
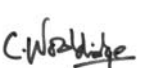


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Approved for EDF by: A. PETIT Name/Initials  Date 30/06/2011		Approved for AREVA by: C. WOOLDRIDGE Name/Initials  Date 29/06/2011		

Resolution Plan Revision History

Rev.	Description of update	Date issued
0	Initial issuance	30/06/2011

1.0 GDA ISSUE

GDA Issue Title	Main Assessment Area	Related Assessment Area
Cross cutting – Categorisation and classification of systems, structures and components	Transverse issue	All

GDA Issue	The RP to demonstrate that the methodology developed and applied for categorizing Safety Function and classifying Structures, Systems and Components is in line with UK and international standards and relevant good practice.
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2.0 OVERVIEW OF SCOPE OF WORK

The UK EPR approach to Categorisation and Classification of Structures, systems and Components (SSCs) for the UK EPR is presented in document NEPS-F-DC-557 rev C and is summarised in the PCSR Sub-Chapter 3.2. Following assessment in Step 4 of GDA, ONR has agreed to the general approach but has requested further arguments and evidence in a number of topic areas. The scope of the residual open points regarding the Categorisation and Classification of SSCs for UK EPR is developed under the individual Actions of this GDA Issue. These Actions are diverse in nature, but each one relates to the classification of the SSCs associated with the UK EPR. Moreover, the responses to these actions will clearly establish the methodology for classifying SSCs during and after GDA.

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3.0 GDA ISSUE ACTIONS AND RESOLUTION PLAN DELIVERABLES

3.1 Action GI-UKEPR-CC01.01

Action I/D	Action Description
GI-UKEPR-CC01.01	<p>EDF and AREVA to review all the PCC-2 to PCC-4 initiating events and identify any safety related systems (SRS) that require safety classification, or an alternative safety classification to that presented in report NEPS-F DC 557C.</p> <p>It is expected that SRSs whose failure results in a PCC-3 or PCC-4 event will already have a safety classification commensurate with the assumptions made in the initiating event frequency. Some PCC-2 events may be the result of failures in non-classified duty / operational systems. This may be appropriate but EDF and AREVA need to demonstrate that there are no implicit claims made on integrity or the design that need to be captured by an appropriate safety classification.</p> <p>The evidence we expect to see to address this action includes:</p> <ul style="list-style-type: none"> • A systematic identification of the SSCs whose failure can lead to a PCC event. • A clear identification of, or reference to, the current safety classification and design requirements applied to those SSCs. • Discussion on how this safety classification is commensurate with the PCC allocation and safety criteria applied. • A revision of report NEPS-F DC 557 C to expand or modify the list of safety classified SSCs. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.1.1 Planned submissions in response to GI-UKEPR-CC01.01

3.1.1.1 Description of Scope of Work

The scope of work associated with this issue action is to present the overall methodology to identify classified duty systems in accordance with the safety categorisation principles presented in PCSR sub-chapter 3.2. The focus of the GDA work will be on the different plant systems against PCC-3 and 4 fault studies. The objective of this review will be to confirm that the classification of systems is commensurate with the actual role of the systems in the initiation of such PCC faults.

The reasons for mapping systems only with PCC-3 and 4 faults is that PCC-2 faults will not lead to consequences exceeding the normal operations radiological consequences. In addition, frequent faults are protected with two diverse lines of protection reducing the safety risks to an ALARP level. Moreover, more details are available for such faults to make an adequate assessment. The examples to be provided are then on initiating events of PCC-3 and 4 faults where normal operations

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radiological consequences would be exceeded but the overall methodology proposed in Task 1 will include notably PCC-2. It is proposed to develop further arguments and provide examples of the application of the process in order to highlight how well the classification process will capture potential gaps, if any.

This approach is in compliance with the agreed GDA scope, which includes main safety principles and sound sampling of detailed analyses of systems. Accordingly, this will be a high-level events schedule that will also identify the potential areas which the Nuclear Site License activities will have to address. The examples will help in understanding of the applied approach.

3.1.1.2 Description of Methodology to be employed

Given the number of systems to be evaluated as part of this action, a methodical approach will be used to evaluate the UK EPR duty systems such that a technically adequate screening process is utilised for GDA and during Nuclear Site License. This approach will establish clear principles that will ensure that the proper classification is applied to the applicable duty systems. It is intended that this methodology will be applied to two (2) representative example accidents.

Should these representative cases result in the need to perform design changes to the UK EPR such that these duty systems cases can be satisfactorily justified, then development and progression of the necessary design changes will follow the agreed design change process for GDA. Accordingly, a design change would be initiated and would identify the limiting condition and the preliminary method for resolving the condition. With the resolution method identified, the analysis for these two (2) cases would be reinitiated to further evaluate the scenario to ensure that satisfactory results are achieved. This process will ensure that any potential UK EPR design changes related to these representative cases are properly documented, justified, and preliminarily resolved prior to transitioning to Nuclear Site Licensing. Accordingly, this aspect of the process has been reflected in the associated work programme of this resolution plan (i.e., assuming one (1) iteration is necessary).

Task 1 of GI-UKEPR-CC01.01 – Overall Methodology

This task will provide an overall methodology to be applied for identifying duty functions and related duty systems that need an actual safety categorization / classification. It will ensure the proper classification to be applied. For each categorisation criteria, the process of duty systems identification will be established.

A focus will be made on duty systems associated with Category B criterion: “function, the failure of which during normal operation, would require the operation of a Category A function to prevent an accident whose study is required” (PCSR sub-chapter 3.2). Justifications of the analysis scope will be given. Note that the methodology currently presented in Section 6 of NEPS-F DC 557 C will be used for deriving the appropriate classification of duty systems. Accordingly, this methodology will determine if an update of classification to accommodate the failure of a system is required.

No computer codes / transient analysis will be performed to support this analysis.

Task 2 of GI-UKEPR-CC01.01 – Examples of Methodology Application

Considering the methodology provided in Task 1, AREVA/EDF intends to apply this methodology to two (2) example accidents. The aim is to identify whether duty systems could lead to these particular

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PCC-3 or PCC-4 in case of failure during normal operation. These examples will be presented to ONR such that early visibility and an understanding of the application of this methodology are well understood. In addition to this task, it is anticipated and accounted for in the supporting schedule to this resolution plan that a meeting will be held with ONR to formally present this information.

This analysis will be an in-depth level assessment of the consequences of system failure which will provide the adequacy of the assigned classification. As the level of detail of this study is very high, the examples chosen will be representative examples, which have sufficient supporting analyses currently available to ensure this analysis properly presents to ONR the methodology application and clear conclusions. Accordingly, this task will use the classification methodology developed within GDA and will delineate the approach and remaining site licensing activities which must be completed.

No computer codes / transient analysis will be performed to support this analysis.

The result of this analysis is not expected to require an update of the categorisation criteria detailed in the PCSR. The PCSR will be updated to reflect the principle of duty systems that is considered in this approach. However, any potential changes in classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2.

Task 3 of GI-UKEPR-CC01.01 – Update to NEPS-F DC 557 C

NEPS-F DC 557 will be updated to reflect the principle duty systems that are considered as part of the utilised methodology in Tasks 1 and 2.

No computer codes / transient analysis will be performed to support this analysis.

Task 4 of GI-UKEPR-CC01.01 – Update to PCSR Sub-chapter 3.2

PCSR sub-chapter 3.2 will be updated to reflect the principle duty systems that are considered as part of the utilised methodology in Tasks 1 and 2. The update of NEPS-F DC 557 performed in Task 3 will be the basis of the changes included into the PCSR.

No computer codes / transient analysis will be performed to support this analysis.

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3.1.1.3 Deliverable description

Submission date to ONR/EA

Methodology and Analysis Examples

02/12/2011

An overview of the methodology to be applied, based on NEPS-F 557 C, for evaluating duty systems and ensuring the proper classification is applied and/or has been applied will be provided along with two (2) representative examples.

Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components

20/01/2012
(Advance Version)

This document will updated presenting the various classifications applicable to the above mentioned tasks

12/06/2012
(Final Version)

Update to PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems

17/02/2012
(Advance Version)

The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2

15/06/2012
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3.2 Action GI-UKEPR-CC01.02

Action I/D	Action Description
GI-UKEPR-CC01.02	<p>The responses to GDA TQ's on the classification of internal structures within buildings to be added into an update to the GDA PCSR.</p> <p>Further clarification is required from EDF and AREVA on what is meant by "dedicated rules" in report N°NEPS-F DC 557 Rev C and in the PCSR, for the design of C2 structures. The evidence we expect to see to address this action is:</p> <ul style="list-style-type: none"> • To update GDA PCSR chapter 3.2 to include the responses to GDA TQ's on the classification of internal structures. • To update PCSR chapter 3.3 in order to detail "dedicated rules" for the design of C2 structures and their scope of application. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.2.1 Planned submissions in response to GI-UKEPR-CC01.02

3.2.1.1 Description of Scope of Work

The text of the Action refers to the response to TQ-EPR-58 – Seismic classification of buildings.

The March 2011 PCSR identifies in Table 5 of chapter 3.2 the list of internal structures within the reactor building together with their associated design requirements. The purpose of this action is to complete the detailed design requirements of C2 internal structures beyond the reactor building. Elements applicable to the Reactor Building have already been provided and included in the PCSR, but further information is needed for remaining buildings.

3.2.1.2 Description of Methodology to be employed

The dedicated design rules applied to internal structures are derived from the design requirements specified in PCSR Sub-chapter 3.2. Additionally, dedicated design rules depend on the material of the structure (concrete, steel, etc.) which are to be utilized for a given design, structure, etc. Note that a detailed explanation and specification of dedicated design rules for UK EPR structures is best suited being explicitly identified in associated hypothesis/methodology documents. Accordingly, GI-UKEPR-CE01 has been raised by ONR to address the technical details of the UK EPR hypothesis/methodology documents. This particular GDA issue will establish an overarching design process which will be applied to the design of civil structures. However, in response to this GDA issue, clarity on dedicated rules will be provided in an update to NEPS-F DC 557 C and PCSR Sub-chapter 3.2.

The design requirements applied to internal structures of the Reactor Building have been included in PCSR Sub-chapter 3.2 (Table 5). These requirements deal with the following topics: radiation protection, fire, air tightness, water tightness, earthquake, mechanical strength. The approach which

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has been used for the Reactor Building will be applied for to the C2 inner structures of the following buildings: Safeguard Auxiliary Building / Electrical Building and Fuel Building. The results will be presented in an update to NEPS-F DC 557 C and PCSR Sub-chapter 3.2.

Task 1 of GI-UKEPR-CC01.02 – Clarification of Classification of Internal Structures of Safety Auxiliaries Building / Electrical Building and Fuel Building – Update to NEPS-F DC 557 C

The objective is to produce, for the internal structures of the Safeguard Auxiliary Building / Electrical Building and Fuel Building, the same type of classification table (level of detail) currently presented in the PCSR Sub-chapter 3.2, specifically Table 5 which deals with the Reactor Building.

A meeting with the inspectors will be necessary to obtain feedback on the information provided in the March 2011 PCSR (Sub-chapter 3.2) regarding the classification clarifications applicable to civil structures to ensure the presented level of detail is acceptable. This meeting has been considered in the supporting schedule to this resolution plan.

No computer codes / transient analysis will be performed to support this analysis.

Task 2 of GI-UKEPR-CC01.02 – Update to PCSR Sub-chapter 3.2

PCSR Sub-chapter 3.2 will be updated to reflect the internal structures classification of the Safeguard Auxiliary Building / Electrical Building and Fuel Building. The update of NEPS-F DC 557 performed in Task 1 will be the basis of the changes included into the PCSR.

No computer codes / transient analysis will be performed to support this analysis.

3.2.1.3 Deliverable description

Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components

This document will updated presenting the various classifications applicable to the above mentioned tasks

Submission date to ONR/EA

23/12/2011
(Advance Version)

12/06/2012
(Final Version)

Update to PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems

The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2

10/02/2012
(Advance Version)

15/06/2012
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3.3 Action GI-UKEPR-CC01.03

Action I/D	Action Description
GI-UKEPR-CC01.03	<p>EDF and AREVA to update fault schedule in report N°NEPS-F DC 557 Rev C to include credible external and internal hazards as initiating events and from that the safety functions and SSC classifications.</p> <p>The evidence we expect to see to address this action is:</p> <ul style="list-style-type: none"> • Update fault schedule in report N°NEPS-F DC 557 CCI to include credible external and internal hazards as initiating events • Derive from the updated fault schedule the safety functions and SSC classifications • Update PCSR to align with update to report N°NEPS-F DC 557 CCI. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.3.1 Planned submissions in response to GI-UKEPR-CC01.03

3.3.1.1 Description of Scope of Work

The objective is to identify the safety functions and Structures, Systems, and Components (SSCs) which are necessary to make sure that the consequences (including initiating faults) of hazards remain acceptable. Accordingly, this action will provide representative cases of a hazards schedule to complement the fault schedule submitted in the March 2011 PCSR for PCC and RRC-A fault studies.

3.3.1.2 Description of Methodology to be employed

The consideration of internal and external hazards requires the implementation of dedicated safety functions, which will be identified in a “hazard fault schedule”, as well as the classification of the SSCs which ensure these functions.

The methodology to be applied for this scope of work will be that for a credible hazard, a fault analysis will be carried out in order to determine the following:

- The initiating faults caused by the hazard (where the initiating faults are the same as those on the “plant” fault schedule),
- The consequential effects of the hazard on the protection and safeguards systems, including those involved in the management of the above initiating faults,
- The specific hazard safety functions, the implementation of which is necessary to make sure that the fault sequence is bounded by those of the “plant” fault schedule (e.g. for internal flooding: water detection in a sump, isolation of a hydraulic circuit, etc.).

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The results of this analysis will be presented in a “hazards” fault schedule at the relevant level of detail, consistent with the information that is available at this stage. Due to the fact supporting analyses are currently underway for the reference design plant of the UK EPR, the scope of this analysis will be limited to two (2) representative cases where there is sufficient design information to perform a proper analysis. However, these representative cases will address and consider hazards in chosen important areas of the UK EPR where it will be demonstrated that the methodology adopted will thoroughly evaluate the postulated hazards. Furthermore, this will ensure and allow for an agreed approach to be adopted for the remainder of the applicable SSCs of the UK EPR.

Should these representative cases result in the need to perform design changes to the UK EPR such that the associated hazard(s) can be satisfactorily justified, then development and progression of the necessary design changes will follow the agreed design change process for GDA. Accordingly, a design change would be initiated and would identify the limiting condition and the preliminary method for resolving the condition. With the resolution method identified, the analysis for these two (2) cases would be reinitiated to further evaluate the postulated hazard scenario to ensure that satisfactory results are achieved. It should be noted that this process can be iterative (depending on the hazard, location, etc.) and a complete and thorough view of potentially necessary design changes can not be achieved until the full “hazards” fault schedule is complete for these two (2) cases. Therefore, any potential design changes will be documented and will require reconciliation once the “hazards” fault schedule for these two (2) cases is built and finalised to ensure that these various potential design changes are properly reconciled. This process will ensure that any potential UK EPR design changes related to these representative cases are properly documented, justified, and preliminarily resolved prior to transitioning to Nuclear Site Licensing. Accordingly, this aspect of the process has been reflected in the associated work programme of this resolution plan (i.e., assuming one (1) iteration is necessary).

The “hazards” fault schedule associated with this resolution plan will be a separate document from the “plant” fault schedule presented in PCSR Sub-chapter 14.7 which is dedicated to PCC and RRC-A events.

Note that in NEPS-F DC 557 C, the principles for the hazard schedule are established (Appendix C), i.e., for each external and internal hazards, plant level safety functions and lower level safety functions are identified, with the associated category. SSCs fulfilling these functions are identified, along with the associated classification. These principles will be applied to the analysis described herein.

Task 1 of GI-UKEPR-CC01.03 – Methodology and Identification of Representative Cases

The objective of this task is to specify to ONR the two (2) representative cases which will be analysed as part of Task 2 of this resolution plan and will be consistent with the information to be produced in the response to GI-UKEPR-IH02. ONR will be made aware of these representative cases early in the work programme and a subsequent meeting will be held to obtain ONR concurrence that these cases are acceptable. Along with the specification of these cases, the identification and explanation of the methodology to be applied for further analyses will be provided to ONR for assessment. The principles to be applied will be in compliance with NEPS-F DC 557 C.

