HOUSTON LIGHTING AND POWER COMPANY
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION
PLANT PROCEDURES MANUAL

STATION PROCEDURE
NON SAFETY-RELATED (Non-Q)

0PGP04-ZE-0310
Rev. 2

Plant Modifications

PROCEDURE USE CONTROL: **AVAILABLE**

Effective Date: 10/17/94

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1.0 Purpose and Scope

1.1 The purpose of this procedure is to:

a. Identify the requirements for screening and ranking Modification Requests.

b. Provide criteria for classifying Modification Requests as Major Modifications or Minor Modifications.

c. Define the process for preparing Modification Evaluations and identifying the modification alternatives.

d. Define the requirements for the modification program management.

1.2 This procedure addresses configuration changes to the Plant that are determined to be Modification Requests by Condition Report Evaluations.

1.3 The following changes are not required to be processed under this procedure: Minor Changes, Non-conformance Dispositions, computer database changes, Temporary Modifications, spare parts equivalent replacements, labeling changes, and those items not covered by configuration management such as non-power block facility changes or underground utilities, plant roads, drainage and sewage treatment systems.

2.0 Definitions

2.1 Modification - A permanent physical change to the structures, systems and components as described in design documents, and performed as either a Major Modification or a Minor Modification. The classification determination of a proposed Modification as either a Major Modification or a Minor Modification is performed by the Department Managers of the Design Engineering Department (DED) and the Systems Engineering Department (SED) in accordance with Addendum 2 of this procedure.

Major Modification - A modification to structures, systems or components under configuration control, of sufficient magnitude or complexity so as to require a Modification Evaluation.

Minor Modification - A modification to structures, systems or components under configuration control, of minor magnitude or complexity that does not require an Economic or Modification Evaluation.

2.2 Change Management Team - The Change Management Team (CMT) consists of management personnel responsible for reviewing projects, and approving implementation or other actions. The CMT also reviews requests for funding changes, and forwards such requests to Executive Management for final approval, depending upon dollar value and authorized approval limits.

2.3 Project Budget Advisory Committee - The Project Budget Advisory Committee (PBAC) is the body of personnel acting to review in detail the economic evaluation for a Major Modification, and the budget classification as Capital or O&M (expense).

2.4 5-Year Plan - A summary level schedule of engineering, procurement, and implementation activities for Major Modifications within a five year time frame.

2.5 2-Year Plan - A summary level schedule of engineering, procurement, and implementation activities for Minor Modifications within a two year time frame.

2.6 Change Notice - The budgeting document which can authorize changes to the station funding plan within a budget year.

2.7 Economic Evaluation - An evaluation performed in accordance with the HL&P Corporate Budget Division Economic Policies and STPEGS Economic Policies, to assist in making decisions regarding economic merit and modification implementation.

2.8 Cost Estimate - An approximation of actual final costs for implementation of a modification. The estimate includes design, material, and installation plus any other costs specific to the modification such as procedure revisions, training, or simulator costs. There are different degrees of accuracy in cost estimates.

A Type 1 Estimate is an **Order of Magnitude** cost estimate based on conceptual information provided in the screening phase of the Modification Request.

A Type 2 Estimate is a **Budget** cost estimate based on information provided in the Modification Evaluation phase. This estimate should be within an accuracy of - 15% to + 30% of the total cost.

A Type 3 Estimate is a **Definitive** estimate based on final design information and the installer's scheduled manhours. This estimate should be within an accuracy of - 5% to + 15% of the total cost.

2.9 Modification Team - The team of persons assigned the primary responsibility for the overall modification product. The minimum membership of a Modification Team is the Design Engineer, the System Engineer, and the Implementation Engineer. The Leader of the Modification Team is the current Modification Owner. Other cognizant representatives, as applicable, from the Modification user organization, Design Engineering, Systems Engineering, Field Engineering, Materials Control, Plant Operations, Plant Maintenance, Modification and Support Services, the Condition Report Originator, and the DED Modification Support Group should also be included. Other affected departments should be included, as appropriate, based on the scope of the change (e.g., Chemical Operations and Analysis, Health Physics, Security, etc.).

2.10 Design Engineer - An engineer who is, by virtue of training, qualification, and position, authorized to evaluate and modify design documents within the engineer's area of expertise or control. The delineation of design authority is contained in 0PGP04-ZA-0136, Engineering Responsibilities.

2.11 System Engineer- An engineer, typically from the Systems Engineering Department, assigned responsibility for monitoring the condition, performance, and trends of assigned systems. For area related items, which are considered part of the building structure (e.g. slabs, walls, beams, columns, cable tray supports, conduit supports, doors, gates, coatings, roads, plant area grading, drainage, etc.), the DED Civil Engineer is the System Engineer. For component Program items (e.g., Check Valve, MOV, etc.) the appropriate Program Division Engineer is the System Engineer. For Nuclear Fuel related items the Nuclear Fuels and Analysis Engineer is the System Engineer.

2.12 Implementation Engineer - The individual charged with installing the Modification. The Implementation Engineer will normally be from Field Engineering. The Implementation Engineer may also be a Tech Support Engineer, System Engineer, or DED Civil Engineer. Note that the Implementation Engineer and the Design Engineer may, in some cases, be the same individual.

