staff should actively practise and develop their specialist skills and be involved in activities such as: research and development associated with technical or organisational problems; the development and maintenance of standards (in-house, national and international); the fundamental evaluation of safety issues. The in-house team should do the original thinking in the areas where the Licensee's business presents particular hazards. In addition, if they are responsible for the specification, monitoring, and acceptance of work done by contractors they will need to be trained and up to date in the techniques for the control and direction of contract staff.

11. The in-house staff levels will be based on the perceived or predicted workload - but if these staff are to maintain their specialist expertise at a current professional level, the extent of their in-house duties will limit their ability to control contractor work. The combined professional and contractor control responsibilities is one of the factors which will determine how many in-house staff are needed. The ability to respond to the unforeseen (eg an unexpected technical issue, or sudden loss of experienced staff) is another factor. It is self evident that, since suitably qualified and experienced people take time to develop,

the time horizon for their recruitment and career development will need to be sufficiently long. The Licensee will need to ensure there is a continuing supply of in-house experts. This will require policies on succession planning, personal and professional development.

12. It is worth noting that, if an adequate in-house skills base is available, the impact of the loss of a contractor will be minimised. Licensee staff will always be available to make professionally informed judgements on matters of safety, in the short and the long term.

Handling of Safety Issues

13. Where safety issues have high hazard potential (for example, with a significant off-site or societal impact), the in-house team have to be capable of viewing the issue holistically to identify all relevant aspects that need to be addressed. If they cannot undertake the work themselves, they will need to be able to specify and lead the work of the suitable contractors. It will be their responsibility to review and accept the work of contractors and ensure that the information supplied by contractors is seamlessly integrated into the overall response to a given safety issue. The in-house team will be responsible for both the integrity of the safety cases (which are the basis on which the Licence holder discharges his duty of care under the Licence) and the implementation of the controls and limits on the facility derived therefrom. They will also be responsible for capturing and recording the corporate memory.

How do you tell whether or not any Group is an ICG?

14. The simplest question is - could you do the work yourself if the contractor was to disappear? This is followed by the query - and when was the last time you actually did such work yourself?

15. There are many possible checks - including the range of skills, qualifications, recent training and work involvement - but current professionals in any area can usually recognise others from the same discipline. In addition, the type of work being carried out routinely within the Licensee will be an indicator of the current capability of the intelligent customer groups. These groups should be driving the thinking in areas where the Licensee's business presents significant hazards. Therefore, advice from contractors must be subject to informed and critical review - not just blind acceptance.

Related References

The following papers and documents all discuss, in some form, the concept of 'intelligent customer' and/or the requirements of the role:

Managing Technical Resources in the Nuclear Industry - A Regulatory Perspective
IMechE Seminar, September 1999, D Senior

Partnering in the Nuclear Industry - A Regulatory Perspective
BNES Alliancing Conference, June 1999, F Taylor and A Coatsworth

Regulatory Requirements for the Use of Contractors on Nuclear Licensed Sites

Nuclear Energy 1998, 37, No. 1, 55-58

Safety Audit of Dounreay 1998
HSE/SEPA Misc 148

Restructuring and Privatisation of the UK Nuclear Power Industry
HSE NUC 9, May 1996

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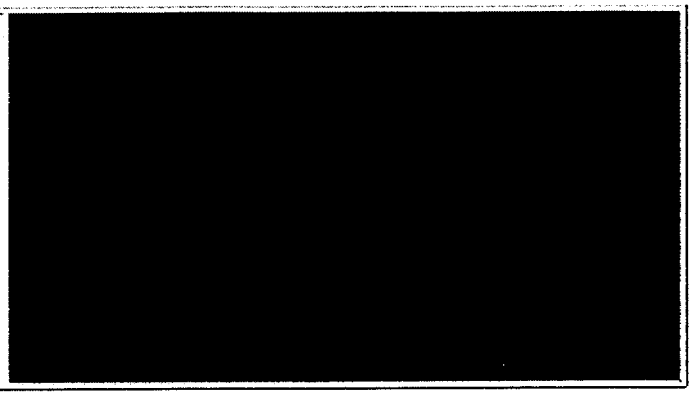