A meeting with ONR will be scheduled to obtain feedback from the inspectors on the approach specified through the Task 1 deliverable. Through this discussion with ONR, the intent is to address any comments received and satisfactorily resolve them with ONR.

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No computer codes / transient analysis will be performed to support this analysis. No updates to the PCSR will occur as part of this Task.

Task 2 of GI-UKEPR-CC01.03 – Development of Representative Hazards Fault Schedule Examples

The objective of this task is to develop two (2) representative cases using the analysis methodology developed and agreed to as part of the Task 1 deliverable. The hazards fault schedule from these two (2) cases and the expected results will allow for easy identification of the provisions made against hazards for each building and effectively establish a satisfactory methodology that will be applied during Nuclear Site License.

No computer codes / transient analysis will be performed to support this analysis.

Note that from this analysis that any potential changes in SSC classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2.

Task 3 of GI-UKEPR-CC01.03 – PCSR Update – Sub-chapters 13.1 and 13.2

The hazards fault schedule analysis methodology will be included in PCSR Sub-chapters 13.1 and 13.2. These updates will establish the basis and principles to be applied during Nuclear Site Licensing. Accordingly, an exhaustive hazards schedule, including all site specific hazards, is not associated with the PCSR updates related to this resolution plan.

No computer codes / transient analysis will be performed to support this analysis.

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3.3.1.3 Deliverable description

Submission date to ONR/EA

Methodology and Identification of Representative Cases

30/09/2011

This task will identify the cases and analysis approach to be applied on the representative cases; this letter will be used as a basis of discussion to achieve confirmation on the approach with ONR

Representative Cases of the Internal and External Hazards Fault Schedule

17/02/2012

This task will develop the hazard schedule for the representative cases, at the relevant level of detail, consistent with the information produced in the response to GI-UKEPR-IH.02

Update to PCSR Sub-chapters 13.1 – External Hazards Protection

06/04/2012
(Advance Version)

Update of PCSR with inclusion of external hazards schedule as a table in PCSR chapter

22/06/2012
(Final Version)

Update to PCSR Sub-chapters 13.2 – Internal Hazards Protection

06/04/2012
(Advance Version)

Update of PCSR with inclusion of external hazards schedule as a table in PCSR chapter

22/06/2012
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3.4 Action GI-UKEPR-CC01.04

Action I/D	Action Description
GI-UKEPR-CC01.04	<p>EDF and AREVA to provide evidence that demonstrates the applicability of the M1-M3 classification approach against ONR's expectations as detailed within SAPs, particularly ECS.3 and supporting paragraphs 157-161. In particular EDF and AREVA need to fully justify each case where an M3 requirement is applied to a Class 1 system i.e. an expansion of the claims made in Table 14 of NEPS-F DC 557 Rev C to show the arguments and evidence to support use of M3 for each Class 1 system. The arguments and evidence should take account of; the safety significance of the SSC, the demands that are placed on the system in terms of loadings, fatigue, temperature etc. and the consequences of the failure of the pressure boundary in terms of both the loss of system function and on the Internal Hazards safety case.</p> <p>Where non-nuclear pressure vessel codes e.g. European Harmonised Standards are intended to be used in the design of Class 2 systems EDF and AREVA need to fully justify each case i.e. an expansion of the claims made in Table 14 of NEPS-F DC 557 Rev C to show the arguments and evidence to support use of non-nuclear pressure vessel codes for each Class 2 system. The arguments and evidence should take account of; the safety significance of the SSC, the demands that are placed on the system in terms of loadings, fatigue, temperature etc. and the consequences of the failure of the pressure boundary in terms of both the loss of system function and on the Internal Hazards safety case.</p> <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.4.1 Planned submissions in response to GI-UKEPR-CC01.04

3.4.1.1 Description of Scope of Work

The purpose of this action is to justify the adequacy of

- claiming M3 mechanical design requirements for class 1 mechanical components instead of claiming M2, and
- applying European Harmonized Standards + Supplements for class 2 mechanical components instead of nuclear codes.

The scope of the analysis is restricted to the scope of SSCs considered in GDA. The analysis performed in response to this action will address the above items by providing comparisons and justifications, where appropriate. The comparisons which will be performed will encompass representative cases directly applicable to the UK EPR. These comparisons will address items such as piping, valves, vessels, etc.

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3.4.1.2 Description of Methodology to be employed

The response methodology for this action will be based on the agreements and commitments made through the resolution of regulator observations. Specifically, commitments were made during a 28/03/2011 topic meeting with ONR and were documented in AREVA/EDF Letter ND(NII) EPR00863N. As part of these commitments, additional arguments and justifications were stated as being required for three (3) distinct areas:

- For Class 1 / M3 Mechanical Components:
 - o Arguments to justify the application of M3 requirements
- For Class 2 / M3 Components:
 - o Justifications for the application of European Harmonized Standards + Supplements
 - o Comparison between RCC-M3 and European Harmonized Standards + Supplements

Accordingly, these remaining commitments are associated with the below identified tasks which will be used to respond to this action of GI-UKEPR-CC01.

Task 1 of GI-UKEPR-CC01.04 - Class 1 Components, Based on the Scope of SSCs Considered in GDA, Develop Further Arguments to Justify the Application of M3 Requirements

The purpose of this task is to develop further arguments for class 1 components where M3 requirements may be applied, starting from the scope of SSCs considered in GDA. Specifically, detailed information of the different components concerned will be formulated to provide arguments (i.e., not high energy, no unacceptable consequences in case of failure, radioactive content, etc.).

No computer codes / transient analysis will be performed to support this task. Where appropriate, available studies from Flamanville 3 and/or studies generated in response to GI-UKEPR-IH04 will be utilized for justifying associated consequences; whereas, fault studies will be utilised for justifying functional requirements.

Task 2 of GI-UKEPR-CC01.04 - Class 2 Components, Develop Further Arguments to Justify the use of European Harmonized Standards + Supplements to Class 2 Components and Provide ONR with an Robust Comparison Between RCC-M3 Requirements and European Harmonized Standards + Supplements

The purpose of this task is to provide additional elements of justifications for European Harmonized Standards + Supplements. Two (2) documents will be provided:

- A comparison document between RCC-M3 Requirements and European Harmonized Standards + Supplements will include the following scope:
 - Code Topic Comparison and Subject Matter: General Overview, Design Rules, Hydrostatic Tests, Overpressure Protection, Materials, Manufacturing, Examination, Quality Assurance, and Documentation.
 - Concerning Materials: will be adapted on the basis of a precise list of class 2 / M3 equipment so that the scope can be limited (e.g. Piping (EN13480), Vessels (including

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Heat Exchangers) (EN13445), and Pumps and Valves).

- A document developing further arguments to justify the application of European Harmonized Standards + Supplements, on the basis of detailed information on the concerned Class 2 components (e.g. not high energy, safety consequences in case of failure, radioactive content, etc.).

The above stated comparisons will utilise and encompass UK EPR representative examples using RCC-M3 and European Harmonized Standards + Supplements, effectively demonstrating that European Harmonized Standards + Supplements is adequate for use.

No computer codes / transient analysis will be performed to support this task.

Note that from these analyses that any potential changes in SSC classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2.

Task 3 of GI-UKEPR-CC01.04 – Update to NEPS-F DC 557 C

NEPS-F DC 557 will be updated to ensure the commitments identified above are properly documented and integrated.

No computer codes / transient analysis will be performed to support this analysis.

Task 4 of GI-UKEPR-CC01.04 – Update to PCSR Sub-chapter 3.2

PCSR sub-chapter 3.2 will be updated to reflect the commitments identified above are properly documented and integrated. The update of NEPS-F DC 557 performed in Task 2 will be the basis of the changes included into the PCSR.

No computer codes / transient analysis will be performed to support this analysis.

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3.4.1.3 Deliverable description

Submission date to ONR/EA

Class 1 Components – Arguments to Justify the Application of M3 Requirements 30/09/2011

The purpose of this task is to develop further arguments for class 1 components, starting from table 14 of NEPS-F DC 557C

Class 2 Components – Comparison Between RCC-M3 and European Harmonized Standards + Supplements 12/08/2011

The purpose of this task is to provide additional elements of justifications for European Harmonized Standards + Supplements

Class 2 Components – Justification for the Application of European Harmonized Standards + Supplements 22/09/2011

The purpose of this task is to provide additional elements of justifications for European Harmonized Standards + Supplements for Class 2 components on the basis of detailed information (e.g. not high energy, safety consequences in case of failure, radioactive content, etc.

Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components 18/11/2011 (Advance Version)

This document will updated presenting the various classifications applicable to the above mentioned tasks

12/06/2012 (Final Version)

Update to PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems 06/01/2012 (Advance Version)

The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2

15/06/2012 (Final Version)

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3.5 Action GI-UKEPR-CC01.05

Action I/D	Action Description
GI-UKEPR-CC01.05	<p>EDF and AREVA to provide evidence to justify the allocation of class 3 SSC as the diverse line of protection for frequent faults and a demonstration that such allocation is ALARP.</p> <p>The evidence we expect to see to address this action is:</p> <ul style="list-style-type: none"> • Detailed analysis of the seismic behaviour and ALARP justifications for electrical components • Details on C&I class allocation <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.5.1 Planned submissions in response to GI-UKEPR-CC01.05

3.5.1.1 Description of Scope of Work

The purpose of the action is to justify the allocation of Class 3 SSCs as diverse lines of protection for frequent faults. The feasibility of upgrading to Class 2 the RRC-A features that are currently Class 3 will be analysed.

3.5.1.2 Description of Methodology to be employed

Task 1 of GI-UKEPR-CC01.05 – Commitments to upgrade to class 2 the diverse line of protection and justification of Class 3 for Diverse Lines of Protection if upgrade not possible

The basis of this task is to upgrade to Class 2 the SSCs involved in the diverse line of protection, if possible. Should this analysis determine that Class 3 is not suitable then the affected SSCs will require additional justification for maintaining the Class 3 designation or alternatively be upgraded to Class 2.

These potential complementary analyses to justify Class 3 design requirements will detail for each component the safety functional groups considered in the analysis of the functional diversity (PCSR Sub-chapter 16.4), the seismic, mechanical, electrical, I&C design requirements and requirements for periodic tests, quality assurance, physical separation of redundant parts so that a comparison with the current design with Class 2 design requirements is presented. Through this methodical analysis, justification will be provided for each considered component with respect to the appropriate class designation. The ALARP approach and principles will be integrated and used appropriately to properly evaluate and justify the designation.

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Any potential changes in SSC classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2. Additionally, update to PCSR Sub-chapter 14.7 may be required to account for any impacts to the fault schedule based on the analysis

No computer codes / transient analysis will be performed to support this task.

Task 2 of GI-UKEPR-CC01.05 – Update to NEPS-F DC 557 C

NEPS-F DC 557 will be updated to account for any changes in classification which may result from the outcome of Task 1.

No computer codes / transient analysis will be performed to support this analysis.

Task 3 of GI-UKEPR-CC01.05 – Update to PCSR Sub-chapter 3.2

PCSR sub-chapter 3.2 will be updated to reflect the any changes in classification which may result from the outcome of Task 1. The update of NEPS-F DC 557 performed in Task 2 will be the basis of the changes included into the PCSR.

No computer codes / transient analysis will be performed to support this analysis.

Task 4 of GI-UKEPR-CC01.05 – Update to PCSR Sub-chapter 14.7

PCSR sub-chapter 14.7 will be updated to reflect any changes in classification which may result from the outcome of Task 1 affecting the fault schedule. .

No computer codes / transient analysis will be performed to support this analysis.

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3.5.1.3 Deliverable description

Submission date to ONR/EA

Justification of Class 3 for Diverse Lines of Protection and Analysis of the Feasibility for the Upgrade to Class 2

31/01/2012

The document serves to justify the allocation of Class 3 SSCs as diverse lines of protection for frequent faults and evaluates the feasibility of upgrading to Class 2 the RRC-A features that are currently Class 3 will be analysed

Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components

20/03/2012

This document will updated presenting the various classifications applicable to the above mentioned tasks

(Advance Version)

12/06/2012

(Final Version)

Update to PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems

30/04/2012

The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2

(Advance Version)

15/06/2012

(Final Version)

Update to PCSR Sub-chapter 14.7 – Fault and Protection Schedule

24/04/2012

An update will be performed to reflect any changes in classification which may result from the outcome of Task 1 affecting the fault schedule

(Advance Version)

19/06/2012

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3.6 Action GI-UKEPR-CC01.06

Action I/D	Action Description
GI-UKEPR-CC01.06	<p>Categorisation of C&I systems to be consistent with current good practice as provided by IEC61226:2009 Nuclear Power Plants – Instrumentation and Control Systems Important to Safety – Classification’.</p> <p>The evidence we expect to see to address this action is:</p> <ul style="list-style-type: none"> • Evidence to demonstrate that the categorisation of C&I systems is consistent with current good practice provided by IEC61226:2009 Nuclear Power Plants – Instrumentation and Control Systems Important to Safety – Classification. • Evidence to demonstrate that the categorisation of C&I systems is consistent with the probabilistic claims (derived from HSE ND TAG 46) given below. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.6.1 Planned submissions in response to GI-UKEPR-CC01.06

3.6.1.1 Description of Scope of Work

The purpose of this action is to ensure compliance with the good practices identified in standard IEC61226 and include within the PSA model the reliability claims proposed by ONR.

3.6.1.2 Description of Methodology to be employed

Task 1 of GI-UKEPR-CC01.06 - Provide Allocation of I&C Functions to I&C Systems Consistently with IEC61226

This task aims at detailing the content and methodology used for the development of table 16 of NEPS-F DC 557 C with typical I&C functions implemented in the I&C systems (PS, SAS, etc.) so that it can be demonstrated and clearly understood what functions the I&C systems are supporting and if their associated classification is commensurate with their safety claim.

The deliverable associated with GI-UKEPR-CI06.A9, Task 1, “Safety Design Rules for GDA UK I&C Architecture”, will clearly explain the link between the probabilistic targets of the ONR SAPs and the deterministic design of the I&C architecture, notably to illustrate the need for diversity and independence. Therefore, this deliverable will define the safety environment and design rules related to UK GDA I&C architecture.

Accordingly, the deliverable associated with this GI-UKEPR-CI06.A9 will establish the safety principles from the perspective of achieving and ensuring compliance with UK Regulations and will effectively address this I&C classification related action. The results of this deliverable will be used as

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the basis for an update to NEPS-F 557 C and PCSR Sub-chapter 3.2. The update to PCSR Sub-chapter 3.2 will be performed in order to reflect the totality of the I&C classification scheme, as applicable to the scope of GDA, and will establish the methodology to be utilized during Nuclear Site License.

Should it be determined that the classification of the I&C systems are not suitable then additional justifications will be necessary or alternatively they may have to be upgraded.

Any changes in classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2.

No computer codes / transient analysis will be performed to support this task.

Task 2 of GI-UKEPR-CC01.06 – Update to NEPS-F DC 557 C

NEPS-F DC 557 will be updated to reflect the safety principles established in Task 1.

No computer codes / transient analysis will be performed to support this analysis.

Task 3 of GI-UKEPR-CC01.06 – Update to PCSR Sub-chapter 3.2

PCSR sub-chapter 3.2 will be updated to reflect the safety principles established in Task 1. The update of NEPS-F DC 557 performed in Task 2 will be the basis of the changes included into the PCSR.

No computer codes / transient analysis will be performed to support this analysis.

3.6.1.3 Deliverable description

Safety Design rules for GDA UK I&C Architecture

This document will clearly explain the link between the probabilistic targets of the ONR SAPs and the deterministic design of the I&C architecture, notably to illustrate the need for diversity and independence. Additionally, the safety environment and design rules related to UK GDA I&C architecture will be defined.

Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components
This document will updated presenting the various classifications applicable to the above mentioned tasks

Update to PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems

The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2

Submission date to ONR/EA

See GI-UKEPR-CI06.A9

31/10/2011
(Advance Version)

12/06/2012
(Final Version)

19/12/2011
(Advance Version)

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(Final Version)

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3.7 Action GI-UKEPR-CC01.07

Action I/D	Action Description
GI-UKEPR-CC01.07	<p>EDF and AREVA to provide evidence to justify the allocation of Class 2 SSCs to cool the spent fuel pool and demonstrate that the current allocation is ALARP. EDF and AREVA have claimed that the spent fuel pool is in a controlled state at the start of a loss of cooling event because of the available grace times before significantly elevated temperatures are reached. As a result, it is argued that provision of cooling to remove decay heat from the spent fuel pool is a Category B function, only requiring the main cooling trains to be Class 2. However this allocation means that there are no Class 1 SSCs providing this vital safety function.</p> <p>The references, Classification of Structures Systems and Components. NEPS-F DC 557 Revision C, and 2. Dossier de Système Élémentaire PTR, P2 – Fonctionnement du système [System Design Manual Spent Fuel Cooling and Purification System (PTR [FPPS/FPCS]), P2 – System operation], set out the design requirements for the spent fuel pool cooling system, including the safety classification. The piping and heat exchangers are built to class M2 (the highest standard that is applied to SSCs not part of the reactor coolant pressure boundary or in the "High Integrity Component" (HIC) envelope). The main cooling trains are also to be built to the highest seismic and electrical standards. Therefore, many aspects of the design would be unaltered by reclassification. One potential shortfall is C&I where there are identifiable differences in requirements between Class 1 and Class 2 SSCs. Another concern is that while the piping is not part of the HIC envelope, the UKEPR PCSR claims "break preclusion" for the M2 piping upstream of isolation valves. EDF and AREVA shall review the safety classification of SSCs claimed to deliver spent fuel pool cooling functions and demonstrate that the current allocation is ALARP. The evidence we expect to see to address this action includes:</p> <ul style="list-style-type: none"> • Detailed analysis of the seismic, mechanical, electrical and structural integrity requirements of spent fuel pool cooling systems. • Detailed analysis of the C&I class allocation. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.7.1 Planned submissions in response to GI-UKEPR-CC01.07

3.7.1.1 Description of Scope of Work

The scope is to provide evidence justifying the allocation of Class 2 SSCs to cool the spent fuel pool and demonstrate that the current allocation is ALARP.

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3.7.1.2 Description of Methodology to be employed

Task 1 of GI-UKEPR-CC01.07 – Detailed Classification Analysis of the Spent Fuel Pool Cooling System.

This analysis will present for each component the same level of analysis as the ones considered in the analysis of the functional diversity (PCSR Sub-chapter 16.4) - the seismic, mechanical, electrical, I&C design requirements and requirements for periodic tests, quality assurance, physical separation of redundant parts - so that a comparison with the current design with Class 1 design requirements is presented. Through this methodical analysis, justification will be provided for each considered component with respect to the appropriate class designation. The ALARP approach and principles will be integrated and used appropriately to properly evaluate and justify the designation.

Should this analysis determine that Class 2 is not suitable then the affected SSCs will require additional justification for maintaining the Class 2 designation or alternatively be upgraded to Class 1.

Any changes in SSC classification from the current designation in the PCSR and NEPS-F DC 557 C will follow the established and agreed design change process. Resultant design changes which affect classification will be integrated into an update to NEPS-F DC 557 C and into PCSR Sub-chapter 3.2.

Development and completion of this task deliverable will consider the deliverables associated with GI-UKEPR-FS03.A3.

A meeting with ONR is recommended such that an overview of the spent fuel pool cooling system and the design considerations can be thoroughly explained. This exchange of information is expected to facilitate a better understanding of this system and will assist in the assessment of the system classification.

No computer codes / transient analysis will be performed to support this task.

3.7.1.3 Deliverable description

**Submission
date to
ONR/EA**

Detailed Classification Analysis of the Spent Fuel Pool Cooling System

31/01/2012

This document serves to justify the present Class 2 designation of the spent fuel pool cooling system and if necessary evaluate upgrades to Class 1

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3.8 Action GI-UKEPR-CC01.08

Action I/D	Action Description
GI-UKEPR-CC01.08	<p>EDF and AREVA to provide further clarification with regards to differentiation elements for Class 1, 2, and 3 electrical systems both in terms of systems architecture and electrical components design and to provide evidence that the difference between EE1 and EE2 systems is much broader than seismic requirements (system architecture, single failure criterion, component integrity, diversity, equipment qualification etc.) The evidence we expect to see to address this action is:</p> <ul style="list-style-type: none"> Revision to report NEPS-F DC 557 Rev C to provide further clarification to define class 1, 2, and 3 electrical SSCS and differentiation elements for these systems both in terms of systems architecture and electrical components design. <p>With agreement from the Regulator this action may be completed by alternative means.</p>

3.8.1 Planned submissions in response to GI-UKEPR-CC01.08

3.8.1.1 Description of Scope of Work

The purpose of this action is to provide further details regarding the application of the new classification approach and how it is applied to the Class 1, 2, and 3 electrical systems and components.

3.8.1.2 Description of Methodology to be employed

Task 1 to GI-UKEPR-CC01.08 – Provide a Detailed Application of the Classification Principles to Electrical Systems – Update to NEPS-F DC 557

This task aims at detailing the content and methodology used for the development of table 15 of NEPS-F DC 557 C, Classification of Electrical Systems, so that it can be demonstrated and clearly understood what functions the electrical systems are supporting and if their associated classification is commensurate with their safety claim. Additionally, the classification scheme and considerations utilised for SMART devices needs to be explained.

NEPS-F DC 557 C will be updated, under the format of a dedicated appendix to illustrate the process utilized for classifying the electrical systems and associated components.

No computer codes / transient analysis will be performed to support this task.

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Task 2 of GI-UKEPR-CC01.08 – Update to PCSR Sub-chapter 3.2

PCSR sub-chapter 3.2 will be updated to reflect the process utilized for classifying the electrical systems and associated components. The update of NEPS-F DC 557 performed in Task 1 will be the basis of the changes included into the PCSR. The update to PCSR Sub-chapter 3.2 will be performed in order to reflect the totality of the electrical classification scheme, as applicable to the scope of GDA, and will establish the methodology to be utilized during Nuclear Site License.

No computer codes / transient analysis will be performed to support this task.

Note that PCSR Chapter 8 will be updated as outlined in the resolution plan for GI-UKEPR-EE01. In the March 2011 PCSR version, electrical system and component classification details were not directly specified in Chapter 8, but were referenced out to PCSR sub-chapter 3.2. Accordingly, the update of PCSR Chapter 8 performed under resolution of GI-UKEPR-EE01 will follow the same approach. With that being said, it is understood that GI-UKEPR-EE01 and this GI-UKEPR-CC01 Action 8 will need to be coordinated to ensure the proper links and discussions are integrated with respect to classification and categorisation.

3.8.1.3 Deliverable description

3.8.1.3 Deliverable description	Submission date to ONR/EA
Update to NEPS-F DC 557 C, Classification of Structures, Systems, and Components <i>This document will updated presenting the various classifications applicable to the above mentioned tasks</i>	10/11/2011 (Advance Version)
	12/06/2012 (Final Version)
Update of PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems <i>The information provided with the update of NEPS-F DC 557 will be integrated into the PCSR Sub-chapter 3.2</i>	06/01/2012 (Advance Version)
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4.0 SUMMARY OF IMPACT ON GDA SUBMISSION DOCUMENTATION

4.1 GDA submission documents impacted by GDA Issue and scheduled to be created (C) or updated (U) within GDA

GDA Submission Documents	C/U	Related GDA Issue Action(s)	Submission Date to ONR/EA
SSER sub-chapters PCSR Sub-chapter 3.2 – Classification of Structures, Equipment and Systems	U	GI-UKEPR-CC01.01	17/02/2012 (Adv. Ver.)
		GI-UKEPR-CC01.02	10/02/2012 (Adv. Ver.)
		GI-UKEPR-CC01.04	06/01/2012 (Adv. Ver.)
		GI-UKEPR-CC01.05	30/04/2012 (Adv. Ver.)
		GI-UKEPR-CC01.06	19/12/2011 (Adv. Ver.)
		GI-UKEPR-CC01.08	06/01/2012 (Adv. Ver.)
		GI-UKEPR-CC01.01	15/06/2012 (Final Ver.)
		GI-UKEPR-CC01.02	
		GI-UKEPR-CC01.04	
		GI-UKEPR-CC01.05	
GI-UKEPR-CC01.06			
GI-UKEPR-CC01.08			

