

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

STATION PROCEDURE

NON SAFETY-RELATED (Q)

Work Process Program\*

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1.0 Purpose, Scope and Objectives

1.1 Purpose

This procedure describes the process for evaluating, planning, scheduling and implementing work activities to support the safe and reliable operation of the plant. It provides the mechanism for plant material problems or deficiencies identified in accordance with OPGP03-ZX-0002, Condition Reporting Process, to be evaluated and dispositioned.

1.2 Scope

1.2.1 The Work Process Program encompasses the activities of all organizations related to performing work on plant systems, components and structures including corrective maintenance, preventive maintenance, surveillance inspections, special tests and modifications. The process extends from the identification of a work requirement or deficiency through planning, scheduling, and implementation, to final closure. The process elements are shown in Addendum 6.

1.2.2 This procedure applies to work activities (including modifications) performed on permanent plant components, systems and structures, including work in support areas or buildings that may impact plant operations.

1.2.3 The Work Process Program utilizes a two-tiered approach to correcting equipment deficiencies. The two methods are Work Orders and Rover/Minor maintenance. This tiered approach to maintenance applies the appropriate level of requirements and resources to perform work/resolve equipment deficiencies increasing the overall efficiency of the Work Process Program. All deficiencies identified on Condition Reports are evaluated to determine the most appropriate method to perform the work/resolve the deficiency.

- Deficiencies that do not require Work Orders are resolved using the Rover/Minor maintenance program (see Addendum 3) and are assigned directly to maintenance for implementation.
- Deficiencies that require Work Orders, are planned, scheduled, and implemented using the Work Process Program.

1.2.4 The Condition Report (CR) is the document used to identify conditions which require maintenance work to correct, or to request the Maintenance Department or Certified Contractors to perform specific work. A Work Order (WO) is generated from the CR, and the work is performed using the WO as the work authorization document. Work authorizing documents include Work Orders, Preventive Maintenance Tasks and Surveillances. When no administrative controls are required, work MAY be performed without a work authorizing document.

1.2.5 Work Authorization documents are not required for:

- Work on non-plant systems or systems excluded from configuration management listed in reference 5.8.
- Inspection or non-destructive examination for information only where no Work Start notification or maintenance support is required.
- Minor housekeeping, cleanliness, and administrative items where no degradation of plant components and structures is involved. Items in this category MAY be identified and tracked by a punchlist.
- Facilities Management activities.

1.2.6 When a component has been removed from service, it is not required that its configuration be kept consistent with the approved design configuration. Intentional actions (ie., Work at Risk) are permitted which cause the actual configuration of the out-of-service component to deviate from the approved design configuration by documenting in accordance with OPGP03-ZM-0021, provided that, prior to returning the component to service, or declaring the component OPERABLE, the inconsistency is resolved, by taking one of the following actions:

1.2.6.1 The configuration of the component is restored to be consistent with the approved design configuration.

1.2.6.2 An engineering evaluation is performed and documented providing the basis for allowing the component to be returned to service with the deviation still existing.

1.2.6.3 The approved design configuration is revised to be consistent with the actual configuration of the component.

- 1.2.7 When deviations have been intentionally made as described above with the expectation that the inconsistency will be resolved, such deviations are undertaken as "Work at Risk" (not approved by Engineering ).
- 1.2.8 The work process uses the Corrective Action Program (CAP) and Work Management System (WMS) computer databases to develop, process and track the formal records and information needed to support the planning and scheduling process. To facilitate the Work Process, CRs SHALL be initiated for work activities except as noted in 1.2.5. A single CR can cause the generation of one or more work orders.
- 1.2.9 Work Packages written prior to the effective date of this revision MAY be worked to completion without revision (Speakout 12266).

### 1.3 Objectives

- 1.3.1 To support safe and reliable plant operation.
- 1.3.2 To maintain an integrated schedule of approved plant maintenance and modification work activities, including preventative maintenance and surveillance activities.
- 1.3.3 To manage support activities to meet the implementation schedule
- 1.3.4 To allow the activities in the Control Room to focus on plant operations by requiring work management functions to be performed by the Operations Work Control Group.

### 2.0 Definitions

- 2.1 **BLANKET WORK PACKAGE:** A Work Package which is maintained in a "ready to work" status and utilized upon demand. Specific work activities are documented by the use of individual "episode" sheets attached as part of the work package. These work packages are closed/renewed periodically as determined by the work discipline.
- 2.2 **CONDITION REPORT (CR):** A Form used to identify Conditions (formerly a Service Request).