APPENDIX 2 : SUMMARY OF GOOD PRACTICES

Section 4.1 of the main body of the report highlights areas of good practice found (or confirmed) during the audit. This Appendix provides a more expansive list of good points and practices, identifying many of the characteristics we expect to find in the management and staff of nuclear Licensees. For completeness, the list below includes the points covered in Section 4.1:

The principal organisational structures of both Licensees are 'tried and tested'. Staff at all levels expressed a commitment to safe operation of the nuclear facilities. The staff we interviewed were of a uniformly high standard, technically proficient in their fields, and professional in their approach. They were of the expected calibre and are one of the Licensees' essential strengths. The Directors and senior managers are aware of the potential pitfalls that downsizing can introduce and the problems it has caused in nuclear companies elsewhere. The majority of managers had in place all the measures available to them to mitigate adverse impacts of the downsizing exercise. BEGL has retained its world expertise in structural integrity methodology. Experience sharing programmes are being developed along with the training programmes aimed at achieving professional recognition in new recruits and maintaining technical and managerial competence of more experienced staff. There is a policy of bringing in new graduates to renew and refresh the technical core. The initial targets set for downsizing had, in some areas, been revised when managers had made cases to limit the reduction in staff numbers. Managers have taken steps to maintain threatened capabilities within the Licensees - for example by bringing research work in-house and holding internal technical groups at the minimum critical number to ensure functional expertise was not lost. Some groups within the Licensees consider that the downsizing has produced a better focus on both commercial and safety work, and improved their efficiency and effectiveness. There are policies on mental health monitoring of staff, and these have been translated into guidance on overtime. Senior managers were clearly aware of the potential problems of excessive overtime.

It is recognised at senior level that the staff need more 'time to think', an important factor particularly in specialist technical areas. There is intended to be a period of stability, without large scale changes, once the current downsizing processes (Vision 2000 and Route 21) have been completed; In BEG(UK)L, there is a formal register of Suitably Qualified and Experienced Personnel (SQEPs). BEG(UK)L makes effective use of Technical Development Committees as a vehicle for co-ordinating work and linking between the centre and the stations. In BEGL there is a general philosophy to retain in-house technical specialists (rather than rely more upon generalists) which accords with the intelligent customer requirement placed upon Licensees. Both Licensees have expressed their desire to achieve world class standards. The senior

management are committed to improving all round performance to achieve this aim. Clarification of roles and responsibilities for outage co-ordination work is improving the focus and effectiveness of the groups involved in this work. In some areas improvements have been seen in work planning and prioritisation using a more realistic approach. The monitored Professional Development Programme scheme is considered a good practice. BEGL is looking towards establishing longer term contracts with partners to secure external support; BEGL undertakes the probabilistic safety analysis (PSA) work for its pressurised water reactor in-house. It is recognised by both Licensees that a lessons learned review is required on the MoC process. In BEGL, the procurement team recognises the need to review the ACQUIRE process to improve and capture lessons learned so far. A system is being developed to ensure contractor performance reports are made available to all procurers. In BEGL, the graphite team has been increased in numbers.

BEGL has in place a programme of initiatives to effect improvements to the quality of safety cases; In BEG(UK)L, it is recognised that in the Mechanical and Civil Design area the teams are down to the minimum critical mass and the teams have been held at this level (against the expectation that integration will bring more work). BEG(UK)L plans to provide human factors training for AGR systems staff. In BEG(UK)L, the Fuel Route Design team has taken the initiative of running awareness sessions on the stations to bring people up to speed with changes to the safety case. In BEG(UK)L, the current professional mix within the Civil Design Group appears well balanced to deliver the technical capability to both Licensees. Staff members displayed a positive attitude to research and training. The Civil Design Group attached considerable importance to ensuring a rigorous review of design work undertaken by contractors. This review appears to constitute a second verification. In the Electrical Design Group in BEG(UK)L , the : personal development plans have a 3 to 5 year horizon. This model appears to work well. The quality assurance approach in BEG(UK)L to auditing is to ensure that teams are used to audit areas such as stations and the team composition does not include members from the audited area.