2.13 Modification Owner - The individual who is assigned the responsibility and accountability for the modification during certain stages of the modification development. The Modification Owner is the Leader of the Modification Team. Modification Ownership changes from the System Engineer to the Design Engineer to the Implementation Engineer as each phase of the Modification is completed.

3.0 Responsibilities

3.1 System Engineer

- Acts as Owner of the Modification Request and Team Leader of the Modification Team during the initial and final screening phases.
- Performs the initial screening for a Modification Request.
- Prepares the final screening for a Modification Request and presents the results to the Department Managers of DED and SED.
- Acts as Implementation Engineer for selected Minor Modifications.

3.2 Design Engineer

- Acts as Owner of the Modification and Team Leader of the Modification Team during the Evaluation and Design phases.
- Provides input for the final screening.
- Provides input for the Modification ranking.
- Prepares the Modification Evaluation, if required.
- Develops the schedule for the Modification Evaluation.
- Presents projects to the PBAC and CMT.
- Develops cost estimates for the design and engineered materials.
- Prepares Design Change Packages.
- Identifies and purchases Engineering Materials

3.3 Implementation Engineer

- Acts as Owner of the Modification and Team Leader of the Modification Team during the Installation and Closure phases.
- Assists in preparation of Modification Evaluations.
- Develops the installation phase cost estimates.
- Develops the Modification Installation Packages.
- Identifies and purchases construction material.
- Maintains oversight of installation activities.
- Performs testing or test coordination, Return to Service, and modification closure activities.

3.4 DED Modification Support Group (MSG)

- Assists in the development of Economic Evaluations.
- Maintains the 5 year plan for Major Modifications.
- Maintains the 2 year plan for Minor Modifications.
- Maintains modification ranking.
- Compiles the DED and Outage Support estimates for Modifications.
- Assists in the Modification Evaluation as requested by the Design Engineer.
- Insures continuity between Modifications for screening and evaluations.
- Provides guidance on economic factors and budget requirements.
- Coordinates the PBAC and CMT presentations.
- Maintains the applicable portions for modifications of the Corrective Action Program (CAP) Database and performs data entry as necessary.

3.5 Engineering Administration

- Maintains the CAP Database.
- Performs administrative processing, filing, copying, etc. of Design Change Packages.

3.6 DED and SED Department Managers

- Review and approve the final screening for Modification Requests.
- Classify modifications as Major Modifications or Minor Modifications.
- Review Modifications with the Plant Manager(s).

3.7 Plant Manager(s)

- Review Modification Requests.
- Review potential Minor Modifications for funding from the current year budget.

3.8 Scheduling Group

- Prepare schedules for Modification Evaluations.
- Prepare schedules for Modification Designs.
- Coordinate Modification scheduling with DED Disciplines.
- Issue periodic schedule reports.

4.0 Process and Requirements

4.1 Screening & Evaluation Process

4.1.1 Modification Requests are initiated by Condition Reports in accordance with the Condition Reporting Process Procedure 0PGP03-ZX-0002.

4.1.2 The System Engineer shall review Condition Report Actions that are identified as Modification Requests.

4.1.3 Initial Screening

4.1.3.1 The System Engineer shall complete the initial screening, Section 1 of the Modification Request Screening Form (Form 0PGP04-ZE-0310-1). Instructions for use with the initial screening are found in Addendum 3.

4.1.3.2 If one of the screening questions is answered "yes", the System Engineer shall complete the final screening in accordance with Section 4.1.4 of this Procedure. If more than one question applies, and may be answered "yes", the System Engineer shall indicate this on the form.

4.1.3.3 The System Engineer may reject Modification Requests that have little or no value to the Station. Cause and justification for rejection shall be indicated in the justification portion (Section 1) of the Modification Request Screening Form. Recommendations to continue processing the Modification Request may be included in the justification portion (Section 1) of the Modification Request Screening Form.

4.1.3.4 If none of the screening questions can be answered "yes", the Modification Request is rejected. The Condition Report Action shall be closed in the CAP Database. The Condition Report shall be processed in accordance with Condition Report Engineering Evaluation Procedure 0PGP04-ZA-0002.

4.1.3.5 The System Engineer shall bring to the attention of the Managers of DED and SED any Modification Request that is essential to the well being of the Station and should be done, without delay, as a Minor Modification. If the Managers of DED and SED, in concert with the Plant Manager(s), concur with this recommendation and it is estimated that the total cost of the modification is $40,000 or less; the final screening may be bypassed and a Minor Modification prepared in accordance with the Design Change Package Procedure 0PGP04-ZE-0309.

4.1.4 Final Screening

4.1.4.1 The System Engineer shall prepare the final screening in Section 2 of the Modification Request Screening Form for all Modification Requests. The Benefits/Payback and Benefit/Cost Ration portions of Section 2 may be omitted for those Modification Requests assigned a ranking of Priority 1 or Priority 2 without an asterisk (*) (see Addendum 1). Instructions for use with the final screening are found in Addendum 3.

4.1.4.2 The System Engineer shall obtain the necessary input from other departments and ensure that the benefits have been identified in detail by the Requestor. If a Root Cause Analysis has been performed on the Condition Report, the System Engineer shall attach it to the screening form. The System Engineer may assemble the Modification Team to provide assistance and input in developing this information.

