

Treatment of Plutonium Contaminated Material at Sellafield

Assessment of Feedback from Stakeholder Questionnaire Responses



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Preface

Following the recent renaming of the management company for the Sellafield site, and the accompanying rebranding of British Nuclear Group Sellafield as Sellafield Ltd, information within this document that refers to British Nuclear Group Sellafield should now be taken to apply to Sellafield Ltd.

Given that the work described in this report was initiated prior to the change of name, no attempt has been made here to alter names in order to reflect the rebranding. Despite the change of name, the information itself nevertheless remains relevant and correct.

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Summary

British Nuclear Group Sellafield Limited (BNGSL) is carrying out a review of treatment options for plutonium contaminated material, with the aim of defining and selecting a preferred long-term management strategy for such wastes at Sellafield. As part of that review, BNGSL published consultation documents on its website in February 2007. The documents, and a related questionnaire for responses, were prominently identified and readily accessible via a link on the website's homepage, with a requested reply deadline of mid-May 2007.

In recognition of the value of external independent expertise to guide, facilitate, audit and provide assurance for BNGSL's options assessment activities, this analysis of questionnaire responses has been independently prepared by Quintessa. The note summarises the broad themes and main issues identified by respondents and presents a summary of the key themes that emerged.

According to the questionnaire responses, those who participated in the web-based consultation appeared to be supportive of the consultation process, the information provided, and the technical and strategic approaches described. In particular, respondents supported the need to develop flexible strategies that take into account the entire life-cycle of the wastes, treat different waste streams appropriately, and consider appropriate combinations of technologies with pre- and post-processing where required.

Overall, these key outcomes would appear to reflect many of the priorities identified through a separate stakeholder consultation workshop held in May 2007.

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1 Introduction

Quintessa is providing independent expert support to a Best Practicable Environmental Option (BPEO) study for the management of Plutonium Contaminated Material (PCM) at Sellafield, which is currently being undertaken by British Nuclear Group Sellafield Limited (BNGSL). In particular, Quintessa has been providing assistance in the preparation for, and facilitation of, external stakeholder engagement processes. The primary focus of the stakeholder engagement relates to strategic issues surrounding the identification of a preferred management approach.

Consultation documents were published, prominently identified and made readily accessible via a link on the homepage of the BNGSL website in February 2007¹. Material made available via this route included both a high-level summary and detailed information documents². Members of the West Cumbria Site Stakeholder Group and other key local stakeholders were notified regarding the information that had been published as well as the associated consultation process. In particular, representatives of a number of key organisations, as well as regulators, industry representatives and other observers, were invited to a stakeholder workshop that took place at the Ennerdale Country House Hotel, Cleator Moor on 16 May 2007. The workshop involved 35 participants, representing 14 groups in the above categories. Outputs from the workshop [Ref: 1] represent a primary source of stakeholder views at the current stage in the process of identifying a preferred management strategy.

In addition to meetings and workshops hosted by BNGSL, the engagement process has sought wider engagement through responses to a consultation questionnaire that was also made available on the BNGSL website³. The current document provides an independent overview of the responses obtained through this latter aspect of BNGSL's consultation process. Subsequent sections of the report provide:

- ▲ a brief overview of the responses received (Section 2);
- ▲ a summary of responses to specific questions (Section 3); and
- ▲ a summary of outcomes and issues for consideration in subsequent phases of the options assessment process (Section 4).

¹ http://www.britishnucleargroup.com/content_nm.php?pageID=2108

² http://www.britishnucleargroup.com/UserFiles/File/PCM_brochure.pdf;
http://www.britishnucleargroup.com/UserFiles/File/PCM_Stakeholder_Info.pdf

³ <http://www.britishnucleargroup.com/UserFiles/File/PCM-Stakeholder-Note-QuestionsD4.doc>

2 Overview of Responses to the Stakeholder Consultation Questionnaire

As part of a wider deliberation on the strategic issues surrounding the management of PCM at Sellafield, it was considered important to seek the views of stakeholders who would not be able to participate directly in the May workshop. As noted in the Introduction, this involved the use of a consultation questionnaire, linked to the website publication of information documents.

