

**Westinghouse UK**  
**AP1000® GENERIC DESIGN ASSESSMENT**  
**Resolution Plan for GI-AP1000-CC-02**  
**PCSR to Support GDA**

MAIN ASSESSMENT AREA	RELATED ASSESSMENT AREA(S)	RESOLUTION PLAN REVISION	GDA ISSUE REVISION
Transverse	Topic areas impacted by design changes	4	3

<b>GDA ISSUE:</b>	<p>Westinghouse to submit a safety case to support the GDA Design Reference and then to control, maintain and develop the GDA submission documentation, including the SSER, the MSL and design reference document and deliver final consolidated versions of these as the key references to any DAC/SODA the ONR or the Environment Agency (the joint Regulators) may issue at the end of GDA.</p> <p>This GDA Issue is raised by both the ONR and Environment Agency.</p>
<b>ACTION: GI-AP1000-CC-02.A1</b>	<p>Westinghouse to submit to the joint Regulators a consolidated PCSR and associated references which provides the necessary claims, arguments and evidence to substantiate the adequacy of the <b>AP1000®</b> design described by Design Reference Point (DRP) UKP-GW-GL-060 revision 2 and make available via the Westinghouse Website a public version of the consolidated PCSR, the Design Reference Document and the Master submission List.</p> <p>Westinghouse is required to carry out a review and reassessment of their PCSR. This review should cover:</p> <ul style="list-style-type: none"> <li>• PCSR UKP-GW-GL-793 Revision 0.</li> <li>• Weaknesses identified with the PCSR UKP-GW-GL-732 Revision 2.</li> <li>• Alignment of the DRP and MSL with the PCSR and associated references and ensure there is no adverse affect on impacted documents from the DCPs awaiting incorporation.</li> <li>• The application of UK safety classification for modifications.</li> <li>• Comments against the draft replacement PCSR UKP-GW-GL-793 Revision A.</li> <li>• Agreed responses TQs, ROs and RIs generated during GDA Steps 2, 3, and 4.</li> </ul> <p>Based on their review, Westinghouse should either confirm that their PCSR UKP-GW-GL-793 Revision 0 is the extant GDA safety case and is suitable and sufficient</p>

	<p>to substantiate the design defined in UKP-GW-GL-060 Revision 3 or submit a revised PCSR to the Regulators as necessary.</p> <p>Westinghouse is required to provide their safety case, Design Reference Document UKP-GW-GL-060 and the Master Submission List UKP-GW-GLX-001 and place subsequent updates on their website (removing commercial information, and security sensitive information)</p> <p>With agreement from the joint Regulators this action may be completed by alternative means.</p>
<p><b>ACTION: GI-AP1000-CC-02.A2</b></p>	<p>Westinghouse is required to make and implement arrangements to control, maintain and develop the GDA safety submission documentation. This must include the SSER, MSL and design reference documents. As part of this action, Westinghouse shall deliver final consolidated versions of these documents as the key references to any DAC/SODA ONR or the Environment Agency (the joint Regulators) may issue at the end of GDA.</p> <p>This should involve the incorporation of all relevant amendments into the impacted documentation associated with design changes, including the Design Reference UKP-GW-GL-060 MSL and the PCSR. This should include any other additionally agreed design changes associated with other GDA issue Resolution Plans.</p> <p>Westinghouse arrangements shall ensure no modification to the design or safety case, which may affect safety, is made except in accordance with agreed arrangements and will provide for the classification of modifications according to their safety significance.</p> <p>Evidence the joint Regulators expect to see to address this action:</p> <ol style="list-style-type: none"> <li>1. Application of Westinghouse due processes, including QA and technical reviews for the control and development of the GDA submission documentation contained within the SSER, MSL and design reference document to address       <ol style="list-style-type: none"> <li>1.1. GDA Issue resolution,</li> <li>1.2. Agreed design changes</li> <li>1.3. Any other updates agreed with the Regulators.</li> </ol> </li> <li>2. Application of Westinghouse due processes, including technical reviews, Independent Review and QA consolidation checks on final GDA submission documentation contained within the SSER, MSL and design reference document to be referenced from any DAC/SODA ONR or the Environment Agency may issue. The joint Regulators will require:       <ol style="list-style-type: none"> <li>2.1. Evidence that review comments have been managed and incorporated in the final</li> </ol> </li> </ol>