4.1.4.3 The final screening shall be based upon an approximate estimate of the cost, an option for solution, outage implications, and completion of the modification ranking in accordance with Addendum 1. The STPEGS Estimating Handbook should be used for guidance in preparing the cost estimate. Economic Evaluation parameters may be obtained form MSG or are found in the STPEGS Estimating Handbook.

4.1.4.4 The modification ranking shall be developed by using the guidance in Addendum 1. This ranking will provide an indication of the potential value of each project in relation to others being considered. If the Benefit/Cost ratio is low or the modification ranking does not warrant further evaluation, the System Engineer may reject the Modification Request.

4.1.4.5 The System Engineer and the Design Engineer shall present the final screening to the DED and SED Department Managers. The affected Plant Manager(s) shall be invited to this meeting to review Modification Requests. This meeting will be coordinated by MSG.

a. If the Modification Request is approved, the DED and SED Department Managers shall determine whether it is a Major or Minor Modification in accordance with the guidance in Addendum 2.

b. If it is rejected, the Condition Report Action shall be closed in the CAP Database. The Condition Report shall be processed in accordance with Condition Report Engineering Evaluation Procedure 0PGP04-ZA-0002.

4.1.4.6 If the Modification Request is approved as a Major Modification, MSG shall assign a Condition Report Action Number in the CAP Database to prepare a Modification Evaluation.

4.1.4.7 MSG shall schedule the Modification Evaluation for the Major Modification and assign it to the appropriate Design Engineering Discipline.

4.1.4.8 If the Modification Request is approved as a Minor Modification, the DED and SED Department Managers shall process in accordance with Section 4.1.5 of this procedure.

4.1.5 Minor Modification Processing

4.1.5.1 The DED and/or SED Department Manager(s) shall meet with the Plant Manager(s) and determine if the Modification should be funded from the Minor Modification budget, and if the scope of work is appropriate to be undertaken without further economic or engineering evaluation. (Refer to Addendum 2 for guidance).

4.1.5.2 If the Plant Manager(s) determine that the Modification shall continue as a Minor Modification, they shall indicate whether the modification will be:

a. Merged into the current work schedule to be designed and installed as soon as practical.

b. Placed in the schedule of a specific upcoming outage.

c. Integrated into the current 2-year plan .

4.1.5.3 The approval or disapproval of the Minor Modification, as identified in Paragraph 4.1.5.2, shall be indicated in the appropriate schedules and databases. No further economic evaluations are required unless conditions change during the development of the design causing the economic parameters used in the screening evaluation to change substantially. In that case, the screening evaluation shall be revised and returned to the DED and SED Department Managers for reevaluation.

4.1.5.4 MSG shall incorporate the approved Minor Modification in the 2-Year plan, in accordance with the direction of the Plant Managers. Funding for the Minor Modification shall be handled as outlined in section 4.2.1.

4.1.5.5 MSG shall assign a Condition Report Action Number in the CAP Database to prepare a Minor Modification DCP in accordance with the Design Change Package Procedure 0PGP04-ZE-0309.

4.2 Modification Budgeting and Planning Process

4.2.1 Minor Modifications

4.2.1.1 Minor Modifications shall be budgeted as a group from a common fund, and the allocation for specific projects is determined by the Plant Manager(s). Refer to the Station Budget for specific budget information.

4.2.1.2 Minor Modifications shall be tracked on the 2-year plan by the DED Modification Support Group (MSG). This plan will indicate the project and the approximate time frame when it will be implemented.

4.2.1.3 The DED Scheduling Group shall schedule the Design of the Minor Modifications in accordance with their guidelines.

4.2.2 Major Modifications

4.2.2.1 The Modification Evaluations and Closures of Major Modifications shall be budgeted as a group from a common fund. The Design, Installation, and other specific activities shall be budgeted individually. Allocations for projects are controlled by the appropriate Cost Center Managers as directed by the Change Management Team.

4.2.2.2 Major Modifications shall be tracked on the 5-year plan by the DED Modification Support Group (MSG). This plan will indicate the project and the approximate time frame when it will be implemented.

4.2.2.3 The Change Management Team (CMT) shall approve the 5-year plan and any subsequent changes to the 5-year plan.

4.2.2.4 The DED Scheduling Group shall schedule the Evaluation, Design, and Implementation of the Major Modifications in accordance with their guidelines.

4.2.3 Cost Monitoring

4.2.3.1 Cost Monitoring applies to Major Modifications.

4.2.3.2 The MSG shall maintain a record of the approved project funding limits for Major Modifications.

4.2.3.3 The Modification Owner shall monitor the cost outlay to determine compliance with the approved modification budget.

4.2.3.4 The Modification Owner shall ensure that a Change Notice is prepared in accordance with guidelines provided by Project Controls and presented to the Change Management Team if the total cost for a modification (excluding engineering overhead D-100) appears to be exceeding the approved funding limits for either the design or implementation phase by more than $10,000.

4.2.3.5 The Modification Owner shall ensure that a revised Modification Evaluation is prepared and presented to the Change Management Team if the economic parameters used in the original evaluation change substantially.

4.2.3.6 Changes to the budgeted amounts shall be processed through the Change Management Team in accordance with Station Instructions for changes. Each Cost Center shall be responsible for assuring that adequate funds are available for their activities. Excess funds shall be returned by Change Notice for use in other areas.

