TUGCO ENGINEERING DIVISION	PROCEDURE	REVISION	ISSUE DATE	PAGE
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FIELD DESIGN CHANGE CONTROL	PREPARED BY R P Baker APPROVED BY M R McBay			

1.0 REFERENCES

1-A TUGCO QA Plan
1-B TNE Procedures Manual
1-C CP-EP-4.7 Control of Engineering/Design Review of Field Design Changes
1-D CP-EP-4.0 Design Control General Requirements
1-E CP-EP-4.5 Design Verification

2.0 GENERAL

2.1 PURPOSE

FOR INFORMATION ONLY

To describe the general method of documenting changes or deviations to specified design/construction requirements by authorized field personnel following release of engineering documents approved for fabrication or construction. These provisions are established to assure compliance with the requirements of Reference 1-A. Note, supplemental engineering procedures/instructions may be used to describe and implement alternate methods of design change control.

2.2 SCOPE

Design change/deviations shall be approved when complete and validated by designated authorities as described in this instruction.

2.3 RESPONSIBILITIES

The Assistant Project General Manager has overall responsibility for the design of the CPSES project. Authority for the implementation of this procedure has been delegated to the Manager of Engineering and subordinate engineering organizations. Further delegation of authority may be accomplished through formal engineering instructions supplementing this procedure.

The Manager of Engineering shall assure that adequate tracking mechanisms exist to provide positive control of the issue, disposition, and status of documents issued as a result of these measures.

2.4 DEFINITIONS

2.4.1 Engineering Documents

As used in this procedure, documents approved for fabrication or construction which specify design, engineering, and/or construction requirements (such as specifications and drawings).

2.4.2 Design Change

A revision to engineering documents which affects the form, fit, or function of the affected structure, system or component.

2.4.3 Deviation

A departure from a specified engineering requirement that does not affect the form, fit, or function of affected structure, system, or component.

2.4.4 Engineering Change Requests

A document used to forward engineering, design, or technical information between engineering organizations for the purposes of initiating revisions to engineering documents. The ECR is a communication/interface document which does not authorize fabrication or construction activities.

2.5 DOCUMENTATION

Design changes/deviations to specified engineering documents shall be documented by revision initiated by an Engineering Change Request (ECR), a Design Change Authorization (DCA), or a Component Modification Card (CMC). The respective forms and the application of each are further described below.

3.0 PROCEDURE

3.1 ENGINEERING CHANGE REQUESTS

3.1.1 General

ECR's shall be used by CPPE to initiate design changes to be documented by document revision. In addition, design change proposals forwarded by other organizations such as Westinghouse Field Change Notices (FCN's), TUGCO Design Change Requests (TDCR's) and Gibbs & Hill Design/Engineering Change/Deviations (DE/CD's) may be processed by ECR's.

Upon completion by the originator, the ECR shall be forwarded as specified herein for engineering document incorporation, approval, and design verification as required.

3.1.2 Specific Scope of ECR's

The specific scope of changes (i.e., systems, subsystems, areas, engineering documents, etc.) to be processed by ECR's shall be administratively defined by the CPP Engineering Manager.

NOTE: Changes critical to construction in terms of an immediate need for implementation may be exempted from the scope of ECR's on a case by case basis. Changes processed in this manner shall be documented by DCA/CMC; however, the change shall be authorized by specified engineering management personnel.

3.1.3 Form Completion

Detailed instructions for completion of the ECR form are specified per Attachment 1.

3.1.4 Request Approval and Distribution

ECR's shall be approved by individuals designated by the CPP Engineering Manager. Upon approval, the ECR shall be forwarded as follows for disposition:

Scope of ECR	Responsibility
a) Non-ASME, BRP Related	CPP Mechanical Engineering
b) Non-ASME, Non-BRP Related	TNE
c) ASME Related: Stamping Complete	TNE
d) ASME Related: Stamping Incomplete	CPP Mechanical or I&C Engineering

3.1.5 Disposition

3.1.5.1 Non-ASME, BRP Related

The ECR shall be used by CPP Technical Services as a basis for BRP revision and re-analysis (as required). If the ECR also affects design documents other than BRP's, CPP Technical Services will forward copies of the ECR to the responsible organizations. These activities shall be accomplished in accordance with the engineering procedures/instructions established to control the design and design change program. Revised design documents shall be entered into the document control program.

3.1.5.2 Non-ASME, Non-BRP Related

The ECR shall be used by TNE to commence design control activities as defined per Reference 1-B. Upon completion of an engineering review to identify design considerations (such as interdiscipline review, calculations, damage study, etc., impact), the ECR shall be incorporated into affected documents for formal approval of the design change and design verification (if required). During the disposition process, the ECR may be modified with the involvement of the originator.