A component of the wider consultation strategy was to seek the views of 'internal' stakeholders. BNGSL staff were therefore specifically invited to participate in web-based consultation via the BNFL Messenger system (which automatically alerts staff when logging-on to the company network) as well as via Sellafield Communications Bulletin 2007/33. Both of these mechanisms provided an electronic link to the appropriate page of the BNGSL website.

Ten completed questionnaire response sheets were received by the requested reply date of 18 May 2007. In order to support the legitimacy of the consultation process, the questionnaire asked for names and contact details to be provided by those taking part. However, it also offered respondents the option of anonymity in reporting feedback from the process. All respondents positively elected not to remain anonymous.

Of the ten responses, in terms of location:

- ▲ nine were from individuals who stated that they were based in West Cumbria, or did not state their location but are nevertheless evidently involved with the Sellafield site in some manner;
- ▲ one response was received from an individual based elsewhere in the UK;

In terms of affiliation:

- ▲ six responses were from individuals who work for BNGSL;
- ▲ one response was received from an individual representing a company not directly associated with the Sellafield site; and
- ▲ three responses were from individual stakeholders without any stated affiliation to any particular group or company.

A summary of the respondents, including their geographical locations and affiliations, is provided in Table 1.

Table 1: Origin of Responses to the Consultation Document

Respondent	Location	Affiliation
S Marley	Whitehaven, Cumbria	None stated
P Higgins	Workington, Cumbria	None stated
D E Deegan	Swindon, Wiltshire	Tetronics Ltd
K M Knight	Sellafield-based	British Nuclear Group
J Wilkinson	Sellafield-based	British Nuclear Group
G Kearns	Sellafield-based	British Nuclear Group
A Shand	Not stated	None stated
A Nicholson	Sellafield-based	British Nuclear Group
W Davies	Sellafield-based	British Nuclear Group
A Buchan	Sellafield-based	British Nuclear Group

According to the questionnaire responses, those who participated in the web-based consultation appeared to be supportive of the consultation process, the information provided, and the technical and strategic approaches described. An analysis of the main outcomes from the responses received is provided in the following sections.

3 Analysis of Responses

The main consultation document contained a series of questions designed to prompt responses to the information that had been provided. These questions were repeated in a specific questionnaire document, which was made available for electronic completion via the BNGSL website. The analysis that follows presents an overview of the feedback received against each question. A summary of the overall main outcomes is presented in Section 4.

Question 1	Do you have any comments on the overall objectives for the management of PCM wastes at Sellafield, and the aims of the Baseline BPEO study?
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The dominant theme from the responses was general support for the study and its objectives.

In terms of specific contributions, one respondent suggested that the study could be expanded to provide guidance for future plant design so as to minimise PCM production. Another questioned whether this strategic matter ought really to be consulted upon centrally by the NDA rather than BNGSL. Others focused attention on the movement of wastes; one reply suggested that PCM movements should be minimised and that a strategy should be followed involving a small number of regional processing centres, whilst others encouraged development of a central resource at Sellafield. A suggestion to include PCM from AWE Aldermaston was also made. Finally, the return of processed wastes to relevant sites for safe interim storage following processing was recommended in one response, in particular to avoid the implication that West Cumbria had been deemed the preferred place for final disposal of the UK's radioactive waste legacy.

Question 2	Do you have any comments on the continued treatment of Sellafield PCM at the Sellafield site?
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The primary theme from the feedback received was broad support for the continued treatment of PCM at the Sellafield site. Secondary themes included concern that the current WTC approach, or indeed any other strategies and technologies identified to replace the current approach, may not be sufficient to meet the NII's 2020 target for processing of 90% of relevant wastes. In addition, one respondent suggested that the assumption that a deep geological repository would be available for final disposal by 2040 was optimistic and that contingency planning and costing of the overall strategy

should allow for the possibility of requiring continued safe storage beyond that date. Several respondents suggested that waste volume minimisation is a key consideration in the management of PCM arisings. Finally, one respondent suggested that the wider Sellafield strategy should seek to minimise consignments to PCM waste streams as there could be questions regarding its suitability for disposal within a deep geological repository.