4.3 Major Modification Evaluation Process

The Modification Evaluation is the document used by Station Management to evaluate the need, scope, and economic justification of a proposed Modification. Management needs to be provided with adequate information in order to determine if all reasonable alternatives have been evaluated, if the recommended alternative is the best and most prudent for the Station, and if there is sufficient justification for the recommended course of action.

Determination of the selected option and implementation plan rely on estimated costs, benefits, and an economic evaluation including status quo and rejected alternatives. These components are necessary and should be prepared accurately using sound engineering judgement.

Modification Evaluations are performed when Major Modifications are approved in accordance with this procedure. The DED Modification Support Group schedules the evaluations for work during the current year, or places them on a list of evaluations to be done in future years. The 5-Year plan is used for this purpose.

Modification Evaluations are charged to the modification evaluation fund, unless they are specifically budgeted under the Program Element for the Modification.

The following guidelines are provided so that evaluations are consistent and provide the required information for Management evaluation.

4.3.1 The Design Engineer shall hold a Design Evaluation Meeting prior to performing a modification evaluation.

This meeting shall include, as a minimum, the Modification Team. Other cognizant representatives from Design Engineering, Systems Engineering, Field Engineering, Materials Control, Operations, Maintenance, Modification and Support Services, the Requestor of the modification and the DED Modification Support Group should also be included. Other affected departments should be included, as appropriate, based on the scope of the change (e.g., Chemical Operations and Analysis, Health Physics, Security, etc.). During this meeting the scope of the modification shall be reviewed, the problem defined, and potential solutions and options discussed. The notes and attendance from this review shall be included in the evaluation report.

Corporate Policy requires that an Economic Evaluation in accordance with the Corporate Economic Policies, or approved alternate, be performed for certain Capital and O&M Modifications. During the Design Evaluation Meeting the DED Modification Support Group will recommend the requirements and extent of the Modification Evaluation based on current Corporate and Station policies. If emergent issues develop during the evaluation preparation requiring an adjustment in the Modification scope, the Design Engineer shall coordinate changes in evaluation requirements with the MSG. Additional guidelines are available from the MSG for assistance in developing a Modification Evaluation.

4.3.2 Evaluations shall be based upon the best information available within a reasonable amount of research.

4.3.3 Each evaluation shall contain, as determined during the Design Evaluation Meeting, some or all of the following elements:

4.3.3.1 **Evaluation Cover Sheet** - A standard cover sheet shall be used on modification evaluations. Refer to Form 0PGP04-ZE-0310-2 for a typical example.

4.3.3.2 **Reason for the Change and Problem Statement** - The evaluation shall clearly state the existing condition(s) and the reason for the change. Initiating documentation shall be identified and copies included in the package. Licensing requirements shall be clearly identified.

4.3.3.3 **Identification of Alternatives** - All reasonable alternatives for the Modification shall be identified including the alternative of not doing the Modification (Status Quo). Typical options could include periodic inspection, repair, procedural changes, and leaving as is.

4.3.3.4 **The Recommended Alternative** - Design Engineering shall make a recommendation as to the appropriate alternative to follow. If there is a disagreement on the recommended alternative between Design Engineering and any of the interested parties, the secondary alternative shall also be identified.

4.3.3.5 **The Scope of Work for the Modification** - A brief description of the Scope of Work for each alternative shall be provided. These Scopes of Work shall be prepared with input from the individuals involved with the Design Evaluation Meeting. The scope of work shall include the impact on operations and maintenance for each alternative and the effect on cost and schedule.

Additional information should be included in each alternative to the degree of detail prudent. The recommended alternative shall have additional information, including historical performance, current status, anticipated future performance, outage and maintenance requirements, personnel safety concerns, effects on radiation exposure, etc.

4.3.3.6 **Conceptual Drawings** - Conceptual drawings or sketches shall be prepared for each alternative if they are needed to clarify the Scope of Work. These drawings shall include, if applicable, General Arrangements, P&IDs, and Electrical One Lines. They shall be prepared with input from organizations that are affected by the modification and the Modification Originator.

4.3.3.7 **Unusual Installation Requirements** - Difficult or unusual installation requirements that affect the selection of an alternative shall be identified. If partial installation of the modification is required or desirable, it also shall be identified. Any impact on Plant or System Outages shall be identified. The Implementation Engineer shall be consulted on this element.

4.3.3.8 **Cost Estimates** - Type 2 Cost Estimates for the selected alternative and at least one rejected alternative shall be prepared using the STPEGS Estimating Handbook. MSG will assist in compiling Cost Estimates, if required.

This Cost Estimate shall be based on system functional requirements and shall include a listing of deliverables, receivables and schedules. The Installing Organization shall be required to participate in the development of the Cost Estimate and walkdown of the selected alternative.

For rejected alternatives it is up to the Design Engineer's judgement whether firm quotations from vendors need to be obtained, or if detailed estimates need to be developed.

4.3.3.9 **Economic Evaluation** - An Economic Evaluation in accordance with the Corporate Economic Policies or approved alternative shall be prepared in concert with the DED Modification Support Group.