Affected documents shall be entered into the document control program for distribution.

3.1.5.3 ASME Related: Stamping Complete

TNE shall complete design control activities as specified in Reference 1-B. CPPE shall participate in the analysis and pipe support effort as defined in the TNE-defined interface documents. All CPPE activities shall be controlled in accordance with established engineering procedures/instructions. During the disposition process, the ECR may be modified with the involvement of the originator.

3.1.5.4 ASME Related: Stamping Incomplete

The ECR shall be used by CPP Mechanical or I&C Engineering as a basis for revising the engineering document used in the certification process. The revised document shall be reviewed to determine if stress re-analysis is required. If stress re-analysis is required, the reviewing organization shall coordinate the analysis and initiate pipe support design activities as required. After re-analysis, or if no re-analysis is required, the revised document shall be forwarded to TNE for the completion of design control activities and return. The above activities shall be accomplished in accordance with the engineering procedure/instructions established to control the design and design change program.

Revised engineering documents shall be entered into the document control program.

3.1.6 Closure

ECR disposition shall be documented per Figure 1. Distribution of the dispositioned ECR shall include the originator and DCTG. Where required, the responsible disposition organization shall retain a copy of the ECR for design control documentation.

3.2 DESIGN CHANGE AUTHORIZATIONS & COMPONENT MODIFICATION CARDS

3.2.1 Form Completion

Detailed instructions for completion of the DCA/CMC forms are specified per Attachment 2 & 3.

3.2.2 Review and Approval

Field originated design changes/deviations shall be approved by the original designer's designated site representative unless otherwise stated in formal engineering instructions supplementing this procedure. The Engineering Manager shall maintain written authorization of personnel designated as a "G&H Design Representative" or design representative of any other vendor. Clarifications or design changes properly approved and issued by the original design organization require only the signature of the originating engineer/technician. Such clarifications or design changes shall be referenced or attached. Design changes/deviations documented as described herein are approved for fabrication and construction only. In addition, these measures may be used to communicate or identify to construction changes/deviations originated/approved by the original design organization.

Subsequent review and approval by the original design organization shall be accomplished per the provisions of Reference 1-C or TNE.

3.2.3 Distribution

Distribution of field change/deviation documents shall be accomplished as required to fulfill the requirements of this procedure and to satisfy basic document control requirements of interfacing organizations such as the design and construction groups. The provisions of Reference 1-D shall also be considered when establishing distribution.

3.2.4 Revisions

Revisions to DCA/CMC Forms shall be accomplished as described in Attachments 1 and 2 and shall be reviewed and approved as prescribed in Section 3.2.2.

3.2.5 Design Verification

Design changes/deviations shall be verified either prior to, or after implementation by authorized personnel, to confirm or substantiate that the change is acceptable from an engineering standpoint and consistent with the design basis (or input), FSAR commitments and applicable codes and standards. This verification shall normally be accomplished by the original design organization in accordance with established procedures although the provisions of References 1-B or 1-E may be utilized at the discretion of the Assistant Project General Manager.

In the event the design verification activities indicate the change/deviation is unacceptable, the reviewing agency shall notify the originating organization who may, on the area in question, place a "Hold" or rescind and reissue the change/deviation. Any physical corrective action required in problem areas shall be evaluated and formulated on a case by case basis.

3.2.6 Interface Control

Significant changes/deviations to engineered items involving A/E and vendor interfaces for equipment foundation details shall be reviewed with both the A/E and the vendor for compliance with design requirements, prior to approval for fabrication or construction.

Formal documentation where vendor or A/E approval is required shall be accomplished in accordance with Reference 1-C.

ATTACHMENT I

ECR FORM COMPLETION

The Engineering Change Request Form (Figure 1) shall be completed as follows:

a. ECR No. - assigned by the responsible site organization.

b. Safety Related Document - Check appropriate block.

c. Discipline - Designate appropriate Engineering organization.

d. Applicable Spec / Dwg / Document - Cross out documents that do not apply. Specify all known affected or interfacing engineering documents.

e. Details - Provide information on the change under consideration using adequate descriptions or references to other documents which clearly illustrate the problem and resolution. Attach the design documents marked to adequately show the change.

f. Supporting Documentation - References supporting documents such as telephone conversations, telexes, telecopies, sketches, FCNs, DCAs, TDCRs, TDRs other ECRs, etc.

Handwritten forms will be accepted in isolated cases; however, typing is preferred.

The originator and date shall be provided. Approval shall be provided, disposition responsibility assigned, and the ECR forwarded for disposition as indicated in Section 3.1.4.