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APPENDIX 3 : LIST OF RECOMMENDATIONS

This Appendix presents a list of all the recommendations arising from the audit process. The listing is as follows: Recommendations for BEGL; Recommendations for BEG(UK)L; Recommendations on Integration; and Recommendations from the Conclusions. For BEGL and BEG(UK)L, the recommendations are grouped under the subject areas of: Corporate Management Aspects; Management of Safety; Use of Contractors; and Divisional Findings. The latter comprise recommendations associated with specific areas of each Licensee's organisation.

RECOMMENDATIONS FOR BEGL

Corporate Management Aspects

Recommendation 1: BEGL to review its approach to communicating policy and strategy to staff to ensure that messages are received, understood, and acted upon.

Recommendation 2: BEGL to ensure members of BE Group who influence strategic direction in areas which impact on nuclear safety are suitably knowledgeable on nuclear industry requirements and standards.

Recommendation 3 : BEGL to review the organisational management philosophy to ensure that safety related tasks are being carried out effectively.

Recommendation 4 : BEGL to reconsider the decision to disband the Projects and Station Support Branch and provide a clear justification of any subsequent decision including proposals for the strengthening of the management of safety related projects.

Management of Safety

Recommendation 5 : BEGL to formalise, record and resource the skills base that it requires to underpin

the duties of a Licensee to retain ownership and control of its operations.

Recommendation 6 : BEGL to develop and promulgate a policy and guidance on the retention of safety related expertise required to discharge its responsibilities under the Licence.

Recommendation 7 : BEGL to put in place the necessary arrangements to ensure that key expertise and corporate knowledge is retained within the organisation.

Recommendation 8 : BEGL to review the succession planning process and demonstrate that it can maintain the supply of suitably qualified and experienced personnel, taking account of future needs, age profiles and the technical specialisms required.

Recommendation 9 : BEGL to reinforce the requirement that overtime recording is mandatory for all staff at all levels, monitor compliance with the requirement, and act on the outcomes.

Recommendation 10: BEGL to investigate the reasons for the high level of overtime worked in certain areas (including estimates of that not reported), and take steps to prevent excessive hours being worked by staff handling nuclear safety related work.

Recommendation 11: BEGL to ensure that business plans are matched to the in house staff capability and work load.

Recommendation 12: BEGL to reconsider the options for the recognition of the value and reward of specialist expertise to ensure career paths for specialists remain attractive.

Recommendation 13: BEGL to demonstrate that the training strategy ensures the balance of training between the centre and the stations is appropriate. Recommendation 14 : As a matter of urgency, BEGL to critically review the Management of Change process in order to ensure it will incorporate the lessons learned from the change process thus far (including the findings from this audit). Recommendation 15 : BEGL to stop the planned reduction of in-house staff numbers until it can demonstrate the forward work prediction is reliable, and demonstrate that the new Management of Change procedure will not adversely affect the safety of nuclear plants. **Use of Contractors** Recommendation 16 : BEGL to develop and promulgate a policy to identify the key considerations and to guide decision making on why, when and how to utilise contractor resource.

Recommendation 17 : BEGL to reconsider its philosophy for the use of Agency staff and the arrangements for the maintenance of their technical skills.

Recommendation 18 : BEGL to review the performance of recent contracts and the process for dissemination of contract performance as part of the development of the policy on use of contractors.

Recommendation 19 : As part of the work on developing a policy on the use of contractors, BEGL to review the type of work that can be handled by partners and the arrangements for direction and monitoring of such work.

Recommendation 20 : BEGL to review its dependency on contractor support in specialist technical areas and derive formal contingency plans to secure that support against events such as contractors ceasing to trade, change of ownership and withdrawal of services.

Recommendation 21 : As part of the development of the policy on the use of contractors, BEGL to reconsider the induction and refresher training required by contract staff.

Recommendation 22 : As part of the work to support the development of the policy on use of contractors, BEGL to initiate a formal procedure for routine checking of a sample of the quality of contractors.

Recommendation 23 : BEGL to consider the benefits of involvement in the industry wide initiatives relating to use of contractors (eg recording of contractor performance).

Recommendation 24 : BEGL to develop and document procedures which ensure the contract strategy covers all safety aspects.

Divisional Findings

Recommendation 25 : BEGL to reverse the trend to use contractors for safety related activities and increase the in-house staff levels in the Structural Assessment Group to ensure adequate control and ownership of the work.