The Economic Evaluation should typically address changes in the Plant's Net Power Output, changes in the Plant's Availability, savings of manhours by Maintenance, changes in cost of spare parts, maintenance materials, or testing, savings of manhours by personnel, change in Man Rem exposure, and other less tangible benefits such as Human Factors, Personnel Safety, etc.

4.3.3.10 **Safety Evaluation** - A preliminary, unsigned Safety Evaluation (10CFR50.59 review) shall be performed as a part of the evaluation, and included in the package.

4.3.3.11 **Design Evaluation Meeting Notes** - The notes of the Design Evaluation Meeting shall be included.

4.3.3.12 **Schedule** - A recommended schedule from the 5-Year Plan shall be included as part of the evaluation. This schedule shall reflect decisions made during the Design Evaluation Meeting.

4.3.4 The Design Engineer shall ensure, for multi-discipline modifications, that an interdisciplinary review is performed. This interdisciplinary review shall ensure that all discipline and system interactions are adequately addressed.

4.3.5 The Modification Evaluation shall be reviewed by the Design Engineer's Discipline Supervisor and approved by the responsible DED Division Manager.

4.3.6 The Modification Evaluation shall be presented to the PBAC by the Design Engineer, in concert with the System Engineer, for review of the economic evaluation portion prior to final approval by the Change Management Team.

The PBAC validates of the economic evaluation and approves the classification as to Capital or O&M. They will not make technical decisions regarding the project.

4.3.7 The Modification Evaluation shall be presented to the Change Management Team by the Design Engineer, in concert with the System Engineer, for review and approval. The Change Management Team, with a quorum for modification evaluations (as determined by the CMT) shall review the completed evaluation. If additional information is requested by the CMT, the Design Engineer shall revise the Modification Evaluation and return it to the CMT.

The review and approval of the Modification Evaluation by DED and the CMT takes place prior to the initiation of design work on the modification, unless waived by the DED Department Manager.

4.3.8 If the Modification Evaluation is rejected, the Condition Report Action shall be closed in the CAP Database. The Condition Report shall be processed in accordance with Condition Report Engineering Evaluation Program Procedure 0PGP04-ZA-0002. The rejected Modification Evaluation shall be maintained in the files by the Engineering Administration for 2 years.

4.3.9 If approved, the CMT will indicate the scope authorized for completion, and the authorized funding limit for the project (total or by phase).

4.3.10 The DED Modification Support Group shall maintain a record of the CMT decision.

4.3.11 The DED Modification Support Group shall add the modification to the 5-Year plan.

4.3.12 The DED Scheduling group shall schedule the Design and Implementation of the Modification in accordance with their guidelines.

4.3.13 The Design Engineer shall forward the Modification Evaluation and all supporting data to Records Management for filing.

4.4 Design Process

4.4.1 Prior to initiating design the Design Engineer shall hold a Design Initiation Meeting with the Modification Team and other cognizant individuals.

4.4.2 The Modification Design Change Package (DCP) shall be prepared in accordance with Design Change Package Procedure 0PGP04-ZE-0309.

4.4.3 Modification design shall not begin until a change has been screened in accordance with this procedure, and classified as to type of modification. If the classification is to be changed from Major Modification to Minor Modification, or Minor Modification to Major Modification, the approval of the DED and SED Department Managers, and appropriate Plant Manager(s) is required.

4.4.4 A change from Minor Modification to Major Modification shall require the completion of a Modification Evaluation in accordance with Section 4.3 of this procedure.

4.4.5 If during the design process it is necessary to change the design solution to the problem or the scope of the Modification, and the change is significant in nature, the revised Modification shall be screened by the Design Engineer in accordance with this procedure to verify that it is still appropriate to proceed.

4.4.6 If during the design process, the economic parameters used in the evaluation change substantially, the economic evaluation shall be revised in accordance with Section 4.3 of this procedure.

4.5 Implementation Process

4.5.1 Implementation shall be in accordance with Work Process Program Procedure, 0PGP03-ZA-090 and Design Change Implementation Procedure 0PGP04-ZE-0312.

4.5.2 Post Modification testing shall be performed in accordance with the Design Change Test Identification Procedure 0PGP04-ZE-0311.

4.6 Closure Process

4.6.1 Closure shall be in accordance with Design Change Implementation Procedure 0PGP04-ZE-0312.

4.6.2 Upon notification from the Implementation Engineer that the Major Modification is installed, the Design Engineer shall arrange for a post-modification critique. The critique shall include the Modification Team. The critique should address the applicability of the Modification to satisfy the originating Condition Report, the adequacy of the reviews by affected departments, constructability problems, subsequent changes to DCP, cost and schedule overruns, and performance of the installed component or system.

Notes of the post-modification critique meeting shall be forwarded to MSG for filing and distribution.

4.6.3 Engineering Administration shall log the DCP as complete in the CAP Database and ensure that all documents have been forwarded to Records Management.