Question 3 Do you have any comments regarding the possible consideration of PCM transfers from other NDA sites to Sellafield?

A key aspect of the feedback received on this point was general support for the use of a single facility at Sellafield to process all relevant PCM. However, one respondent recommended a small number of regional facilities, and another noted that the final decision in this regard must take into account environmental, human health, and wider transport risks, in addition to any economic benefits to the NDA and the local community. Respondents also noted concerns relating to long-term storage pending final disposal. There was less support for this to occur at Sellafield following processing, as it could be seen as prejudging the location of any final geological repository for disposal.

Question 4 Do you have any comments on the approach to stakeholder engagement adopted by British Nuclear Group Sellafield Ltd and how your views will be used to inform recommendations on PCM management for consideration as part of the Sellafield site and NDA strategies?

The overriding response to this question was support for the process, but this was widely supplemented by additional encouragement for BNGSL/NDA to operate an open and transparent approach, publishing all outputs and ensuring the views of all stakeholders are addressed. One respondent particularly suggested that all such processes should be subject to scrutiny to avoid future challenge. Other comments echoed responses to the preceding questions, as discussed above.

Question 5 Do you feel you have a sufficient appreciation of the boundaries and regulator requirements applied in assessing options for the treatment of PCM at Sellafield?

It was the clear view of the respondents that the information provided had achieved this aim, except for one respondent who identified what were considered to be 'vague'

statements about the Nirex (now incorporated within the NDA Radioactive Waste Management Directorate) 'Letter of Compliance' process and requirements, as well as the implications of the gaps in long-term understanding. Another respondent noted that it should be clarified whether there are any specific requirements from a nuclear materials safeguards and security perspective.

Question 6 Do you have any comments on the issues of concern that are to be investigated in the BPEO study and on which feedback is sought? Have any significant overall strategic planning issues been overlooked?

Again, respondents appeared to be generally happy that the issues identified in the consultation documents were appropriate. However, a number had further comments they wished to be taken into account. These included:

- ▲ consideration of the re-use of existing buildings and/or facilities, following appropriate upgrading and refurbishment;
- ▲ the need to integrate full life-cycle costs into the assessment;
- ▲ the need to make strategic decisions on the management of PCM without influence from political considerations;
- ▲ ensuring that the potential for positive benefits to the local community is assessed;
- ▲ the need to consider decommissioning requirements as part of the approach to PCM treatment plant design;
- ▲ a request to ensure that this process is not used as a mechanism to influence siting decisions for any future geological repository for UK radioactive wastes; and
- ▲ a request to clarify the documentation, as one respondent felt that there was a lack of clarity concerning the specific focus of the consultation.

Question 7 Do you agree that this list of attributes is reasonable as a basis for comparing treatment options? Which attributes are of greatest importance? Have any attributes of particular concern that are relevant to the decision process been omitted?

Once more, there was general support for the assessment attributes identified. A number of respondents stressed that protection of human health and the environment, and the availability of mature treatment processes should be key to the assessment, as

should the derivation of full lifetime costs. Several noted the general need to take a long-term view in developing strategy. In addition, one response suggested that the strategy should include utilisation of technologies that are mature for other waste forms but which have not been applied to PCM, and that the relevant uncertainties should be addressed. Another emphasised the need to have expert personnel available to support the implementation of any chosen technology. One respondent suggested that the approach to addressing socio-economic attributes should in no way prejudge the location for any future UK geological repository. Finally, another reply stressed that wider Sellafield operations, management systems and the competition process for the Parent Body Organisation should not be allowed to compromise the strategy that is developed.