Recommendation 26 : BEGL to address the current vulnerabilities in the Materials Group regarding the areas of singleton expertise and current skills shortages, and provide longer term plans to sustain the key skill areas.

Recommendation 27 : BEGL to address the current skills shortages in the NDT Group and provide longer term plans to sustain the key skill areas.

Recommendation 28 : BEGL to clearly define the necessary skills and experience for staff in the Safety Case Production Group, and to demonstrate a viable succession plan to sustain the work of the Group.

Recommendation 29 : BEGL to urgently review the working of the partnership arrangement in the structural integrity area to ensure that the sub-contracting of work by the partner is appropriate and that all contractor staff are suitably qualified and experienced to undertake their assigned tasks.

Recommendation 30 : BEGL to ensure sufficient time for mentoring new recruits is maintained in the work planning for existing staff.

Recommendation 31 : BEGL to strengthen the resources in the Human Factors area and to provide a programme to undertake more proactive work in this field.

Recommendation 32 : BEGL to ensure that staffing reductions under Vision 2000 do not diminish the operating experience feedback service provided to Engineering Division.

Recommendation 33 : BEGL to define the minimum sustainable level of PWR expertise required to meet current and future nuclear safety requirements and to ensure that the number of suitably qualified and experienced staff is maintained at or above this level.

Recommendation 34 : BEGL to clearly define the requirements for the civil engineering interface role within Engineering Division and to provide appropriate procedures and guidance to enable the 'intelligent customer' responsibilities to be fulfilled.

Recommendation 35 : BEGL to ensure that the training and development provided to staff in partner contractors is commensurate with that provided to its own staff doing equivalent work, including the

acquisition and updating of plant knowledge.

Recommendation 36 : BEGL to put in place measures to ensure staff in partner contractors are as well informed as would be the case if work was undertaken within BEGL.

Recommendation 37 : BEGL to allow time for, and encourage staff to participate in, research and development activities.

Recommendation 38 : BEGL to strengthen the available expertise in the criticality, graphite and severe accident areas.

Recommendation 39 : BEGL to formally define the range and level of expertise required to be an 'intelligent user' of all computer codes used in safety analysis work, and to ensure the necessary expertise is retained and developed within BEGL

Recommendation 40 : BEGL to provide more resources on fire protection, including a review of the decision to abolish the post of company fire safety officer, and undertake more proactive work at nuclear stations.

Recommendation 41 : BEGL to recover the in house capability for radiation chemistry expertise.

Recommendation 42 : BEGL to clearly define the requirements for the electrical engineering interface role within Engineering Division and to provide appropriate procedures and guidance to enable the 'intelligent customer' responsibilities to be fulfilled.

Recommendation 43 : BEGL to review the partnership arrangement for C&I support to define those tasks which should be carried out only by BEGL staff, and to ensure that control and ownership of work always resides with BEGL.

Recommendation 44 : BEGL to provide a status report on the safety case management initiatives, including a review against the findings from the NII safety case inspection in 1997.

Recommendation 45 : BEGL to increase the level of suitably qualified and experienced personnel available to the Periodic Safety Review area of work.

Recommendation 46 : BEGL to provide an adequate level of PSA expertise within Engineering Division to meet current and future workloads, including the implementation of its forward strategy regarding the use of PSAs.

Recommendation 47 : BEGL to ensure that HSED Assessment and Consents Branch is adequately resourced to undertake a full range of independent assessment and review activities, including maintaining an internal overview of the INSA process.

Recommendation 48 : BEGL to formally define the requirements for staff to be suitably qualified and experienced in HSED Assessment and Consents Branch (in particular for the specific INSA posts).

Recommendation 49 : BEGL to ensure sufficient staff are available to carry out the INSA process and monitor the use of contractors for technical support to the INSA process to ensure independence is not compromised. Recommendation 50 : BEGL to ensure that the quality and depth of the INSA examination is maintained.

Recommendation 51 : BEGL to review the function of HSED site inspectors and ensure staffing levels in HSED Inspection and Standards Branch are sufficient to cope with the existing work load without the need for excessive amounts of overtime working.

Recommendation 52 : BEGL to transfer the HSED role of monitoring the Management of Change process in Engineering Division from Inspection and Standards Branch to Assessment and Consents Branch, and provide the necessary resources.