	<p>consolidated documentation as necessary.</p> <p>3. Timely delivery of final consolidated GDA submission documentation including SSER, MSL and design reference document to be referenced from any DAC/SODA ONR may issue. Westinghouse will need to provide a public version of these documents made available via their website. To facilitate our assessments /inspections in this area, in addition to the submission of the documentation the joint Regulators will require:</p> <p>3.1. the programme of deliverables of amended impacted design change documentation which will need to allow sufficient time for us to complete our assessments before ONR or Environmental Agency may issue any DAC/SODA.</p> <p>With agreement from the joint Regulators this action may be completed by alternative means.</p>
<p><b>ACTION: GI-AP1000-CC-02.A3</b></p>	<p>Westinghouse to implement the outstanding GDA agreed design changes, by incorporating the change details into all impacted DR, the MSL documentation including the PCSR, ER.</p> <p>The scope of this work should include those design changes already agreed for inclusion in GDA Step 4 but not incorporated and any additional design changes arising as part of other GDA issues resolution plans or arising during the GDA close out stage.</p> <p>Evidence ONR or the Environment Agency (the joint Regulators) expect to see to address this action includes:</p> <ol style="list-style-type: none"> <li>1. A revised Design Reference Document that shows the DCPs agreed by the regulators for inclusion in GDA which were not fully incorporated at the DRP of 16 September 2010.</li> <li>2. A delivery schedule which;       <ol style="list-style-type: none"> <li>2.1. Identifies when those DCPs identified in item 1 above and any subsequent DCPs agreed by the regulators for inclusion in GDA will be incorporated into the impacted support documentation in the MSL and DR</li> <li>2.2. Identifies what design change details will be carried over into the site specific Phase, supported by a justification for this later delivery</li> </ol> </li> <li>3. Delivery of 2a part of the schedule and define the quality assurance arrangements to be applied for 2b.</li> </ol> <p>To facilitate our assessments in this area the programme of deliverables of impacted GDA submission documentation should be phased to allow for early assessment of the process performance.</p> <p>It is noted that some changes may not be incorporated into the GDA submission documentation until the site</p>

	<p>specific phase. This work needs to be clearly identified and agreed with the joint Regulators prior to the end of GDA.</p> <p>Westinghouse to review the Design Reference Point and update the Design Reference Document as necessary to reflect incorporation of the design changes, submit this to the regulators and place any update on their website (removing commercial information, and security sensitive information) prior to the final GDA SSER submission. With agreement from the joint Regulators this action may be completed by alternative means.</p>
<b>RELEVANT REFERENCE DOCUMENTATION RELATED TO GDA ISSUE</b>	
<b>Technical Queries</b>	
<b>Regulatory Observations</b>	<p>RO-AP1000-018  RO-AP1000-031  RO-AP1000-046  RO-AP1000-047  RO-AP1000-048  RO-AP1000-049  RO-AP1000-050  RO-AP1000-051  RO-AP1000-052  RO-AP1000-053  RO-AP1000-054  RO-AP1000-055  RO-AP1000-077  RO-AP1000-082  RO-AP1000-094  RO-AP1000-103</p>
<b>Other Documentation</b>	<p>UKP-GW-GL-060  UKP-GW-GL-793  UKP-GW-GL-790  UKP-GW-GLX-700  UKP-GW-GLX-001</p>

\*In the remainder of this resolution plan, the term "SSERs" refers to the **AP1000** Pre-Construction Safety Report, UKP-GW-GL-793, revision 0; the **AP1000** Environment Report, UKP-GW-GL-790, revision 4, and the Conceptual Security Plan, UKP-GW-GLR-019, revision B.

**GI-AP1000-CC-02 ACTION 1**

*“Westinghouse to submit to ONR a consolidated PCSR and associated references which provides the necessary claims, arguments and evidence to substantiate the adequacy of the **AP1000** [sic] described by DRP UKP-GW-GL-060 revision 2 and make available via the Westinghouse Website a public version of the consolidated PCSR.”*

**Scope of work:****GI-AP1000-CC-02.A1**

Westinghouse continues to complete work incorporating design changes into design documentation in order to finalise the documentation of the **AP1000** design. The DRP will be updated to reflect the inclusion of appropriate design changes since the GDA pause. An evaluation of the SSERs readiness will be completed to ensure:

- The current PCSR and ER are comprehensive,
- The SSERs are aligned to the DRP and MSL,
- Comments offered against the draft replacement PCSR were considered,
- TQs, ROs and the RI generated during steps 2-4 were incorporated into the consolidated safety submission, as appropriate,
- The SSERs account for any weaknesses observed in the former revisions.
- Reference to the EDCD will be replaced with the following as appropriate:
  - Extract appropriate wording from the EDCD and put it into the PCSR
  - Extract appropriate wording from the EDCD and put it into another reference document.
- Reference the US DCD.Review of the application of the design changes and UK Safety Categorisation for Modification as included in GDA.
- Provide a non-proprietary version of the PCSR, ER, DRP and MSL reports to be made available to the public.

**Description of work:****GI-AP1000-CC-02.A1**

- Update the DRP and submit UKP-GW-GL-060.
- Evaluate SSERs readiness and define update strategy.
- Develop draft SSER chapter markups to incorporate DRP update, self identified issues, ONR comments, and removal of EDCD reference.
- Submit draft SSER chapter markups.
- Develop SSER updates based on the GDA issue resolutions for each issue.
- Update the DRP for final submittal of SSERs.
- Finalise and consolidate SSERs.
- Submit a consolidated PCSR, ER and associated references
  - Explanation of the quality assurance steps taken to assure comprehensiveness of the SSERs would contain the following.
    - Detailed explanation of the principles employed during SSER development and evidence of their application.
    - Further review of the application of the UK Safety Categorisation for Modification to design changes included in the design reference to augment the screening review already performed (at request of ONR)

with confirmation of their incorporation in the SSERs.