4.6.4 The Condition Report is Closed in accordance with the Condition Reporting Process Procedure 0PGP03-ZX-0002.

5.0 References

5.1 0PGP03-ZX-0002, Condition Reporting Process

5.2 0PGP03-ZA-0090, Work Process Program

5.3 0PGP04-ZA-0002, Condition Report Engineering Evaluation

5.4 0PGP04-ZA-0136, Engineering Responsibilities

5.5 0PGP04-ZE-0309, Design Change Package

5.6 0PGP04-ZE-0311, Design Change Functional Test Identification

5.7 0PGP04-ZE-0312, Design Change Implementation

5.8 IP-3.20Q, 10CFR50.59 Evaluations

5.9 EI-1.61, Management of Outside Engineering Services

5.10 Modification Estimating Guide

6.0 Support Documents

6.1	Addendum 1,	Priority Ranking
6.2	Addendum 2,	Classification of Modifications (Major or Minor)
6.3	Addendum 3,	Modification Request Screening Form Instructions
6.4	0PGP04-ZE-0310-1,	Modification Request Screening Form
6.5	0PGP04-ZE-0310-2,	Modification Evaluation Cover Page

Addendum 1
Priority Ranking
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PRIORITY RANKING

Modification Requests shall be categorized into 3 groups as follows:

Priority 1 -

Clear Regulatory Requirement,
Required for Nuclear Safety,
Corrects a significant Plant Reliability issue.

Priority 2 -

Prevents Unit trip,
Reduces outage duration,
Has significant personnel safety impact,
Corrects a significant Regulatory Issue,
* Has significant short term economic payback.

Priority 3 -

* Enhancement with economic payback,
* Improves Station Material Condition,
* Prevents long term degradation of equipment,
* Improves Regulatory position,
* Reduces possibility of plant trip.

* A brief economic evaluation shall accompany the Final Screening.

If a modification ranks into Priorities 1 or 2, an economic evaluation need not be performed for the Final Screening (except for * item), in order to establish an initial ranking. If a modification falls into Priority 3, a brief economic evaluation will be performed, and the benefit/cost ratio used to establish the initial ranking within this group.

The Benefit/Cost ratio is calculated by taking the Net Present Value(NPV) of the Benefits to the station and dividing by the Net Present Value of the Costs to the station. Only "Hard" savings will be considered in this calculation.

Addendum 2
Classification of Modifications (Major or Minor)
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CLASSIFICATION OF MODIFICATIONS

All modification prepared under this Procedure shall be classified as either Major or Minor Modifications by the Department Managers of Design Engineering and Systems Engineering.

Modifications shall be classified as follows:

1. Any modification may be classified as a Major Modification if approved by the Department Managers of Design Engineering and Systems Engineering.

2. Capital Modifications having an estimated cost excluding overhead and contingencies, of $40,000 or more shall be classified as Major Modifications.

3. O&M Modifications having an estimated cost excluding overhead and contingencies, of $100,000 or more shall be classified as Major Modifications.

4. O&M Modifications having an estimated cost, excluding overhead and contingencies, between $40,000 and $100,000 and that have a hard payback greater than four (4) years shall be classified as Major Modifications.

   Minor Modifications between $40,000 and $100,000 shall have a specific Program Element established for tracking of charges. Section 2 of the Modification Request Screening Form (Final Screening) shall be completed for these Modifications and the Benefit/Cost calculation shall be reviewed by the PBAC. This screening and review may take place in parallel with the modification implementation.

5. Modifications that fall below the limits set above may be classified as Minor Modifications.

The Plant Manager(s) must concur with any recommendation to process a modification as a Minor Modification.

Addendum 3
Modification Request Screening Form Instructions
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INSTRUCTIONS

INITIAL SCREENING Section 1

Each of the Initial Screening Questions should be answered "Yes" or "No". The Modification Request should be reviewed by the System Engineer in enough detail so that it can be determined which questions are applicable. Following are brief definitions and guidance for each question.

1. Measurably Improve Equipment or Fuel Reliability?
   This question relates to the reliability of components or systems required for plant operation. For example, if the maintenance history shows that the component of system has failed at least two times in a refueling cycle, and in the judgement of the System Engineer the proposed modification will improve the reliability by 50%, the question could be answered "Yes".

2. Measurably Increase Station Usable Power Production?
   This question relates to increases in the net electrical power production of the plant. If calculations can be developed showing that the proposed modification will increase the plant's net salable electrical output by any measurable amount, the question could be answered "Yes".

3. Significantly Increase Station Operating Life?
   This question relates to increases in the operating life of the Plant beyond its current license expiration date. If Calculations and/or a Probability Analysis can be developed showing that the proposed modification will extend the useful operating life of the plant by at least one year, the question could be answered "Yes".

4. Significantly Reduce the Probability of a Unit Trip?
   This question relates to the probability of a Plant trip or the forced reduction in power. For example, if a component or system has caused one unit trip or two days of reduced power operation (50%) in the last two refueling cycles, and in the judgement of the System Engineer the proposed modification will reduce the probability of a forced outage or the reduction in power level by at least 50%, the question could be answered "Yes".

Addendum 3
Modification Request Screening Form Instructions
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5. Significantly Improve the Station SALP Rating?
This question relates to the Stations's SALP rating. If in the judgement of the System Engineer the proposed modification will improve the Stations SALP Rating by one point in any category, the question could be answered "Yes".

6. Measurably Improve employee morale?
This question relates to the resolution of long outstanding issues concerning employee working conditions or environment that have resulted from repeated employee requests. If the proposed modification has a direct impact on employee moral and productivity, the question could be answered "Yes".

7. Measurably Reduce the Outage Duration?
This question relates to the reduction in the critical path duration of a planned outage. If the proposed modification could reduce the critical path duration of a planned outage by 8 hours, the question could be answered "Yes".