Modifications required to the ECR in the disposition process shall be indicated by noting the change on the ECR. The change shall be initialed or otherwise validated and dated. All involved parties should be identified in the validation.

ATTACHMENT 2

DCA FORM COMPLETION

The Design Change Authorization form (Figure 2) shall be completed as follows:

a. Authorization No. - Assigned by the responsible site organization.

b. (WILL) (WILL NOT) Be Incorporated in Design Documents - Cross out the one that does not apply.

As a general rule, design changes to a specification which are generic in a nature and will affect future work on a continuing basis shall be designated drawings that can be delineated on the drawing. Clarifications and/or interpretations involving design documents will normally not be incorporated into the design documents. It is to be recognized that specific guidelines covering every situation cannot be delineated in this procedure; as such, it will be the responsibility of the Originating Engineer/Technician to exercise judgement and designate whether or not a change should be incorporated. Note designation of incorporation is for preliminary use only.

c. Safety Related Document - Check the appropriate block.

d. Originator - Check the appropriate block. (The "Originator" of a DCA resulting from a DE/CD should be noted as the "Original Designer").

e. Applicable Spec/Dwg/Document - Cross out the documents that do not apply. Specify all known affected or interfacing engineering documents.

f. Details - Provide information on the change under consideration using adequate descriptions or references to other document(s) which clearly illustrate the problem and its resolution and provide sufficient information to reflect the "as-built" configuration.

g. Supporting Documentation - Reference supporting documents such as telephone conversations, telexes, telecopies, DE/CD's, sketches, FCNs, TDCRs, TDRs, etc. If the DE/CD is modified by site engineering, the word "Modified" shall be placed adjacent to the DE/CD number.

Handwritten forms will be accepted in isolated cases, however, typing is perferred.

The DCA is then reviewed for technical acceptance by the designated personnel. Approval is obtained by signature and dating the appropriate blanks as indicated in Section 3.2.2.

In the event formal approval and design verification is required prior to issue, the DCA shall be forwarded to the responsible organization. Completion of those activities by the responsible organization shall be indicated by signature and date in the "DESIGN REVIEW PRIOR TO ISSUE" blank.

If formal approval and design verification is not required prior to issue, mark "NA" in the "DESIGN REVIEW PRIOR TO ISSUE" blank. Note "NA" does not indicate approval and design verification is not subsequently required.

Revisions to a DCA will use Figure 2 and are filled out as described with the following exceptions:

a. The same authorization number shall be used.

b. The appropriate revision number shall be placed after the authorization number.

c. Subsection 3.B, Details, shall contain the following:

"This revision voids and supersedes Design Change Authorization No._____, Revision_____.

d. If it is necessary to void or rescind a Design Change Authorization, it should be done by a revision to the existing DCA. Subsection 3-B (Details) of Figure 2 should contain the following statement "This revision voids Design Change Authorization No._____ and all revisions thereto".

ATTACHMENT 3

CMC FORM COMPLETION

The Component Modification Form (Figure 3) is completed as follows unless otherwise stated in engineering instructions supplementing this procedure. The card should be filled out using a black ink pen or "dark" pencil.

a. Serial No. - Prenumbered, or as established through detailed application instructions supplementing this procedure.

b. Section 1, Application - State generic category of work (e.g. mechanical equipment, electrical equipment, pipe, pipe supports, etc).

Weld Mod., Q, Non-Q - Check appropriate block.

Design Change Deviation - Cross out the one that does not apply. Enter N/A or leave blank if not a change or deviation to design.

c. Section 2, Dwg. No. - Enter the complete number and revision of the affected design basis and/or construction drawings as follows:

1. Electrical - Enter design basis drawing numbers.

2. Piping and Instrumentation - Enter the design and construction drawing numbers for all design change/deviations; and construction drawing numbers for construction changes.

3. Pipe Supports - Enter the construction drawing numbers.

d. Section 3, Line No./Component No. - Enter the specific identification number of the component to be modified; spool number, equipment number, etc. It is not required to enter the pipe support number in block 3. If a number of items are affected, enter "see sketch", and show all changes in block 5.

e. Section 4, Reason for Change - State briefly but concisely the reason for the change. If to implement a change properly approved by the Original Design, clearly state this fact (e.g., To implement DE/CD 8600).

f. Section 5, Instructions - Describe completely and accurately the change to be made.

1. Where there are no welds or material removed or added, enter "N/A" in the appropriate blocks.

2. For removal and/or addition of welds and/or material, check the appropriate block and enter all weld numbers and/or Bill of Material item numbers removed and/or added. It is not mandatory to disposition the future use and/or storage requirements for deleted material.