- A non-proprietary version of the ER , PCSR, DRP, and MSL to be provided for public view on the UK **AP1000** public document library website.

### **Methodology:**

#### **GI-AP1000-CC-02.A1**

- The DRP will be updated to reflect the inclusion of appropriate design changes since the GDA pause. An evaluation of the SSERs readiness will be completed.
  - Review of weaknesses identified in December 2009 PCSR,
    - Information detailing how the comments on the December 2009 PCSR were considered during early development of the replacement PCSR
  - Development of PCSR structure,
    - Methodology for determining structure and content of the replacement PCSR, including gaining regulatory endorsement
  - Development and review of PCSR chapters,
    - Evidence of the quality assurance steps completed to ensure accuracy of the claims and arguments in the PCSR
  - Evidence of incorporation of TQ, RO and RI responses into the SSERs,
    - Provide justification for any responses not incorporated
  - Alignment of the PCSR and ER references to the MSL,
    - Refer to submissions detailing independent checks of SSER primary references
  - Alignment of the PCSR and ER to incorporate the changes in DRP Table 4 and Table 5,
    - A gap analysis validating that all changes in DRP are categorised and accounted for, in SSERs in line with UK requirements.
  - Evidence of incorporation of DCP's into the SSERs,
- Public versions of the PCSR, ER, DRP, and MSL will be provided.
  - The ER has already been produced and uploaded for public view.
  - The DRP will be delivered and uploaded for public view.
  - The PCSR must be reviewed to determine the extent to which proprietary information has been incorporated into and omitted from the document prior to publishing.
  - Public versions of the DRP and MSL will be produced
    - Level 1, 2 and 3 documentation listed in the MSL will be maintained in the public version. Some information for these documents may be changed to remove protect commercial information
    - The list of documentation comprising the DRP will be maintained in the public version and protect commercial information will be removed

### **Justification of adequacy:**

#### **GI-AP1000-CC-02.A1**

- Submit a consolidated PCSR, ER and associated references

- The justification report will provide adequate justification that the SSERs were developed using the best practices applied across the organisation to ensure a quality product meeting all claims.
  - The report will provide evidence of the reviews outlined in the methodology, and further analysis and assurance of the comprehensive nature of the SSERs.
- Publish a public version of the PCSR, ER, DRP and MSL
  - This step fully completes the requested action.

**Deliverable description:****GI -AP1000-CC-02.01**

- A justification report documenting the principles employed to develop the PCSR and ER and evidence of the application of those principles will be provided.
- Public versions of the SSERs and associated documents.

**GI-AP1000-CC-02 ACTION 2**

*“Westinghouse is required to make and implement arrangements to control, maintain and develop the GDA safety submission documentation. This must include the SSER, MSL and design reference documents. As part of this action, Westinghouse shall deliver final consolidated versions of these documents as the key references to any DAC/SODA we may issue at the end of GDA.*

*“This should involve the incorporation of all relevant amendments into the impacted documentation associated with design changes, including the Design Reference UKP-GW-GL-060 and the PCSR. This should include any other additionally agreed design changes associated with other GDA issue Resolution Plans.”*

**Scope of work:****GI-AP1000-CC-02.A2**

- Application of the full rigour of the Westinghouse Quality Management System (QMS) to the SSERs, including maintaining configuration of the MSL and DRP in accordance with Westinghouse procedures to meet the regulators’ requirements. It is expected that configuration of the safety submission documents will be maintained during any revision that may be necessary to incorporate the outcome of GDA Issue resolution, to include any design changes resulting from GDA issues and regulatory comments. This implies application of a rigorous, documented process to ensure due process to any future update of the SSERs, including incorporation of any necessary design changes. The quality assurance arrangements are necessary to ensure delivery of comprehensive, accurate, updated SSERs and supporting documentation upon which a DAC or SODA may be issued.

**Description of work:****GI-AP1000-CC-02.A2**

- Configuration of the SSERs is maintained in accordance with the Quality Management System (Reference 10) applicable to the whole Westinghouse organisation. Future revisions of any of the SSERs will adhere to the principles described in the following processes.
  - Update and approval of the SSERs is governed by the following quality assurance arrangements.
    - “Project Quality Plan for the UK Generic Design Assessment Issue Resolution” UKP-GW-GAH-001 (Reference 19)
    - “Document Control”, WEC 6.1 (Reference 12)
      - Prescribes that documents are produced and approved in accordance with procedural arrangements and ensures that records are collected, stored and maintained.
    - “Change Control for the **AP1000** Plant Program”, WEC 3.4.1 (Reference 7)
      - Defines the process required to propose, evaluate, and implement a change to the **AP1000** design.
      - Requires categorisation of modifications based on their safety