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GDA Submission Documents	C/U	Related GDA Issue Action(s)	Submission Date to ONR/EA
PCSR Sub-chapters 13.1 – External Hazards Protection	U	GI-UKEPR-CC01.03	06/04/2012 (Adv. Ver.) 22/06/2012 (Final Ver.)
PCSR Sub-chapters 13.2 – Internal Hazards Protection	U	GI-UKEPR-CC01.03	06/04/2012 (Adv. Ver.) 22/06/2012 (Final Ver.)
PCSR Sub-chapter 14.7 – Fault and Protection Schedule	U	GI-UKEPR-CC01.05	24/04/2012 (Adv. Ver.) 19/06/2012 (Final Ver.)
GDA reference design documents (SDM in UKEPR-I-002) Not Applicable		N/A	N/A

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GDA Submission Documents	C/U	Related GDA Issue Action(s)	Submission Date to ONR/EA		
Other GDA submission supporting documents					
NEPS-F DC 557 C, Classification of Structures, Systems, and Components	U	GI-UKEPR-CC01.01	20/01/2012 (Adv. Ver.)		
		GI-UKEPR-CC01.02	23/12/2011 (Adv. Ver.)		
		GI-UKEPR-CC01.04	18/11/2011 (Adv. Ver.)		
		GI-UKEPR-CC01.05	20/03/2012 (Adv. Ver.)		
		GI-UKEPR-CC01.06	31/10/2011 (Adv. Ver.)		
		GI-UKEPR-CC01.08	10/11/2011 (Adv. Ver.)		
		GI-UKEPR-CC01.01	12/06/2012 (Final Ver.)		
		GI-UKEPR-CC01.02			
		GI-UKEPR-CC01.04			
		GI-UKEPR-CC01.05			
		GI-UKEPR-CC01.06			
		GI-UKEPR-CC01.08			
		Methodology and Analysis Examples	C	GI-UKEPR-CC01.01	02/12/2011
		Methodology and Identification of Representative Cases	C	GI-UKEPR-CC01.03	30/09/2011

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GDA Submission Documents	C/U	Related GDA Issue Action(s)	Submission Date to ONR/EA
Representative Cases of the Internal and External Hazards Fault Schedule	C	GI-UKEPR-CC01.03	17/02/2012
Class 1 Components – Arguments to Justify the Application of M3 Requirements	C	GI-UKEPR-CC01.04	30/09/2011
Class 2 Components – Comparison Between RCC-M3 and European Harmonized Standards + Supplements	C	GI-UKEPR-CC01.04	12/08/2011
Class 2 Components – Justification for the Application of European Harmonized Standards + Supplements	C	GI-UKEPR-CC01.04	22/09/2011
Justification of Class 3 for Diverse Lines of Protection and Analysis of the Feasibility for the Upgrade to Class 2	C	GI-UKEPR-CC01.05	31/01/2012
Safety principles applied to the UK EPR I&C architecture in terms of the requirements for diversity and independence	C	GI-UKEPR-CC01.06	See GI-UKEPR-CI06.A9
Detailed Classification Analysis of the Spent Fuel Pool Cooling System	C	GI-UKEPR-CC01.07	31/01/2012

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5.0 JUSTIFICATION OF ADEQUACY

The deliverables submitted in response to these issue actions will provide additional justifications to those presented in GDA Step 4 and bring clarity to the classification scheme and categorisations which are used for the UK EPR. Additionally, the conclusions which will be achieved through this GDA issue response will ensure that a clear classification scheme and approach to be carried forward into Nuclear Site License is properly documented such that it can be effectively applied within the detailed design and Licensing phase. The deliverables associated with this GDA issue will provide confidence that EDF and AREVA have developed a rigorous and robust approach to categorisation and classification of SSCs for the UK EPR.

Note that the issue actions and associated deliverables contribute to the substantiation of the following relevant SAPs for the UK EPR: ECS.1, ECS.2, ECS.3, ECS.4, and ECS.5.

Justification for each action response to this GI-UKEPR-CC01 is explained in the paragraphs to follow.

The response to **GI-UKEPR-CC01.01** will provide an overall methodology which will be applied for identifying duty functions and related duty systems that need an actual safety categorization / classification. This will ensure the proper classification is applied. The supporting analysis will be an assessment of the consequences of system failure which will provide the adequacy of the assigned classification. Accordingly, the responses to this action will use the classification methodology developed within GDA and will delineate the approach and remaining site licensing activities which must be completed.

The response to **GI-UKEPR-CC01.02** will provide, for the internal structures of the Safeguard Auxiliary Building / Electrical Building and Fuel Building, the same type of classification table (level of detail) currently presented in the PCSR Sub-chapter 3.2 for other structures. Accordingly, the response to the action will complete the detailed classification for the above mentioned internal structures.

The response to **GI-UKEPR-CC01.03** will specify representative cases and the methodology which will be used in developing a "hazards" fault schedule. The resultant "hazards" fault schedule developed from the representative cases and through the use of the established methodology will allow for easy identification of the provisions made against hazards for each building and effectively establish a satisfactory methodology that will be applied during Nuclear Site License.

The response to **GI-UKEPR-CC01.04** will develop arguments and justifications for applying M3 requirements to Class 1 components. Additionally, arguments and justifications will be developed for the application of European Harmonized Standards + Supplements to Class 2 components. These justifications will be completed in compliance with the commitments made during topic meetings and as documented in a project letter to ONR.

The response to **GI-UKEPR-CC01.05** will evaluate the feasibility of upgrading Class 3 SSCs involved in diverse line of protection to Class 2. Arguments will be provided to ensure the appropriateness of the Class 3 designation is properly justified and documented or alternatively be upgraded to Class 2.

The response to **GI-UKEPR-CC01.06** will rely on the deliverable generated in response to the GI-UKEPR-CI06.A9 Task 1, to clearly specify and demonstrate what functions the I&C systems are

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supporting and if their associated classification is commensurate with their associated safety claims. Accordingly, the response to this action will establish the safety principles from the perspective of achieving and ensuring compliance with UK Regulations.

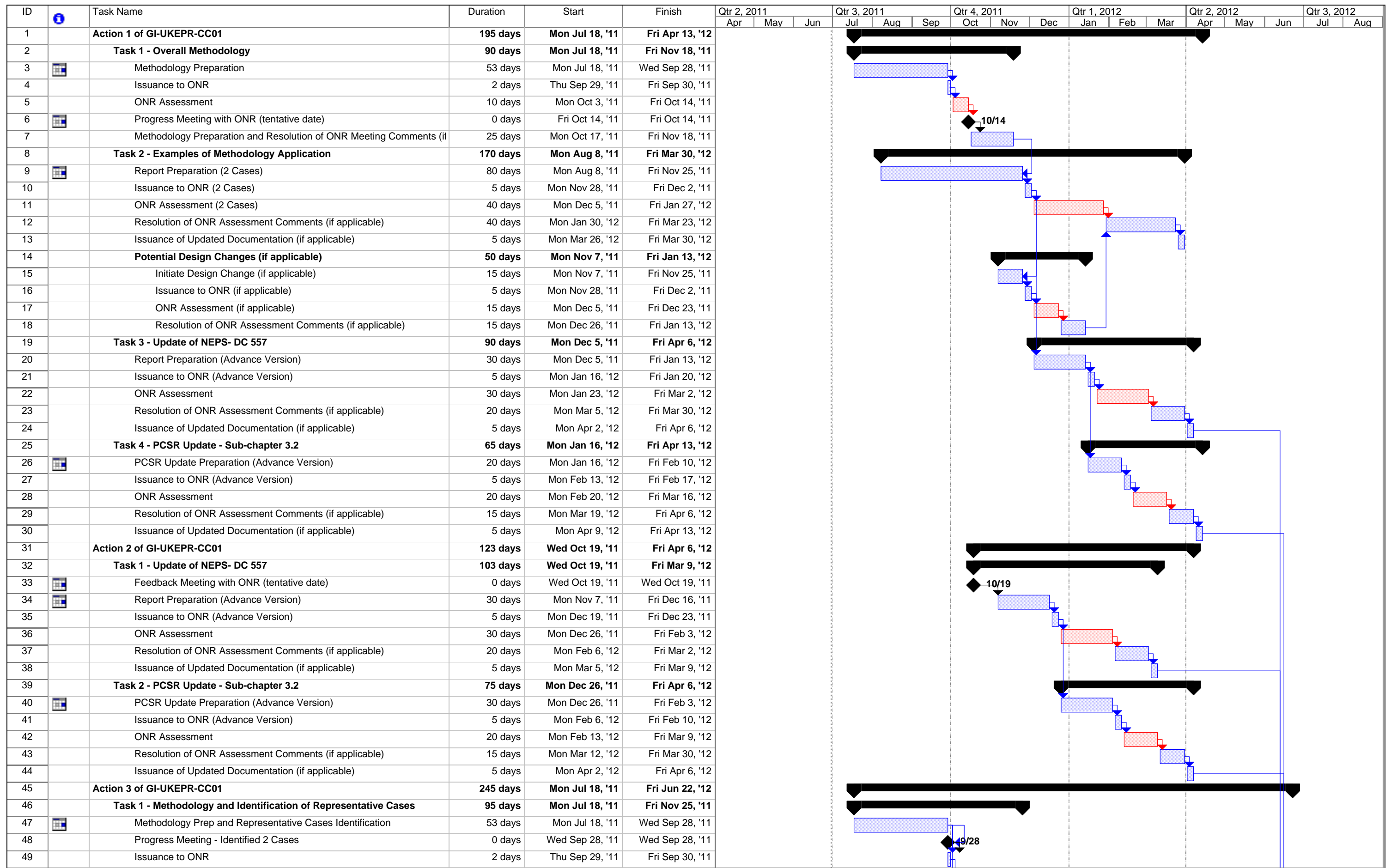
The response to **GI-UKEPR-CC01.07** will evaluate the appropriateness of the Class 2 designation of SSCs used to cool the spent fuel pool. For applications where the Class 2 designation is determined to not be appropriate for the affected SSCs, then additional arguments will be provided to ensure the appropriateness of the Class 2 designation is properly justified and documented or alternatively be upgraded to Class 1.