Recommendation 53 : BEGL to make a robust safety case for the proposal to integrate industrial safety inspection into the Occupational Health Group, prior to implementing the change.

Recommendation 54 : BEGL to ensure that its radiological protection standards are maintained and, wherever practicable, improved and the necessary expertise to achieve this aim is retained within BEGL.

Recommendation 55 : BEGL to ensure the Procurement Department has sufficient staff to discharge its role and responsibilities, principally with respect to the provision of added safety value and contractor performance monitoring.

Recommendation 56 : BEGL to improve the dissemination of information on contractor performance.

Recommendation 57 : BEGL to ensure the different contractual relationships and the interface requirements are clearly defined and are commonly understood and applied throughout BEGL.

Recommendation 58 : BEGL to define the corporate QA strategy and the approach to the management of quality throughout BEGL covering the stations, Engineering Division, the corporate centre and contractors.

Recommendation 59 : BEGL to ensure that the Corporate Quality Department is adequately staffed to implement and maintain the corporate QA strategy.

Recommendation 60 : BEGL to define the role and influence of the Business Review and Audit Department (BRAD) and the main BE Board on its activities as a Licensee.

Recommendation 61 : BEGL to ensure that a practicable solution to the problems regarding harmonisation of QA strategies, procedures and practices is identified prior to integration with BEG(UK)L.

Recommendation 62 : BEGL to review the role and scope of responsibilities for the Emergency Planning Group to improve its ability to discharge the function of maintaining and improving standards of emergency response.

Recommendation 63 : BEGL to ensure that the emergency response capability is not compromised by changes in the Information Management Department (IMD) and to put in place specific performance measures to monitor the impact of reductions in IMD staff.

Recommendation 64 : BEGL to review the operational experience feedback process, and the role of the Central Feedback Unit, to ensure its effectiveness and to introduce measures to demonstrate its effectiveness.

Recommendation 65 : BEGL to ensure (and demonstrate) that the Human Resource Department has the requisite level of staff to effectively perform its function.

RECOMMENDATIONS FOR BEG(UK)L

Corporate Management Aspects

Recommendation 66 : BEG(UK)L to review its approach to communicating policy and strategy to staff to ensure that messages are received, understood, and acted upon.

Recommendation 67 : In support of work on Recommendations 66 and 1, BEG(UK)L & BEGL to ensure that full integration and split site working will not adversely affect their communication systems and organisational culture.

Management of Safety

Recommendation 68 : BEG(UK)L to recover its full in house intelligent customer capability.

Recommendation 69 : BEG(UK)L to review its policy and practice for the appointment of SQEPs to ensure an appropriate range of the necessary topic areas, sufficiency in numbers and coverage of all topics by direct employees of the Licensee.

Recommendation 70 : BEG(UK)L to formally review and develop the SQEP register concept to identify criteria to be met before a person can be entered on the register and requirements for maintenance of skills.

Recommendation 71 : BEG(UK)L to develop into a formal procedure the guidance for decision making on SQEP capability of candidates to include, inter alia, requirements for the situation where the Section Manager's technical discipline does not allow direct assessment to be made.

Recommendation 72 : BEG(UK)L to develop the formal process of review of the SQEP Register to consider longer term requirements (say over 10 years) and maintain a sufficient number of suitably qualified and experienced staff.

Recommendation 73 : BEG(UK)L to ensure that business plans are matched to the in house staff capability and workload.

Recommendation 74 : BEG(UK)L to reinforce the requirement that overtime recording is mandatory for all staff at all levels, to monitor compliance and act on the results.

Recommendation 75 : BEG(UK)L to investigate the reasons for the high level of overtime worked in certain areas (including estimates of that not reported), and take steps to prevent excessive hours being worked by staff handling nuclear safety related work.

Recommendation 76 : As a matter of urgency, BEG(UK)L to critically review the Management of Change process in order to ensure it will incorporate the lessons learned from the change process thus far (including the findings from the audit).

Recommendation 77 : BEG(UK)L to stop the planned reduction of in-house staff numbers until it can demonstrate the forward work prediction is reliable, and demonstrate that the new Management of Change procedure will not adversely effect the safety of nuclear plants.

Use of Contractors

Recommendation 78 : BEG(UK)L to develop and promulgate a policy to identify the key considerations and to guide decision making on why, when and how to utilise contractor resource.