- significance.
- Requires a Revision History be included in subsequent revisions of all configuration controlled documents, including the SSERs.
  - This procedure may be supplemented for this project. Any modifications to the procedure will be addressed in the PQP, UKP-GW-GAH-001 (Reference 19)
  - “Safety Analysis Reports”, WEC 3.5.3 (Reference 8)
    - Establishes the responsibilities and requirements for providing input to nuclear plant safety analysis reports and equivalent documents.
  - “Control of Supplier Generated Documents”, WEC 7.7 (Reference 11)
    - Establishes the responsibilities for disposition of documents submitted by Suppliers.
  - “Pre-Construction Safety Report (PCSR) Approval Process “, UKP-GW-GAP-027 (Reference 13)
    - Provides for documentation of verification and review of the PCSR chapters by affected functional groups within the organisation as required by WEC 6.1 and WEC 3.5.3.
  - Submissions documenting the final resolution of GDA Issues will include an impact assessment detailing their impact on the SSERs.
  - Westinghouse will assess design changes approved since the GDA pause to determine if they should be included in GDA and their impact to SSERs, DRP and MSL
  - Westinghouse will incorporate any design changes necessary to resolve GDA Issues into the SSERs, DRP and MSL as necessary; and will update any other regulatory submissions or primary references as necessary to support the SSERs and GDA Issue resolution.
  - In addition the SSERs, DRP and MSL will be updated to reflect the resolution of GDA Issues.
  - Non-proprietary versions of these documents will be provided as appropriate.

### **Methodology:**

#### **GI-AP1000-CC-02.A2**

- No changes will be made to the SSERs except in accordance with WEC 3.4.1.
  - Design changes are categorised according to their safety significance.
    - International licensing provides an impact assessment for design changes detailing the documents impacted and justification for the safety category to be applied.
      - A change that affects the SSERs will be classified in the highest level applicable to the change control process (independent of the UK safety categorisation) – a criterion similar to that applied to other country licensing documents.
      - International Licensing has initiated a database to store SSER chapter and licensing substantiation report impacts.
    - The UK safety categorisation for modification for each change is recorded in the configuration control databases.

- For design changes approved since the GDA pause, the UK safety categorisation for each design change will be reviewed and documented.
  - Westinghouse-approved, safety-significant design modifications are submitted for assessment by the regulators in accordance with “Design Reference Point Change for GDA”, UKP-GW-GAP-026 (Reference 14).
    - An information package will be submitted periodically for regulatory review of any safety significant modifications. The package will include an impact assessment for the SSERs.
    - When the safety-related modification has been accepted by the regulators, it will be incorporated into the SSERs.
- Changes to the PCSR are to be made only with Westinghouse-approved design changes. Design changes will be detailed in the Record of Revisions section of the document.
  - The (U.S. and European) DCD revision process was consulted to determine best practices that should be applied to the PCSR approval process. The ‘change matrix’ implemented in the case of the draft revision of the PCSR took the form of the Roadmap (Reference 6).
  - Maintaining the configuration of a document as comprehensive as the PCSR requires systematic evaluation of the impact of changes on a chapter basis and detailed cataloguing of changes to the document with each revision, which is usually captured in a ‘change matrix’. The use of a “Change Matrix” (or Roadmap) is recognised as best practice.
  - Any future changes made to the PCSR will be tied back to an originating source similar (but not identical) to what was done for TQs, ROs and the RI in the Roadmap (Reference 6).
    - Future changes to the PCSR should be made or recorded by a single point of contact.
    - Every future change should be documented within its source. (Reports or design changes created for resolution of GDA Issues must include mark-ups to the SSERs.)
  - A simplified version of the change matrix would form the Record of Revisions for an updated PCSR. The full change matrix would become the new Roadmap.
    - Changes to the roadmap will not be tracked.
    - The new roadmap would not incorporate information in revision 0 of the roadmap; but would refer to the old roadmap (i.e. – the roadmap will not be cumulative).
- Licensing reports and supporting submissions made to support GDA Issue resolution shall include an impact assessment of the SSERs.
  - The impact assessment will provide excerpts of any SSER section affected by the resolution.
  - The excerpt will show how text in the SSER(s) will be changed to reflect the resolution of the GDA Issue.
  - The excerpts will be used to track changes to the SSERs. The report containing the excerpt will be referenced in the Change Matrix/Roadmap for any new revision of the SSERs.
  - In the case where resolution of a GDA Issue results in a documented design change, the design change package will also include mark ups of the SSERs,

and will be tracked in the Change Matrix/Roadmap for any new revision of the SSERs.

#### **Justification of adequacy:**

##### **GI-AP1000-CC-02.A2**

- Westinghouse considers that the existing processes used for development and approval of the SSERs apply the full rigor of the Quality Management System.
  - Westinghouse considers that the approval process for the PCSR – as applied via UKP-GW-GAP-027, WEC 3.5.3, and WEC 6.1 – applies an adequate level or rigour to development of the PCSR. This process currently requires the following quality assurance steps.
    - A third-party customer comment phase,
    - An author, reviewer and verifier for each individual chapter of the PCSR,
    - A red book review of the entire PCSR by highly regarded members of the Westinghouse organisation,
    - Independent, internal review of the alignment of supporting documentation,
    - A verifier whose approval signifies the final verification that all reviews have been completed and all comments resolved,
    - Overall author, reviewer and manager approval for the finished, assembled product.
- The DRP and MSL are also reviewed and independently verified in accordance with WEC 6.1.
- Future changes to the SSERs will be made in accordance with the principles set out above, with the following additional measures.
  - Submissions made to resolve and close GDA Issues will explicitly denote the changes necessary to the SSERs.
  - Design changes specifically made to resolve GDA Issues will include marked up pages of the SSERs in the design change package.
  - The UK category for every design change will be documented in accordance with WEC 3.4.1 and will be used to disposition design changes to the GDA change process (Reference 14); and impact assessments catalogued in the configuration control databases and by International Licensing Programmes.
  - New submissions will be reflected in the MSL.
  - New submissions or design changes will be incorporated into the DRP as necessary, and in accordance with UKP-GW-GAP-026 (Reference 14).
  - For any future revisions of the SSERs, a new Change Matrix/Roadmap will be maintained as a detailed record of revision to record every change that was incorporated. The Change Matrix/Roadmap will form the basis for the Record of Revisions as required by WEC 3.4.1 for any new SSER submission.