Question 8	Do you think the technical options outlined provide adequate information at a level sufficient to inform overall discussions on PCM management and treatment strategy? Have any options that may have significant strategic implications been omitted?
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Respondents were broadly supportive of the range of treatment options identified, but a number of fairly detailed comments were furnished to supplement the discussion in the information document. In particular, respondents noted the need to consider combinations of treatment options within the strategies to be identified, and to consider pre- or post-treatment requirements, both for the processed wastes and any secondary wastes produced as a result of process implementation. Several respondents focused attention on consideration of alternative approaches to size reduction, such as shredding and plasma cutting. One respondent suggested that, in this regard, it may be useful to obtain information from the United States Department of Energy Advanced Mixed Waste Treatment Project⁴.

Several respondents reflected on the need for further research for some technologies. Two encouraged the use of knowledge gained from the existing WTC. Finally, one respondent suggested that the list should include an enhanced appreciation of thermal treatment technologies.

⁴ <http://amwtp.inl.gov/>

Question 9 In reviewing the PCM Baseline BPEO Issues, is it helpful to consider options in terms of an overall strategy (pre-treatment, treatment, conditioning of final wasteform, etc.) and focus the technologies, within the more detailed BPEO studies? If so, what issues do you have regarding the various aspects of an overall strategy?

The majority of responses to this question either implicitly or explicitly concurred with the need to develop a strategy that considers wider requirements rather than a more simplistic one-to-one comparison of treatment technologies. A particular theme was the role of waste segregation at source, coupled with the need to map strategies against different types of PCM wastes. Further contributions included recommendations to ensure that the strategy should identify high-level principles backed by clear reasoning, and that any quantitative analyses should be supported by sensitivity studies to test the robustness of the conclusions that are drawn from the options study. Other inputs reinforced previously stated viewpoints on the potential use of thermal treatment, and the need to include incentives and assurances to the local community.

Question 10 Do you think the success criteria are sufficiently comprehensive and if achieved will result in identifying the preferred PCM Management strategy for Sellafield? What (if any) additional factors would be relevant?

The criteria presented were widely judged by respondents to be suitable and comprehensive. One respondent suggested that the requirement for a suitable waste information, production, retention and transfer policy should be among the criteria, as this will be key to safety justifications. Another suggested that ‘public acceptability’ should be a key criterion. It was also suggested that consideration of transport could be extended to include safe transport back to waste producing sites following processing at Sellafield.

Question 11 Do you have any other comments?

Several respondents utilised this question as an opportunity to express appreciation of the opportunity to be involved in the process. One individual asked whether there may be the potential for production of further PCM should the trenches at the LLWR near Drigg be exhumed. Finally, one respondent took the opportunity to recommend that effluents associated with any processes used for PCM treatment should be considered and the implications integrated within the definition of a preferred strategy.

4 Summary of Outcomes

A summary of the main outcomes from and issues raised by the questionnaire responses are presented below.

- ▲ Respondents were broadly supportive of study, its objectives, the information supplied, and the process described.
- ▲ Respondents were supportive of the approach to strategy development outlined. In particular, respondents supported the need to develop flexible strategies that consider the entire life-cycle of the wastes, treat different waste streams appropriately, and consider appropriate combinations of technologies with pre- and post-processing where required.
- ▲ The need for an open and pro-active approach to consultation with stakeholders was supported.
- ▲ Consideration of socio-economic benefits to the local community was encouraged.
- ▲ Recommendations were made for consideration of certain specific technical options, and to undertake further research for others.
- ▲ Several respondents felt that development of a centralised facility at Sellafield to deal with wastes from other sites as well as its own represented a sensible approach.

In addition, specific individuals provided feedback on a range of further themes, including the need to ensure that this process does not pre-judge the location of any future UK geological repository for radioactive waste.

Overall, these key outcomes would appear to reflect many of the priorities identified through a stakeholder consultation workshop that was held in May 2007 [Ref: 1].

5 References

- [1] Egan M J (2007). *Treatment of Plutonium Contaminated Material at Sellafield: Stakeholder Workshop Report*. Quintessa report for BNGSL, QRS-1372A-TN2 Version 2.0 (BNGSL Document Reference: RP_LPSERP-000_PROJ_00135_V2).