



INTERVENTION RECORD			
Unique Document ID and Revision No:	ONR-SZB-IR-15-047 Rev 0	TRIM Ref:	2015/248210
Location and purpose of Intervention:	Sizewell B Power Station ONR readiness / compliance inspection in support of permissioning Dry Fuel Store Safety Case Stage Submission 1 Rev 1 covering Structural Integrity and Radiological Protection		
Inspector(s) taking part in Intervention:	[REDACTED]		
Date(s) of Intervention:	6 and 7 July 2015		

PRINCIPAL STAFF SEEN

The roles of principal staff seen, including those from licensees or other government departments (for example, the Environment Agency) seen during the visit

Record Section	Organisation	Role	Name
All	EDF Energy Nuclear Generation Ltd	[REDACTED]	[REDACTED]
	Holtec International	[REDACTED]	[REDACTED]

(A) SYSTEM / STRUCTURES BASED INSPECTION RATINGS					
Complete this section only where a System / Structures Based Inspection takes place. If Licence Condition not applicable, enter "n/a"					
Record Section	System / Structures Based Inspection Details	Plan Name	Licence Condition (LC)	Rating	P/RUP*
Overall judgement that the System / Structure adequately fulfils the requirements of the safety case. Please delete "Yes" or "No" in the box provided as applicable.					

SECURITY CLASSIFICATION (delete or add as required)

* P = planned, RUP = reactive unplanned

(B) INTERVENTION RATINGS					
Complete this section only where applicable, e.g. for a compliance inspection or assessment where the duty holder's arrangements are being rated. If not applicable, enter "n/a". Complete Part A in respect of System / Structures Based Inspection					
Record Section	Intervention Details	Plan Name	LC / Series Code	Rating	P / RUP*
2.1	Dry Fuel Store Project	Sizewell B IP	10	3	P
2.1	Dry Fuel Store Project	Sizewell B IP	12	3	P
2.2	Dry Fuel Store Project	Sizewell B IP	21	4	P
2.3	Dry Fuel Store Project	Sizewell B IP	24	4	P
2.4	Dry Fuel Store Project	Sizewell B IP	26	4	P

* P = planned, RUP = reactive unplanned

(C) INTERVENTION RATINGS - (FOR USE ONLY BY CNS & CROSS ONR PROGRAMMES)					
Complete this section only where applicable for a Security/Transport/Safeguards/Conventional Safety/Fire Inspection. If not applicable, enter "n/a". Complete Part A in respect of System / Structures Based Inspection, if applicable.					
Record Section	Intervention Details	Plan Name	Series Code	Rating	P / RUP*

* P = planned, RUP = reactive unplanned

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1 EXECUTIVE SUMMARY

1.1 Purpose of Intervention

1. This was a planned Office for Nuclear Regulation (ONR) inspection to evaluate EDF Energy Nuclear Generation Ltd (EDF Energy) in the development and implementation of its Sizewell B Dry Fuel Store Safety Case, Stage Submission 1 Revision 1 (SS1 Rev 1). This work supports ONR's permissioning of Dry Fuel Store Sizewell B activities.

1.2 Interventions Carried Out by ONR

2. The inspection focus was to gather evidence to support future regulatory decision-making in relation to the Dry Fuel Store activities at Sizewell B. Licence Instruments giving ONR's Approval of Dry Fuel Store Safety Case Operating Rules (limits and conditions identified in the interest of safety) and Consent to commence active commissioning will eventually be required. This inspection builds on ONR's assessment work to date on safety claims and justification presented in SS1 Rev 1. Intervention activities were structured around compliance with the following Nuclear Site Licence Conditions:

LC10: Training

LC12: Duly Authorised and Suitably Qualified and Experienced Persons

LC21: Commissioning;

LC24: Operating Instructions; and

LC26: Control and Supervision of Operations.