#### **Deliverable description:**

##### **GI-AP1000-CC-02.A2**

- Consolidated SSER that incorporates the resolution of all GDA Issues (public and

proprietary version), including the following.

- Pre-Construction Safety Report as necessary.
- Environment Report as necessary.
- Design Reference Point incorporating any new design changes incorporated into the SSERs.
- SSER impact packages for any design changes initiated to resolve GDA Issues that include marked up pages of the SSERs.
- Information packages informing the regulators of any safety-significant design changes applicable to the UK **AP1000** design.
- A Master Submission List updated to reflect any new submissions.
- A Roadmap detailing the Record of Revisions for any revised SSERs submitted.

**GI-AP1000-CC-02 ACTION 3**

*“Westinghouse to implement the outstanding GDA agreed design changes, by incorporating the change details into all impacted DR, the MSL documentation including the PCSR.”*

**Scope of work:****GI-AP1000-CC-02.A3**

- Westinghouse will review the level 1 to 3 documentation to identify those that require to be updated for DAC / SODA and produce a schedule of work.
- Westinghouse shall update all **AP1000** design information to reflect design changes.

**Description of work:****GI-AP1000-CC-02.A3**

- Westinghouse continues to update design documentation in accordance with Westinghouse procedures. Specifically, WEC 3.4.1 (Reference 7) requires that design documentation under configuration control be changed with an approved DCP and/or E&DCR. Incorporation of a DCP into an affected document is scheduled in accordance to an established project or programme plan/schedule. An E&DCR is an AP1000 document that describes and justifies a change to the design and associated impacted documents. Until an impacted document is revised, the latest version of the impacted document and all approved unincorporated E&DCR(s) constitute the current approved design record. A strategic project plan has been applied to EPS and UKP documents, specifying these documents will not be created or revised until a later time when an **AP1000** contract is in place and an associated project plan/schedule is established. The documentation catalogued in the Master Submission List will continue to be revised in accordance with this policy.
- Westinghouse will produce a document schedule for the update of level 1 to 3 documentation that requires updating for DAC / SODA see below. Any documents that will not be updated within the scope of GDA will be identified and justified for transfer into Nuclear Site Licensing (NSL) and Environmental Permitting activities.
  - Westinghouse will update the documentation catalogued in Level 1 and Level 2 of the Master Submission List for issue of a DAC/SODA. Any document seeing substantial changes will be resubmitted for assessment if appropriate. Revisions of those documents will be available for inspection as they are produced on an ongoing basis.
  - Level 3 documents on the MSL will be updated to reflect design changes as appropriate. Revisions of those documents will be available for inspection as they are produced in a timely manner of DAC / SODA.
  - DCP's that have been generated during the implementation of the resolution plans or as part of the ongoing development of the design will be presented to regulators for inclusion in the final assessment.

**Methodology:****GI-AP1000-CC-02.A3**

- Incorporation of design changes into impacted documentation
  - Utilising the configuration control databases, the design changes impacting a document are tracked and reports generated on status and implementation history. This includes tracking of impacts to the SSERs. The current tools allow a report of the incorporated (and unincorporated) design changes for each document to be listed, reflecting implementation progress when the revised document is approved (i.e. – not during mark-up).
  - Personnel involved in revision of design documentation are required to query the established tracking databases to determine all the design changes unincorporated on their documents when the document is to be revised.
  - Documents are written, approved and archived in accordance with WEC 6.1 (Reference 12). Incorporated design changes are to be listed on the cover sheet of the document or and/or in the Record of Revisions in accordance with WEC 3.4.1 (Reference 7).
  - The tracking databases are updated to reflect the incorporation of design changes into the document after the document has been final approved.
  - Design documents are produced at different times, and must incorporate the design changes impacting them.
    - As this process is fulfilled, records can be inspected reflecting the progress of implementation from one revision of a document to the next.
  - A document schedule will be produced and maintained identifying those documents that will require to be updated and the phasing.