8. Measurably Reduce Personnel Exposure to Radiation?
This question relates to the reduction in radiation exposure of Plant personnel. If the proposed modification could reduce personal radiation dose by 2.5 Person-Rem in one year, the question could be answered "Yes".

9. Measurably Reduce the Quantity of Radioactive Waste?
This question relates to the reduction in the quantity of dry active radioactive waste produced by the Plant or the quantity of radioactive contaminated water requiring processing. For example, if the proposed modification could reduce the quantity of dry active radioactive waste by 5 drums per year or the quantity of radioactive contaminated water required to be processed by 0.1 gpm, the question could be answered "Yes".

10. Significantly Reduce Operating Labor or Material O&M Costs?
This question relates to the reduction of the recurring O&M labor or material costs for the Plant. If the proposed modification could reduce the recurring O&M labor or material cost by $10,000 per year, the question could be answered "Yes".

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11. Measurably Reduce the Station Operating Loads?
This question relates to the reduction of the Plant's Auxiliary Electrical Loads and the increase in core thermal output. If the proposed modification could reduce the auxiliary electrical load by 50 KWe or increase the core thermal power output by 1 MWt, the question could be answered "Yes".

12. Correct a Potential Regulatory Violation or Concern?
This question relates to a perceived violation or concern by a regulatory agency, such as the NRC, EPA, OSHA, ASME Code, State, Local or Federal Government, etc. If in the judgement of the System Engineer the proposed modification will correct a potential violation or concern from any regulatory agency, the question should be answered "Yes".

13. Comply with a Regulatory Commitment?
This question relates to a specific commitment made to a regulatory agency, such as the NRC, EPA, OSHA, ASME Code, State, Local or Federal Government, etc. If the proposed modification will satisfy a commitment made by STP Management to any regulatory agency, the question should be answered "Yes". Note, the document making the commitment shall be referenced in Paragraph 3 of Section 1.

14. Correct an Industrial Safety Hazard or Concern?
This question relates to the industrial safety of the Station with respect to lost time accidents. For example, if the proposed modification in the judgment of the System Engineer and the STP Health & Safety Department will reduce the number of lost time accidents by one in fifteen years, the question could be answered "Yes".

Paragraph 3 of Section 1 shall be used to provide justification for the rejection of the proposed modification, references that are applicable to the proposed modification, and recommendations for continued evaluation of the proposed modification.

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If the System Engineer rejects the proposed modification for any reason, a check shall be placed in the block located in the lower right corner of Section 1.

The System Engineer shall Sign, Date and provide his or her Telephone Number and Printed Name in Section 1 for all rejected or approved proposed modifications.

FINAL SCREENING Section 2

The Final Screening is used by the DED and SED Department Managers to determine the overall value of the proposed modification. It is used to rank the proposed modification with respect to other approved modifications, to provide a preliminary engineering evaluation, and to assist in the determination of the classification of a proposed modification as a Major Modification or Minor Modification. Therefore, the data provided in each portion of Section 2 must be complete and realistic. Bear in mind that the data should be estimated based on past history and judgement. For Major Modification a detailed Modification Evaluation will be performed at a later date.

Recommended Option:

The System Engineer shall provide the recommended scope of work for the preferred option.

Budget Category:

One Budget Category shall be assigned. Definitions of the Budget Categories are found in the STPEGS Estimating Handbook.

Modification Cost:

A Type 1 cost estimate shall be provided for the recommended option. The Design Phase shall include costs for HL&P Engineering, On or Off Site Contract Engineering, Field Engineers and Engineered Materials. The Implementation Phase shall include Installation Costs and Non Engineered Materials. Contingency and overhead shall be included in the Total only.

Benefit/Payback:

The Benefit /Payback portion of Section 2 shall be completed for all Modification Requests except those Modification Requests assigned a ranking of Priority 1 or Priority 2 without an asterisk (*) (see Addendum 1). The Estimating Handbook and the DED Modification Support Group(MSG) can provide guidance in completing this portion of the Final Screening. A brief explanation of each feature of the Benefit/Payback portion is as follows:

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Annualized Hard O&M Savings - The total annual(or per Refueling Outage) hard savings that are anticipated to result from the proposed modification should be provided. Hard saving are those savings that can be shown in a reduced future year budget for the affected department. Examples are: reduced purchased materials and parts, reduced Contractor assistance, reduced level of staffing, reduced critical path outage time, increased net power produced, etc.

NPV for remaining life of the Plant Savings (Hard) - The current year Net Present Value of the Annualized Hard O&M Saving for the life of the proposed modification starting with the year after the modification is installed. This is calculated using the current HL&P Discount Rate which can be provide by MSG.

Year of Installation - The anticipated year that the proposed modification is completely installed.

NPV for Capital Cost - The current year Net Present Value of the Cost (Capital or O&M) for the Design, Material Purchase and Installation of the proposed modification.

PAYBACK (YEARS) (HARD BENEFITS) - The number of years after the complete installation that the modification cost has been repaid by the hard annual savings. (Note, MSG may assist in this calculation).