The response to **GI-UKEPR-CC01.08** will provide the additional details regarding the application of the updated classification approach for electrical systems and components. Additionally, the classification scheme and considerations utilised for SMART devices will be explained.

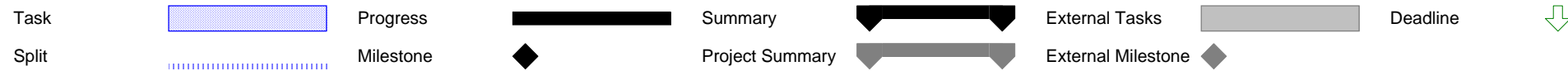
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6.0 TIMETABLE AND MILESTONE PROGRAMME LEADING TO THE DELIVERABLES

Consult the following pages for the associated timetable and milestone programme.



Project: GI-UKEPR-RC02 Schedule
Date: Thu Jun 30, '11



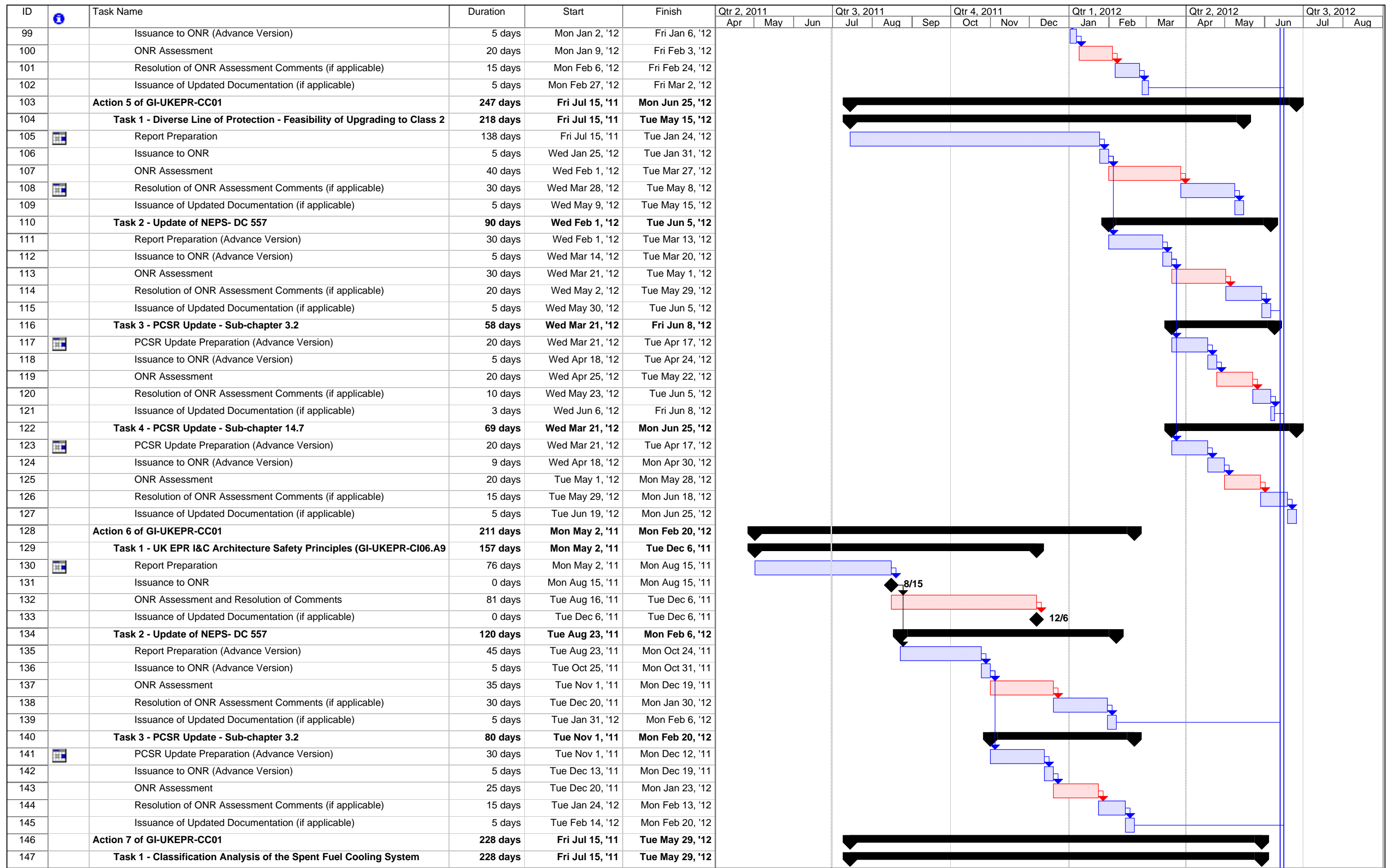
ID	Task Name	Duration	Start	Finish	Qtr 2, 2011			Qtr 3, 2011			Qtr 4, 2011			Qtr 1, 2012			Qtr 2, 2012			Qtr 3, 2012	
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
50	ONR Assessment	10 days	Mon Oct 3, '11	Fri Oct 14, '11																	
51	Progress Meeting - Methodology	0 days	Fri Oct 14, '11	Fri Oct 14, '11																	
52	Resolution of ONR Meeting Comments (if applicable) and Integration int	30 days	Mon Oct 17, '11	Fri Nov 25, '11																	
53	Task 2 - Development of Representative Hazards Fault Schedule Exam	187 days	Thu Sep 29, '11	Fri Jun 15, '12																	
54	Report Preparation (2 Cases)	97 days	Thu Sep 29, '11	Fri Feb 10, '12																	
55	Issuance to ONR (2 Cases)	5 days	Mon Feb 13, '12	Fri Feb 17, '12																	
56	ONR Assessment (2 Cases)	40 days	Mon Feb 20, '12	Fri Apr 13, '12																	
57	Resolution of ONR Assessment Comments (if applicable)	40 days	Mon Apr 16, '12	Fri Jun 8, '12																	
58	Issuance of Updated Documentation (if applicable)	5 days	Mon Jun 11, '12	Fri Jun 15, '12																	
59	Potential Design Changes (if applicable)	50 days	Mon Jan 23, '12	Fri Mar 30, '12																	
60	Initiate Design Change (if applicable)	15 days	Mon Jan 23, '12	Fri Feb 10, '12																	
61	Issuance to ONR (if applicable)	5 days	Mon Feb 13, '12	Fri Feb 17, '12																	
62	ONR Assessment (if applicable)	15 days	Mon Feb 20, '12	Fri Mar 9, '12																	
63	Resolution of ONR Assessment Comments (if applicable)	15 days	Mon Mar 12, '12	Fri Mar 30, '12																	
64	Task 3 - PCSR Update - Sub-chapters 13.1 and 13.2	90 days	Mon Feb 20, '12	Fri Jun 22, '12																	
65	PCSR Update Preparation (Advance Version)	30 days	Mon Feb 20, '12	Fri Mar 30, '12																	
66	Issuance to ONR (Advance Version)	5 days	Mon Apr 2, '12	Fri Apr 6, '12																	
67	ONR Assessment	30 days	Mon Apr 9, '12	Fri May 18, '12																	
68	Resolution of ONR Assessment Comments (if applicable)	20 days	Mon May 21, '12	Fri Jun 15, '12																	
69	Issuance of Updated Documentation (if applicable)	5 days	Mon Jun 18, '12	Fri Jun 22, '12																	
70	Action 4 of GI-UKEPR-CC01	220 days	Mon May 2, '11	Fri Mar 2, '12																	
71	Task 1 - Class 1 Components	145 days	Mon Jul 18, '11	Fri Feb 3, '12																	
72	Application of M3 Requirements	145 days	Mon Jul 18, '11	Fri Feb 3, '12																	
73	Report Preparation	50 days	Mon Jul 18, '11	Fri Sep 23, '11																	
74	Issuance to ONR	5 days	Mon Sep 26, '11	Fri Sep 30, '11																	
75	ONR Assessment	30 days	Mon Oct 3, '11	Fri Nov 11, '11																	
76	Resolution of ONR Assessment Comments (if applicable)	30 days	Mon Nov 14, '11	Fri Dec 23, '11																	
77	Issuance of Updated Documentation (if applicable)	30 days	Mon Dec 26, '11	Fri Feb 3, '12																	
78	Task 2 - Class 2 Components	169 days	Mon May 2, '11	Thu Dec 22, '11																	
79	Comparsion Between RCC-M3 and EHS+	140 days	Mon May 2, '11	Fri Nov 11, '11																	
80	Report Preparation	70 days	Mon May 2, '11	Fri Aug 5, '11																	
81	Issuance to ONR	5 days	Mon Aug 8, '11	Fri Aug 12, '11																	
82	ONR Assessment	30 days	Mon Aug 15, '11	Fri Sep 23, '11																	
83	Resolution of ONR Assessment Comments (if applicable)	30 days	Mon Sep 26, '11	Fri Nov 4, '11																	
84	Issuance of Updated Documentation (if applicable)	5 days	Mon Nov 7, '11	Fri Nov 11, '11																	
85	Justification for Applicatio of EHS+	125 days	Fri Jul 1, '11	Thu Dec 22, '11																	
86	Report Preparation	55 days	Fri Jul 1, '11	Thu Sep 15, '11																	
87	Issuance to ONR	5 days	Fri Sep 16, '11	Thu Sep 22, '11																	
88	ONR Assessment	30 days	Fri Sep 23, '11	Thu Nov 3, '11																	
89	Resolution of ONR Assessment Comments (if applicable)	30 days	Fri Nov 4, '11	Thu Dec 15, '11																	
90	Issuance of Updated Documentation (if applicable)	5 days	Fri Dec 16, '11	Thu Dec 22, '11																	
91	Task 3 - Update of NEPS- DC 557	90 days	Mon Oct 3, '11	Fri Feb 3, '12																	
92	Report Preparation (Advance Version)	30 days	Mon Oct 3, '11	Fri Nov 11, '11																	
93	Issuance to ONR (Advance Version)	5 days	Mon Nov 14, '11	Fri Nov 18, '11																	
94	ONR Assessment	30 days	Mon Nov 21, '11	Fri Dec 30, '11																	
95	Resolution of ONR Assessment Comments (if applicable)	20 days	Mon Jan 2, '12	Fri Jan 27, '12																	
96	Issuance of Updated Documentation (if applicable)	5 days	Mon Jan 30, '12	Fri Feb 3, '12																	
97	Task 4 - PCSR Update - Sub-chapter 3.2	75 days	Mon Nov 21, '11	Fri Mar 2, '12																	
98	PCSR Update Preparation (Advance Version)	30 days	Mon Nov 21, '11	Fri Dec 30, '11																	