**Justification of adequacy:****GI-AP1000-CC-02.A3**

- Westinghouse continues to complete work incorporating design changes into design documentation in order to finalise the documentation of the **AP1000** design. The majority of the documents listed in the MSL have already been revised to incorporate design changes that might have affected the documents. These impacts of design changes are tracked in the configuration control databases, and used as a tool by document originators to meet the quality arrangements specified in WEC 3.4.1 and WEC 6.1. Revised documents are required to include a Record of Revisions and to list the incorporated design changes on the document cover sheet.
  - The configuration control databases allow a review of progress of design change incorporation which can be inspected at any time by the regulators during the GDA.
  - Incorporation of design changes not listed in the DRP (Reference 1) will be supported by the following measures, which will preserve the integrity of the GDA assessment.
    - Design changes are categorised based on their safety significance.
    - International Licensing reviewed the safety categorisation of DRP design changes to ensure justifiable application.
    - The design change process incorporates several review and verification phases to ensure adequate consideration of design implications.
    - Design changes having a significant impact on safety are packaged

and submitted to the regulators for assessment prior to incorporation in the design reference point.

- Detailed submission for assessment by the regulators of design changes significant to safety is an ongoing commitment. Westinghouse considers it prudent to notify the regulators of any category 1 or 2 design changes raised after the design reference point of 16 September 2010 that are applicable to the UK design.
- The regulators will be informed of any safety-significant design change incorporated into a Level 1 or Level 2 document submitted for any updated SSERs in accordance with the Tracking Sheet guidelines laid out in the Interface Protocol (Reference 15).
- Several design changes have been initiated and approved to satisfy unique expectations for the UK and/or European market; and are applicable only to a plant in the UK and/or Europe. These changes will be included in the Design Reference Point and GDA documentation in accordance with the schedule.
  - The majority of European or UK-specific design changes initiated have not made sweeping changes to safety-related systems (i.e. – changes have enhanced robustness of current designs, not rewritten them).
  - The use of design reviews was identified by ONR as a strength; and Westinghouse has outlined a design review strategy for systems incorporating design enhancements based on whether the enhancements are specific to the European design (full, partial or no review on a case-by-case basis), the 50 hertz design (full or partial design review required), or are site specific (full design review required). Design reviews are also addressed as a Finding for the licensee to ensure their utilisation.
  - ONR assessed the quality arrangements for design verification and found that they meet the principles set out in T/AST/057 (Reference 17). The process was identified as a labour intensive exercise, which Westinghouse maintains is necessarily labour intensive to ensure accuracy.
  - UK-specific documentation created from standard plant documents must indicate in the Record of Revisions the document (and revision) from which the UK-specific document was created in accordance with procedures (Reference 7); allowing definitive determination of which design changes had been incorporated into the original document.
  - The combination of these design verification features as programmed by the Westinghouse QMS will ensure that design changes are transcribed into supporting documentation correctly and completely. Evidence of the quality assurance arrangements to support this conclusion has been assessed and is available for future inspection by the regulators.
- Arrangements for introducing design changes into NSL and Environmental Permitting activities will be developed in conjunction with a UK Customer. Upon selection of Westinghouse technology by a UK Customer, Westinghouse will work to develop quality assurance arrangements and a programme of deliverables that meets the Customer's and the regulators' expectations and

harmonises with Westinghouse arrangements.

- Collaboration with the Customer for development of such quality arrangements is vital, in part because the deliverables produced during NSL and Environmental Permitting activities will ultimately be delivered to and, in certain instances, may become the property of the Customer. In addition, customer input has proved highly beneficial for incorporating relevant operating experience into the design. Therefore, such arrangements would need to be created during contract negotiations with the Customer.
- The resulting arrangement(s) could be shared with the regulators at the discretion of the Customer and/or Westinghouse, after agreement with the Customer on roles and responsibilities arranged in support of the project.