1.3 Explanation of Judgement if Safety System Not Judged to be Adequate

3. This was not a planned Safety System Inspection and no judgement was made.

1.4 Key Findings, Inspector's Opinions and Reasons for Judgements Made

4. Overall this inspection was considered to be positive. No serious issues were identified that challenged ONR's current assessment of SS1 Rev 1 or its implementation. Three out of the 5 LCs inspected against were awarded ratings of below standard on the grounds that although fundamental principles were considered to have been met, there was no evidence to justify a rating of adequate as documents were still being drafted or were under-developed. I considered there was a lack of evidence to demonstrate that EDF Energy Subject Matter Experts had reviewed information justifying individual's abilities or the adequacy of procedures to be worked against. This is a requirement to demonstrate EDF Energy is acting as an informed knowledgeable customer. EDF Energy has plans in place to progress the documentation and hence no issues have been raised.
5. There is still time to address identified gaps although this is decreasing rapidly given time pressures created by the project.

1.5 Conclusion of Intervention

6. This inspection was considered positive but highlighted the need for EDF Energy Project and Commissioning managers to be vigilant and maintain a clear focus on quality and demonstrate that EDF Energy is an informed, knowledgeable customer.

1.6 Recommendations

7. No recommendations were made during this inspection as despite the shortfalls identified EDF Energy is progressing the documentation and ONR has a further inspection planned, in relation to the Dry Fuel Store, that will check all these Licence Conditions and ensure that the observations are addressed.

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2 RECORD

8. This inspection is one of a series planned to support ONR's permissioning requirements for the Sizewell B Dry Fuel Store project detailed in ONR letter Unique Letter Number SZB 76445R (TRIM Ref 2014/402097) dated 10 November 2014. These inspections build on ONR's assessment activities of Sizewell B Dry Fuel Store Safety Case, Stage Submission 1 Revision 1 (SS1 Rev 1) given EDF Energy's safety claims and arguments that all reasonable steps have been taken to reduce risks from Dry Fuel Storage activities to So Far As Reasonable Practicable SFARP.
9. This particular inspection targeted Structural Integrity and Radiological Protection aspects of SS1 Rev 1. It focused on the build quality of Multi Purpose Containers (MPC) used to hold spent irradiated fuel elements during long-term storage as well as the welding of the MPC lid to shell field weld. This weld forms part of the MPC's pressure boundary and load path during lifting operations. Radiological Protection aspects covered were: protection of operators during welding of MPC lid to shell weld, movement of MPC from Fuel Building to Dry Fuel Store, transfer of MPC into long-term storage shielding container (HI-STORM) and radiological monitoring of internal and external aspects of the Dry Fuel Store Building.
10. The evidence gathered from this inspection will support ONR's decision for the issuing of Licence Instruments covering Approval of new Sizewell B limits and conditions identified in the interest of safety under Licence Condition (LC) 23 Operating Rules, and Consent under LC 21 Commissioning to commence active commissioning. The regulatory justification for the approach taken is set out in ONR Sizewell B Dry Fuel Store Project Assessment Report Scope Document issued 16 February 2015 (TRIM Ref 2015/59515).
11. ONR Inspection Commentary Document (TRIM Ref 2015/259149) was issued to EDF Energy before this inspection took place to allow Sizewell B Dry Fuel Store Project team to prepare for the intervention. This document identified the purpose, scope and inspection activities to be undertaken.
12. This inspection involved EDF Energy providing presentations on how they were meeting requirements of SS1 Rev 1 and NP/SC 7575, EC 338509, SS 4 Dry Fuel Store Inactive Commissioning. This was followed by a plant walk down where activities within the Fuel Building were discussed: movement of MPC from the Fuel Building to Dry Fuel Store was evaluated, taking into consideration potential events and contingency measured; Dry Fuel Store operations. Detailed technical discussions took place on radiological protection issues, MPC build records, Welder qualification, training, operating instructions and control and supervision.
13. Inspection standards were applied by ONR during this intervention to judge the adequacy of EDF Energy compliance with safety case requirements and LC compliance inspections based on ONR's Safety Assessment Principles for Nuclear Facilities, 2014 Edition Revision 0 and ONR Technical Inspection Guides for LCs inspected against.
14. Specialist Inspectors have produced additional information in support of this inspection recorded in Inspection Notes (TRIM Ref 2015/247851) for Structural Integrity and (TRIM Ref 2015/247855) for Radiological Protection. This information supports the inspection and Specialist Inspectors assessments of SS1 Rev 1.
15. The Specialist Inspectors concluded that there were that no issues identified that challenged current assessment findings of SS1 Rev 1. Some minor issues were raised that are recorded in this Intervention Record and identify weaknesses in EDF Energy's arrangements or present areas for improvement. The Inspectors considered that the Site inspection was beneficial in confirming the adequacy of implementation of SS1 Rev 1 safety requirements.