Recommendation 79 : BEG(UK)L to review its dependency on contractor support in specialist technical areas and derive formal contingency plans to secure that support against events such as contractors ceasing to trade, change of ownership and withdrawal of services.

Recommendation 80 : BEG(UK)L to produce arrangements for working with the satellite offices which clearly define and formalise the roles of the Licensee and the contractor.

Divisional Findings

Recommendation 81 : BEG(UK)L to address the status of the Fuel Route Group, review the in-house resource levels and demonstrate there are adequate plans to retain and develop fuel route expertise.

Recommendation 82 : BEG(UK)L to review the overall forward work load in the fuel route area to ensure adequate resources are available for safety related work.

Recommendation 83 : BEG(UK)L to reconsider the competencies that must be retained within the Licensee in the Nuclear Technology Section and provide BEG(UK)L SQEP personnel to cover these areas of expertise.

Recommendation 84 : BEG(UK)L to reconsider the procedures for acceptance of safety related work from contractors to ensure it receives an informed review by their SQEP personnel so that they can demonstrate control and ownership of the work.

Recommendation 85 : BEG(UK)L to reconsider the degree of Human Factors expertise it requires, and how best to deliver that expertise.

Recommendation 86 : BEG(UK)L to allow time in work plans for staff to be involved in research activities pertinent to their expertise and the company's interest.

Recommendation 87 : BEG(UK)L and BEGL to develop the interface agreements between the Civil Design Group and other parts of the licensees to clarify the roles and responsibilities and to ensure that a clear specification of the work required reaches the Civils Group.

Recommendation 88 : BEGL AND BEG(UK)L to clarify the arrangements to support the gas turbine standby supply capability on BEGL stations.

Recommendation 89 : BEG(UK)L and BEGL to review the forward work load for the Electrical group, recognising the travel burden, to confirm additional personnel are not required.

Recommendation 90 : BEG(UK)L to review the procedures for the specification, direction, and monitoring of work undertaken by satellite offices to ensure BEG(UK)L can demonstrate ownership of the

product and understanding sufficient to allow appropriate safety related decisions to be made.

Recommendation 91 : BEG(UK)L to provide in house expertise to cover the required SQEP posts within HSED and ensure safety significant issues are assessed in house.

Recommendation 92 : BEG(UK)L to institute a system for review of the INSA process and to maintain an overview of the INSA process.

Recommendation 93 : BEG(UK)L to review incidents at stations during the downsizing exercise to determine root causes and establish whether loss of corporate memory has been a factor.

Recommendation 94 : BEG(UK)L to explain how it will ensure each Licensee is in control of its own procurement in the period after integration and before relicensing as a single Licensee.

Recommendation 95 : BEG(UK)L to introduce measures to enhance collection and dissemination of contractor safety reports - both before and after computerisation.

Recommendation 96 : BEG(UK)L to formalise the process by which the QA expertise is developed and maintained throughout the organisation.

Recommendation 97 : BEGL and BEG(UK)L to complete a critical review of the working of the QA function across both Licensees to identify best practice and standards for adoption.

Recommendation 98 : BEG(UK)L to review the data available to ensure an integrated view of an individual's experience is available as part of the SQEP review process.

Recommendation 99 : BEG(UK)L to review the inputs into the additional hours worked figures to ensure they are representative of the whole of the Licensee.

RECOMMENDATIONS ON INTEGRATION

Recommendation 100 : BEGL and BEG(UK)L to define their state of readiness for integration and to demonstrate that adequate control of operations can be maintained throughout both Licensees (encompassing awareness of responsibilities, familiarity with procedures and work loads on staff).

Recommendation 101 : BE to demonstrate how advice from a central technical team member of one Licensee to operating staff in the other Licensee will be reviewed by the intelligent customer of the operating Licensee.

RECOMMENDATIONS FROM CONCLUSIONS

Recommendation 102 : BEGL to address the recommendations in this report by providing an action plan, to be completed within four weeks of receipt of this report, with proposals and timescales for resolving the recommendations.

Recommendation 103 : BEG(UK)L to address the recommendations in this report by providing an action plan, to be completed within four weeks of receipt of this report, with proposals and timescales for

resolving the recommendations.

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