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Task Progress Summary External Tasks Deadline

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ID	Task Name	Duration	Start	Finish	Qtr 2, 2011			Qtr 3, 2011			Qtr 4, 2011			Qtr 1, 2012			Qtr 2, 2012			Qtr 3, 2012	
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
148	Report Preparation	138 days	Fri Jul 15, '11	Tue Jan 24, '12																	
149	Issuance to ONR	5 days	Wed Jan 25, '12	Tue Jan 31, '12																	
150	ONR Assessment	40 days	Wed Feb 1, '12	Tue Mar 27, '12																	
151	Resolution of ONR Assessment Comments (if applicable)	40 days	Wed Mar 28, '12	Tue May 22, '12																	
152	Issuance of Updated Documentation (if applicable)	5 days	Wed May 23, '12	Tue May 29, '12																	
153	Action 8 of GI-UKEPR-CC01	146 days	Fri Aug 26, '11	Fri Mar 16, '12																	
154	Task 1 - Update of NEPS- DC 557	120 days	Fri Aug 26, '11	Thu Feb 9, '12																	
155	Report Preparation (Advance Version)	50 days	Fri Aug 26, '11	Thu Nov 3, '11																	
156	Issuance to ONR (Advance Version)	5 days	Fri Nov 4, '11	Thu Nov 10, '11																	
157	ONR Assessment	30 days	Fri Nov 11, '11	Thu Dec 22, '11																	
158	Resolution of ONR Assessment Comments (if applicable)	30 days	Fri Dec 23, '11	Thu Feb 2, '12																	
159	Issuance of Updated Documentation (if applicable)	5 days	Fri Feb 3, '12	Thu Feb 9, '12																	
160	Task 2 - PCSR Update - Sub-chapter 3.2	90 days	Mon Nov 14, '11	Fri Mar 16, '12																	
161	PCSR Update Preparation (Advance Version)	30 days	Mon Nov 14, '11	Fri Dec 23, '11																	
162	Issuance to ONR (Advance Version)	10 days	Mon Dec 26, '11	Fri Jan 6, '12																	
163	ONR Assessment	30 days	Mon Jan 9, '12	Fri Feb 17, '12																	
164	Resolution of ONR Assessment Comments (if applicable)	15 days	Mon Feb 20, '12	Fri Mar 9, '12																	
165	Issuance of Updated Documentation (if applicable)	5 days	Mon Mar 12, '12	Fri Mar 16, '12																	
166	Documentation Updates	78 days	Wed Mar 28, '12	Fri Jul 13, '12																	
167	NEPS-DC 557 Revision	75 days	Wed Mar 28, '12	Tue Jul 10, '12																	
168	Incorporation of All GI-UKEPR-CC01 Changes	50 days	Wed Mar 28, '12	Tue Jun 5, '12																	
169	Issuance to ONR	5 days	Wed Jun 6, '12	Tue Jun 12, '12																	
170	ONR Assessment	10 days	Wed Jun 13, '12	Tue Jun 26, '12																	
171	Resolution of ONR Assessment Comments (if applicable)	10 days	Wed Jun 27, '12	Tue Jul 10, '12																	
172	Issuance of Updated Documentation (if applicable)	0 days	Tue Jul 10, '12	Tue Jul 10, '12																	
173	PCSR Sub-chapter 3.2	75 days	Mon Apr 2, '12	Fri Jul 13, '12																	
174	Incorporation of All GI-UKEPR-CC01 Changes	50 days	Mon Apr 2, '12	Fri Jun 8, '12																	
175	Issuance to ONR	5 days	Mon Jun 11, '12	Fri Jun 15, '12																	
176	ONR Assessment	10 days	Mon Jun 18, '12	Fri Jun 29, '12																	
177	Resolution of ONR Assessment Comments (if applicable)	10 days	Mon Jul 2, '12	Fri Jul 13, '12																	
178	Issuance of Updated Documentation (if applicable)	0 days	Fri Jul 13, '12	Fri Jul 13, '12																	

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