3. FOR PIPING ONLY AND INTEGRAL HANGER ATTACHMENTS - If, after the original issue of BRP drawing, a weld has to be removed and rewelded, the weld number will be changed to indicate same by adding an "A" for the first removal, "B" for the second removal, etc. to the weld numbers, e.g., for the weld 6, the first removal/reweld is 6A, and if 6A requires rework, the second removal/reweld is 6B.

4. FOR PIPING ONLY - When stainless steel materials are re-used and the heat affected zone not removed, the new weld number will include the next sequential letter of the item with the highest numerical weld number. For example, if the pipe between welds 7A and 8C is deleted, and the remaining parts welded together, the new weld number will be 8D, not 7B. In the situation where weld 6A is cut and a pup installed between the two pieces, the new welds will be numbered 6B and 6A-1.

5. PIPING ONLY - If, after the original issue of the BRP drawing, an added weld is required which is not a reweld of an existing weld; the new weld will be keyed to the lower of the two numbered welds and suffixed by "-1" for the first weld, "-2" for the second weld, etc., if a weld is added between weld "3" and "4", the new weld will be "3-1".

g. Section 6- Provide a sketch indicating the new arrangement when necessary for clarification. When more than one CMC affects a drawing, care shall be taken to avoid conflicts between the CMC's. This block should include specifications of items added that are not listed on the affected drawing. It should also show new weld locations, and all required working point dimensions (cut lengths for piping and hangers are not required).

h. Section 7 - Originator - Enter the name of the individual preparing the modification (for piping changes, foreman requesting the change should be entered).

i. Section 8 - Approved By - Approval shall be obtained in accordance with Section 3.2.2.

j. Section 9 - Distribution - If not predesignated, the Engineer/Technician preparing the CMC shall enter the name of each agency requiring an "Engineering nd Office Use Only" copy and shall indicate the number of required copies for each.

k. General - Extra sheets may be used where necessary to adequately cover the subject. All sheets must be marked with the CMC serial number and numbered page ___of___.

l. Revisions to a CMC may be accomplished by changing the original form or by utilizing a new form (nonserialized) and filling it out as outlined above. The following additions shall be noted on the revised CMC, as applicable.

1. The same serial number shall be used.

2. The appropriate revision number shall be placed adjacent to the serial number.

3. If the reason for the revision is different from the original, enter the additional circumstances in Block 4.

4. The CMC shall contain the following statement:

"This revision voids and supersedes document Serial Number _____, Revision _____.

m. When an occasion arises where a CMC has been issued and for some reason that card is not needed, it must be voided.

1. To void a CMC, the original card must be revised and clearly marked "Voided - Not Superseded".

2. A void CMC shall not be reactivated.

FIGURE 1
(TYPICAL)

REV._____ PAGE 1 OF _____

COMANCHE PEAK STEAM ELECTRIC STATION
ENGINEERING CHANGE REQUEST

ECR NO._____

1. SAFETY RELATED CHANGE: ____YES ____NO

2. DISCIPLINE: CPPE_____ TNE_____

3. DESCRIPTION:

   A. APPLICABLE SPEC/DWG/DOCUMENT_____

   B. DETAILS_____

   C. REASON FOR CHANGE_____

4. SUPPORTING DOCUMENTATION:

5. APPROVAL SIGNATURES:

   A. ORIGINATOR_____ DATE_____

   B. APPROVED BY_____ DATE_____

   C. DISPOSITION BY_____TNE _____CPPME _____CPPI&C

6. DISPOSITION:

   A. _____APPROVED _____APPROVED AS NOTED _____REJECTED

   B. DRAWING & REVISION AFFECTED BY ECR INCORPORATION OR JUSTIFICATION FOR REJECTION:_____

   BY:_____ DATE_____

ECR FORM
10-83

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION

(WILL) (WILL NOT) BE INCORPORATED IN DESIGN DOCUMENT DCA NO._____

1. SAFETY RELATED DOCUMENT: _____YES _____NO

2. ORIGINATOR: CPPE_____ ORIGINAL DESIGNER_____

3. DESCRIPTION:

   A. APPLICABLE SPEC/DWG/DOCUMENT_____REV._____

   B. DETAILS_____

4. SUPPORTING DOCUMENTATION:

5. APPROVAL SIGNATURES:

   A. ORIGINATOR:_____DATE_____

   B. DESIGN REPRESENTATIVE:_____DATE_____

   C. DESIGN REVIEW PRIOR TO ISSUE:_____DATE_____

6. STANDARD DISTRIBUTION:

ARMS (ORIGINAL) (1)
QUALITY ENGINEERING (1)
DCTG FOR ORIG. DESIGN (1)

DCA FORM 3-84

CMC FORM
(TYPICAL)