**Deliverable description:**

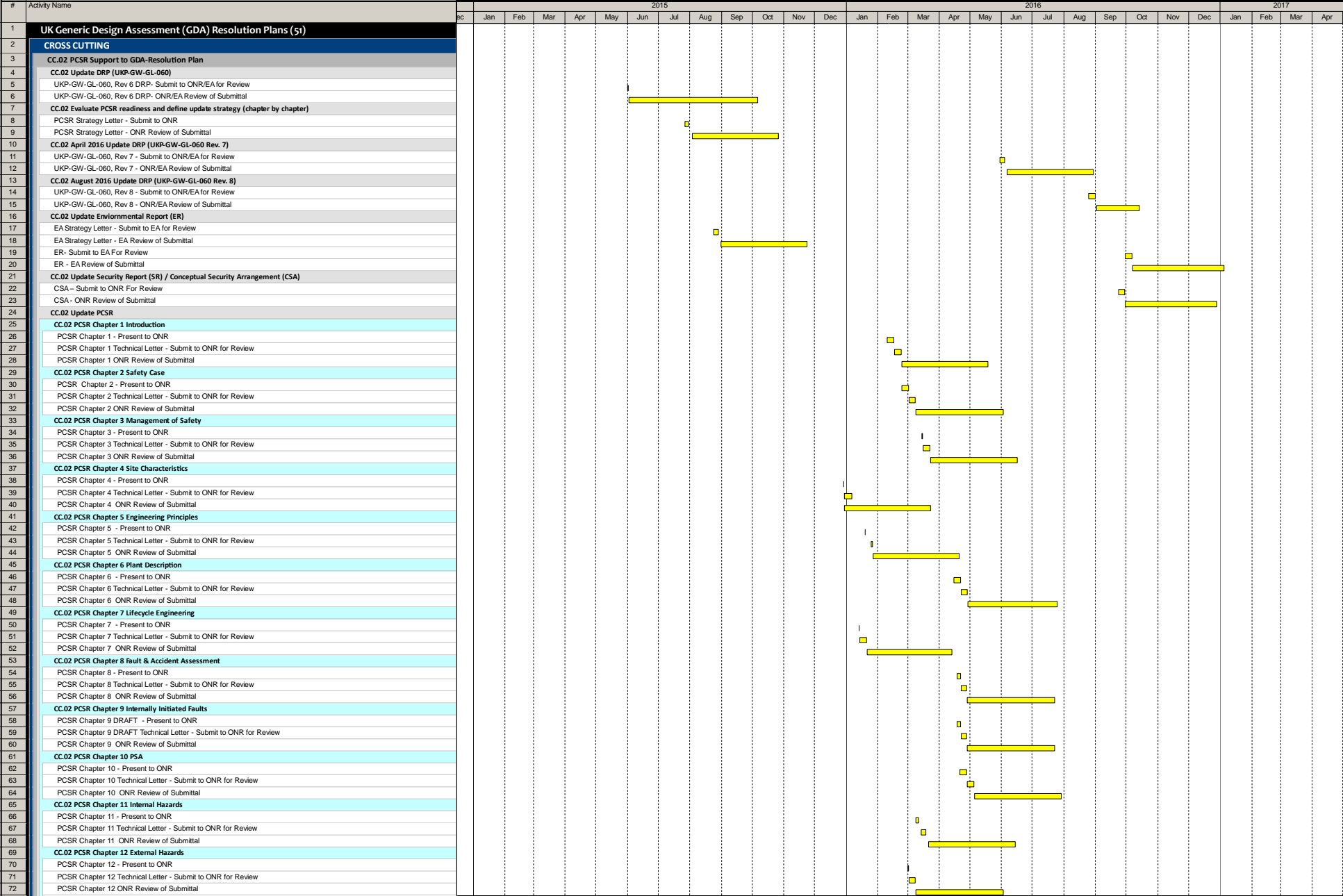
**GI-AP1000-CC-02.A3**

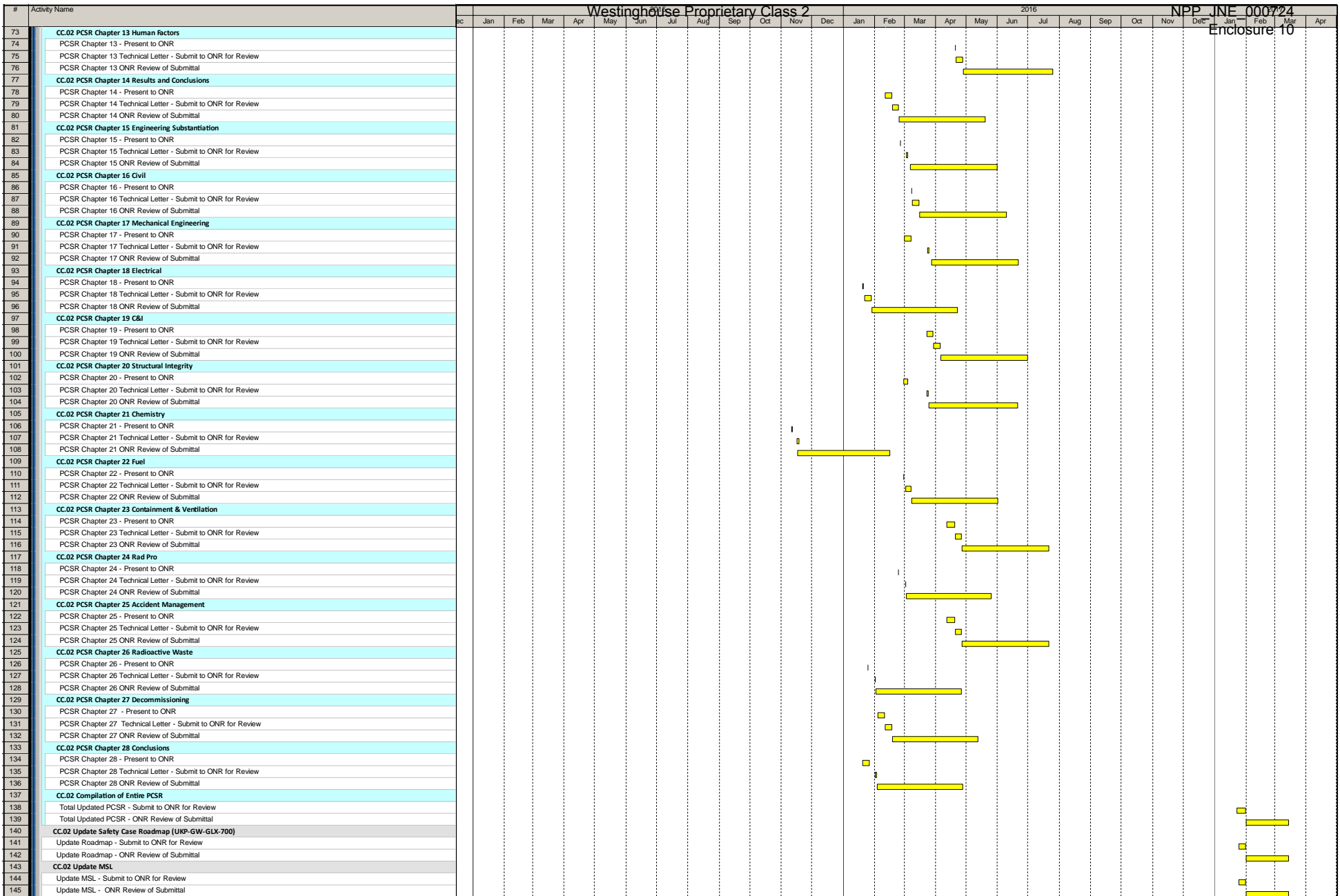
- A document schedule will be produced and maintained identifying those documents that will require to be updated and the phasing. Evidence of the following work is available for inspection by the regulators at any time.
  - Documentation standard to all **AP1000** plants will be updated in accordance with Westinghouse procedures, including all MSL documentation.
  - Documentation requiring UK-specific revisions will be updated during NSL and Environmental Permitting activities in accordance with Westinghouse procedures, and will utilise the various review and verification steps prescribed by the Westinghouse QMS.
  - Quality arrangements for producing and transmitting design documentation produced for a UK Customer could be shared with the regulators after agreement with the Customer.