Annualized Soft O&M Savings - The total annual(or per Refueling Outage) soft savings that are anticipated to result from the proposed modification should be provided. Soft saving are those savings that are perceived to exist; however, they will not be shown in a reduced budget in future years. Examples are: savings in manhours that do not result in a staffing reduction, non critical path outage time savings, anticipated savings for component failures that have not occurred in the past, etc.

NPV for remaining life of the Plant Savings (Soft) - The current year Net Present Value of the Annualized Soft O&M Saving for the life of the proposed modification starting with the year after the modification is installed. This is calculated using the current HL&P Discount Rate which can be provide by MSG.

PAYBACK (YEARS) (HARD & SOFT BENEFITS) - The number of years after the complete installation that the modification cost has been repaid by both the hard and soft annual savings. (Note, MSG may assist in this calculation).

Priority:

The System Engineer shall assign a priority to the proposed modification based on the guidance given in Addendum 1 of this Procedure.

Benefit/Cost Ratio:

The ratio of the Hard NPV Savings to the modification NPV Cost. The higher the ratio, the more benefit for the proposed modification. A ratio below 1.0 has no payback over the remaining life of the Plant.

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Modification Request Screening Form Instructions
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Outage Required:

The System Engineer shall indicate if a System or Plant outage is required for installation of the proposed modification and if there are any Mode restriction required.

Intangibles:

The System Engineer shall indicate if there are any Regulatory, Personnel Safety, or Management concerns, requirements, or commitments associated with the modification request.

The System Engineer shall Date and provide his or her Telephone Number and Printed Name in Section 2.

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SAMPLE

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MODIFICATION REQUEST SCREENING FORM

Section 1 **INITIAL SCREENING** **CR No.** _____

Does the Proposed Change: (Yes / No)

1. Measurably Improve Equipment or Fuel Reliability? _____
2. Measurably Increase Station Usable Power Production? _____
3. Significantly Increase Station Operating Life? _____
4. Significantly Reduce the Probability of a Unit Trip? _____
5. Significantly Improve the Station SALP Rating? _____
6. Measurably Improve employee morale? _____
7. Measurably Reduce the Outage Duration? _____
8. Measurably Reduce Personnel Exposure to Radiation? _____
9. Measurably Reduce the Quantity of Radioactive Waste? _____
10. Significantly Reduce Operating Labor or Material O&M Costs? _____
11. Measurably Reduce the Station Operating Loads? _____
12. Correct a Potential Regulatory Violation or Concern? _____
13. Comply with a Regulatory Commitment? _____
14. Correct an Industrial Safety Hazard or Concern? _____

1. If any question is answered "Yes", Proceed to Section 2, "Final Screening."
2. If all answers are "No" or the potential Design Change has little or no "value added", it should be Rejected.
3. Provide Justification for Rejection or Recommendations for Continued Evaluation:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Signed _____ Date _____ Telephone _____
(System Engineer)

Print _____ Rejected By System Engineer ☐
(System Engineer)

Modification Request Screening Form
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SAMPLE

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MODIFICATION REQUEST SCREENING FORM

Section 2 **FINAL SCREENING** **CR No.** _____

Recommended Option: _____

_____

_____

Budget Category:
(See Estimating Handbook)

_____ Regulatory
_____ Rehabilitation (Obsolescence)
_____ Enhancement
_____ Results from Mandatory Changes in Operating or Design Criteria

Modification Cost:
(Type 1 Estimate)

Design Phase _____ Implementation Phase _____

Total (Including Overhead & Contingency) _____

Benefits/Payback:

Annualized Hard O&M Savings: _____
NPV for Remaining Life of Plant Savings (Hard): _____
Year of Installation: _____
NPV for Capital Cost: _____
PAYBACK (YEARS) (HARD BENEFIT) _____
Annualized Soft O&M Savings: _____
NPV for Remaining Life of Plant Savings (Soft): _____
PAYBACK (YEARS) (HARD & SOFT BENEFITS) _____

Ranking:

Priority _____
(See Addendum 1)

Benefit/Cost Ratio _____
(Hard NPV Savings / NPV Cost)

Outage Required _____ (Train Yes/No) _____ (Plant Yes/No) Mode Requirements _____

Intangible:

Regulatory: _____

_____

_____

Personnel Safety: _____

_____

_____

Management Requests: _____

_____

_____

Prepared by: _____ (Print Name) Date: _____ Phone: _____

Modification Request Screening Form
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SAMPLE

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MODIFICATION REQUEST SCREENING FORM

Section 3 **APPROVALS** **CR No.** _____

Modification Classification: MAJOR MOD _____ MINOR MOD _____

Manager of DED and SED Disposition:

Approved _____ Rejected _____

_____ Date _____ _____ Date _____
(Sign Mgr DED) (Sign Mgr SED)

MINOR MOD APPROVAL: _____ Date _____
(Sign Plant Manager)

MINOR MOD SCHEDULE:
_____ Schedule As Soon As Practical
_____ Schedule in next Outage
_____ Include in the Current 2-Year Plan

Modification Evaluation Cover Page
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SAMPLE

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SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION

MODIFICATION EVALUATION
FOR

_____

_____

DCP NO. _____

	SIGNATURE	DATE
DESIGN ENGINEER		
SUPERVISING ENGINEER		
DIVISION MANAGER		
CHAIRMAN, PBAC		
CHAIRMAN, CMT		