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2.1 LC10: Training

16. I inspected against LC10 with a view to confirm that EDF Energy's approach was ensuring that personnel involved in Dry Fuel Store operations were suitably trained for both commissioning and operational activities. I also covered additional training provision for Sizewell B Fuel Route Duly Authorised Person(s) and Fuel Route Engineers, given their responsibility for carrying out duties identified in Station and Plant Operating Instructions (SOI and POI).
17. EDF Energy reported that training packs were being developed, with this work being lead by the Operations Curriculum Review Group. A training matrix identified all Dry Fuel Store process roles and training needs together with evidence of training needs analysis. EDF Energy reported that work was taking place in the review of training documentation provided by Holtec for the Sizewell B dry fuel store process. The Sizewell B Dry Fuel Store Project Safety Review Group had been provided with an update on training 3 June 2015 which raised no concerns.
18. I have given an Inspection rating of 3 Adequate for LC10 based on evidence provided to date which, although limited, showed that EDF Energy is complying with their arrangements for training, in that the Operations Curriculum Review Group has taken on the responsibility for production of training material, including lesson plans for both delivery of classroom and workplace demonstrations. The workplace demonstration element allows an opportunity to evaluate an individual's skills and capabilities of the specific tasks being taught. The approach adopted by EDF Energy is based on the Systemic Approach to Training (SAT) which is a World Association of Nuclear Operators (WANO) standard.
19. Training is a continuing theme for the ONR inspection planned for Dry Fuel Store permissioning and will be monitored for adequacy of training material, delivery and evaluation that individuals are competent to carry out duties required of them.

2.2 LC12: Suitably Qualified and Experienced Persons

- 3 Inspection against LC12 focused on how EDF Energy had satisfied itself that contract welding operators from the United States (US) were Suitably Qualified and Experienced Persons (SQEP) for carrying out MPC lid to shell weld. The MPC lid to shell weld is a critical fabrication joint, given its pressure boundary and lifting integrity requirements. This weld is carried out in the field rather than in a workshop. There is a need to ensure high quality and control is applied to ensure a defect free weld.
- 4 EDF Energy stated that, as part of their quality assurance arrangements for the Dry Fuel Store project, staff from their Quality Assurance Department had visited US suppliers (Holtec and PCI Energy Solutions which is a subsidiary of Westinghouse Electric Company who is a sub-contractor of Holtec to carry out MPC lid to shell welding operation). EDF Energy stated that the supplier's quality arrangements met their requirements and standards.
- 5 The Holtec Sizewell B Project Engineer provided copies of SQEP packs for the 3 welders carrying out MPC lid to shell welds. I reviewed each SQEP pack and was able to confirm that each welder had been qualified for both manual set up of lid to shell weld and automated welding for Sizewell B equipment. The SQEP packs also identified all previous MPC lid to shell welds carried out by these individual for other US utilities. The ONR Structural Integrity Inspector asked the Holtec representative to confirm that all the welders were American Society of Mechanical Engineers (ASME) qualified as this information was not evident from SQEP packs reviewed. This was the case for the PCI Quality Inspector and a copy of the inspectors ASME authority was included in their SQEP pack.
- 6 EDF Energy was asked to provide evidence that the welders were ASME qualified and certified to carry out welding of the classification of the MPC lid to shell weld.

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7 I have given an Inspection rating of 3 Adequate against LC12 on the grounds that SQEP packs provided evidence that EDF Energy had engaged welders who were competent in tasks required. I have noted that ASME Welder qualification was not provided and EDF Energy did not provide any documentation that their competent person (Welding Authority) had reviewed SQEP packs to confirm welders were competent.