## GI-AP1000-CC-02 OVERALL SCHEDULE/PROGRAMME MILESTONES

<b>Schedule/ programme milestones:</b>
Please see the following page for the schedule.





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**GI-AP1000-CC-02 OVERALL IMPACT ASSESSMENT****Impact assessment:**

- The Design Reference Point for UK GDA (Reference 1) will be updated to reflect the inclusion of appropriate design changes since the GDA pause and resolution of GDA Issues.
- The Pre-construction Safety Report (Reference 2) will be updated to reflect the final Design Reference Point.
- The Environment Report (Reference 3), if required, will be updated to reflect the final Design Reference Point.
- The Conceptual Security Plan (Reference 4), if required, will be updated to reflect the final Design Reference Point.
- The Master submission List (Reference 5) will be updated to reflect any additional submissions made during GDA Issue resolution.
- A new, revised GDA Roadmap (Reference 6) will be created to reflect update of the SSERs for resolution of GDA Issues.
- Change control process (WEC 3.4.1, Reference 7) enhanced as necessary to facilitate update of Customer documentation.
- Other documents as identified in the document schedule in actions 2 and 3.
- Quality assurance arrangements will be created in conjunction with future customer(s) for creation of a programme for design reviews and/or for update of UK-specific documentation.

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3. Westinghouse Report, UKP-GW-GL-790, revision 4, "UK **AP1000** Environment Report", March 2011.
4. Westinghouse Report, UKP-GW-GLR-019, revision B, "UK **AP1000** Conceptual Security Plan", March 2011.
5. Westinghouse Report, UKP-GW-GLX-001, revision 0, "The Master Submission List", April 2011.
6. Westinghouse Report, UKP-GW-GLX-700, revision 0, "Roadmap of the UK Generic Design Assessment of the European **AP1000** Plant", May 2011.
7. Westinghouse Level 2 Procedure, WEC 3.4.1, [latest revision], "Change Control for the **AP1000** Program", March 2011.
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9. Westinghouse Letter, DCP\_JNE\_000435, revision 0 [UN REG WEC 000408], "Regulatory Observation RO-**AP1000**-88 Actions 4 and 5", dated 29<sup>th</sup> October 2010.
10. Westinghouse Report, "Quality Management System", [latest revision],
11. Westinghouse Level 2 Procedure, WEC 7.7, [latest revision], "Control of Supplier Generated Documents", August 2009.
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13. Westinghouse Level 3 Procedure, UKP-GW-GAP-027, [latest revision], "Pre-Construction Safety Report (PCSR) Approval Process", October 2010.
14. Westinghouse Level 3 Procedure, UKP-GW-GAP-026, [latest revision], "Design Reference Point Change for GDA", November 2010.
15. ND/EA Report, JPO/003, Issue 2, "Interface Protocol Between HSE Nuclear Directorate / Environment Agency and Requesting Parties", August 2008 (UKP-GW-GBY-003, revision 1).
16. ONR Assessment Report ONR-D6-GDA-AR-11-013, revision D, "Step 4 Management of Safety and Quality Assurance Assessment of the Westinghouse **AP1000**" [sic], May 2011.
17. ONR Report, T/AST/057, Issue 1, "Design Safety Assurance", August 2010.
18. Westinghouse Report, UKP-GW-GL-160, revision 0, "**AP1000** Design Reference Point for UK GDA: Non-Proprietary version of UKP-GW-GL-060 rev. 3", April 2011.
19. Westinghouse Project Quality Plan, UKP-GW-GAH-001, [latest revision] "Project Quality Plan for the UK Generic Design Assessment Issue Resolution"