2.3 LC21: Commissioning with a focus on Operational Records

8 In the case of LC 21 the inspection focus was on confirming EDF Energy was following the commissioning process set out in its Dry Store Project Commissioning Paper of Principle (EDF Energy Document Ref SZB/REP/PD/4A732/005 Rev 0). Again the target was welding of MPC lid to shell weld. This inspection was originally planned to observe Site Acceptance Testing (SAT) MPC lid to shell welding within the Fuel Building. Due to commissioning issues with the supply of lifting equipment the MPC lid to shell weld SAT was moved to mid-July 2015 which the ONR Structural Integrity Inspector was unable to support due to prior commitments.

9 As a result of this I requested a review of documentation and video footage of Factory Acceptance Testing (FAT) which was undertaken off-site. This FAT testing was undertaken to confirm operation of welding, ultrasonic inspection and lid removal equipment. The FAT was not part of the EDF Energy formal commissioning qualification activities but allowed assessment of procedures and quality arrangements.

10 The Holtec Sizewell B Project Engineer provided the PCI weld procedure which had been completed during the FAT. Although EDF Energy Welding Authority had observed some of the setting up of equipment and welding operations they had not been present for the complete welding operation. EDF Energy reported that their Welding Authority would observe the complete SAT welding operations.

11 The ONR Structural Integrity Inspector reviewed the PCI welding procedure specification 8 MN-GTAW and Procedure Qualification Records 063, 600 and 899 for both manual and machine welding steps. This confirmed that documentation was adequate in that it was consistent with standard welding practice. We both inspected the PCI welding method statement used in carrying out MPC lid to shell weld by PCI (Document Reference PI-CNSTR-OP-SWB-H-01 Rev 0, titled Closure Welding of Holtec Multi-Purpose Canister – HI-STORM 100). I noted all procedural steps had been followed and signed off by the Welder and Quality Inspector. The quality check sheet had also been signed off and required observations made. No issues were raised.

12 Again EDF Energy did not provide any documentation to show their competent person (Welding Authority) had reviewed PCI welding procedure PI-CNSTR-OP-SWB-H-01 Rev 0. They were unable to provide me with a copy of the Dry Fuel Store SAT procedure for MPC lid to shell weld Document (Reference SZB/FTP/KE/338509/P/013) identified in Dry Store Project Commissioning Paper of Principle Document (Ref SZB/REP/PD/4A732/005 Rev 0).

13 In the case of Ultrasonic Examination equipment EDF Energy stated that the FAT had demonstrated its operation, although defect acceptance criteria had not been established. This was considered a shortfall by ONR Inspectors.

14 Inspection of Holtec MPC build records for MPC 1 (Document Reference DOC-1959-009RC), which was the first MPC to be shipped to Site, was undertaken. Three non-conformities were identified from the records relating to:

- Panel in MPC basket welded incorrectly and needing to be replaced;
- Outside Diameter of the MPC was not checked by required gauge but fitted into HI-TRACK to confirm its compatibility;

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- The MPC lid did not meet required height limits as it was 1/8" above shell rim lip. The lid should be 1/32 or flush with shell rim lip. This issue was addressed by removing material from the inner lid support lugs so the lid sat flush with shell lip.

15 Inspection of weld quality plan identified weld procedure used, welder carrying out weld, inspection requirements and findings. The ONR Structural Inspector indicated that he was happy with MPC build quality records.

16 I have given an inspection rating of 4 Below Standard for LC21 on the grounds that, although I was able to confirm that fundamental requirements have been met in MPC build records being adequate and IPC welding procedures are in place, EDF Energy was unable to provide evidence to show their competent person (Welding Authority) had reviewed these procedures and confirmed they were adequate. In addition, Ultrasonic Examination defect acceptance criteria still needs to be developed and procedures could not be provided. I consider weaknesses exist in EDF Energy's process given the lack of evidence and plan to follow up on these during further planned inspections.

2.4 LC24: Operating Instructions

17 My inspection against LC21 focused on EDF Energy's progress in the production of Station and Plant Operating Instructions (SOIs and POIs) for the Dry Fuel Store operations. I looked to confirm arrangements covering MPC lid to shell welding operation were in place. EDF Energy was able to provide copies of amended SOI document structure and draft copies of:

- SOI 9.0 Information Pertinent to Execution of SOI-9 Series, and
- SOI 9.3.2 Activity to Seal Loaded MPC.

18 They also provided a draft copy of:

POI KE097 Prepare Loaded MPC and HI-TRAC for Dispatch from Fuel Building.

19 EDF Energy explained how SOI 9.3.2 was used to control operations and POI KE097 was the document that operators worked to. As both documents were still in draft form it was not easy to follow sequences although it was possible to identify the fundamentals.

20 I have given an inspection rating of 4 Below Standard for LC24 on the grounds that, although I am able to confirm Station is working to their arrangements, the documents provided were still under development and I was unable to confirm adequacy with regard to identification of requirements in the interest of safety in controlling risks to minimise potential harm to employees and the public. I intend to follow this LC requirement up through subsequent inspections.

2.5 LC26: Control and Supervision of Operations

21 My inspection against LC26 looked at how EDF Energy intend to control and supervise commissioning activities together with provided knowledge and experience to Fuel Route Duly Appointed Persons and Fuel Route Engineers given their identified responsibilities within SOIs and POIs for Dry Fuel Route Operations.

22 EDF Energy provided an organisational structure for commissioning which showed 3 Commissioning Team Leaders (CTL) covering the following activities:

- Dry Fuel Store Operations;
- Testing Equipment; and
- Dry Fuel Store Building

23 All CTLs were identified as SQEPed for their role. In the case of the CTL for Dry Fuel Store Operations this individual is currently carrying out commissioning of the Fuel Building Crane. Other roles identified on the organisational structure were Holtec support team and EDF Energy Commissioning Engineers.

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- 24 I have given an inspection rating of 4 Below Standard for LC26 on the grounds that although fundamentals were in place in that a Dry Fuel Store organisational structure had been established, the interaction between different groups (Commissioning Team, Station Support and Testing and Commissioning Panel) was unclear. There was also a lack of clarity on individual roles, responsibilities, authorities and accountabilities. This issue will be followed up during further site inspections.

2.6 Communication with EDF Energy Inspector for Nuclear Assurance (INA)

- 25 I spoke with the Site INA Inspector during this inspection. He indicated that he was closely monitoring activities and was aware that pressure being applied to the project was potentially detrimental. He updated me on lifting equipment issues for the movement of MPC within HI-TRACK and release of Hold Point 4. It was his opinion that the Dry Fuel Store project was dealing with these setbacks in a positive manner and ensuring due process was followed.

2.7 Conclusion

- 26 I consider EDF Energy is making progress in the delivery of the Sizewell B Dry Fuel Store project. Individuals within the project who have responsibilities for ensuring safety is maintained (Project, Commissioning Managers and CTL) demonstrated a clear commitment to ensuring standards are being maintained. However, this inspection has revealed gaps and shortfalls in process. It is my opinion that pressure to drive the project forward is preventing individuals from reflecting on their work and satisfying themselves that arrangements and processes are complete and accurate.

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3 ISSUES

3.1 Issues Raised

No	Issue Title	Category	Issue Level	Licensee/Duty Holder Role	Owner (Inspector)	Completion /Review Date
	No Issues Raised					

3.2 Issues Closed

No	Issue Title	Category	Issue Level	Licensee/Duty Holder Role	Owner (Inspector)	Completion /Review Date
	No Issues Closed					

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RECORD APPROVAL, SIGN-OFF AND ISSUE

RECORD APPROVAL AND SIGN-OFF

Note: Documents must be finalised on TRIM when signed-off / approved for issue.

Revision	Name	Responsibility	Executive Summary Approved	Date
0A	[REDACTED]	[REDACTED]		13 July 2015
0	[REDACTED]	[REDACTED]	[REDACTED]	13 July 2015

VERSION CONTROL

Revision	Date	Description of Change
0A	13 July 2015	Draft
0	13 July 2015	Issued for approval of Executive Summary

CIRCULATION LIST

Electronic copy unless stated otherwise, e.g. if enforcement action is being considered hard copy records may be needed

Organisation	Name / Responsibility	Date
Office for Nuclear Regulation	[REDACTED] TRIM Folder 4.4.2.11112.	
Other Government Agencies Environment Agency Nuclear Decommissioning Agency	[REDACTED]	
EDF Energy NGL Sizewell B	[REDACTED]	

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