- 2.3 **CORRECTIVE MAINTENANCE:** The process by which the operating and performance characteristics of a non-conforming plant component are restored to specifications by cleaning, replacing parts, repacking, rewiring, calibrating, realigning, machining, welding, grinding, plating or other corrective means (ie., return hardware to its original design intent with no update of design documentation required). Activities of this type are designated as work type "C" in WMS (NOV 92-35).
- 2.4 **DEFICIENCY:** A deficiency is any condition where a component, system or structure does not meet its design criteria or cannot perform its intended function. Results of deficiency identification include: Rework, Replacement, Repair, Use-As-Is, or Modification. The determination of Repair, Use-As-Is, or Modification is made by Engineering.
- 2.5 **DEFICIENCY TAG:** A tag which provides a six digit identification number which will be entered as the (DEPT#) on the CR Form (formerly the SR tag). This number will also be used to track items in WMS.
- 2.6 **MAINTENANCE VERIFICATION POINT (MVP):** A work hold point which requires the Craftsmen to stop work and notify the Work Supervisor to perform an inspection or to ensure another group performs an inspection. Maintenance Verification Points SHOULD be signed by the Work Supervisor. (NOV 91-23)
- 2.7 **MINOR MAINTENANCE:** Work activities that may be performed using a Condition Report. These activities are of such a simple nature that qualified individuals can perform the work without written instructions. Criteria is provided in Addendum 3.
- 2.8 **MODIFICATION:** Those activities performed to implement physical design changes to systems, structures and components. Design Change Packages (DCPs) are Documents used to specify Modifications. Activities of this type are designated as Work Type "M" in WMS.
- 2.9 **NEED DATE:** This is the date set by OWCG as the date the work is to be accomplished. This date is controlled by the OWCG.
- 2.10 **NONCONFORMANCE:** For purpose of the work process, a deficiency where the component, system or structure cannot perform its intended function or does not meet the original design.

- 2.11 **OPERABILITY TESTS:** A Technical Specifications required functional or similar test, which is performed to verify that the systems, structures and components affected by the corrective or preventive maintenance work activity, are OPERABLE and ready to be returned to service (ie., capable of performing their intended and specified design function), in accordance with the Technical Specifications, Updated Final Safety Analysis Report, design requirements and applicable codes and industry standards.
- 2.12 **OPERATIONS NOTIFICATION POINT (ONP):** A preselected step in any work process that identifies when the craft Crew Leader or supervisor is required to contact the Shift Supervisor.
- 2.13 **PLANNER:** Person assigned the responsibility for developing or revising maintenance Work Instructions. This includes Maintenance Craft and Supervision.
- 2.14 **POST-MAINTENANCE TEST:** A test, inspection or check which provides a verification that a corrective OR preventive maintenance activity corrected the original component deficiency, did not introduce a new deficiency, and provides a high degree of confidence that a subsequent return to service Operability Test, if required, can be performed satisfactorily.
- 2.15 **POST MODIFICATION TEST:** Test performed subsequent to design change implementation as specified by the Cognizant Engineer.
- 2.16 **PREVENTIVE MAINTENANCE:** Maintenance activities performed to maintain equipment within designed operation conditions and extend its life. Preventive Maintenance includes predictive, periodic and planned maintenance activities. Activities of this type are designated as Work Type "P" in WMS.
- 2.17 **QUALITY INSPECTION POINT (QIP):** A preselected step in any procedure or work process that identifies a portion of the work process which requires Nuclear Quality Control inspection. The inspection MAY be performed after the activity is complete if full verification is possible without disassembly of the component/item.
- 2.18 **RADIOLOGICAL HOLD POINT (RHP):** A preselected step in any work process that identifies when Health Physics coverage is required prior to proceeding with the work.
- 2.19 **REJECT:** The nonacceptance of an item. The item MAY be scrapped, returned to its supplier or, if otherwise acceptable, used in applications outside the scope of the Quality Assurance Program.

- 2.20 REPAIR: The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original design requirement.
- 2.21 REPLACEMENT: The installation of spare or renewal parts, components, accessories or subassemblies of a component or system.
- 2.22 REWORK: The process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, reassembling or other corrective means.
- 2.23 ROVER WORK ORDER: A corrective maintenance Work Order developed and implemented in accordance with the criteria provided in Addendum 3.
- 2.24 SCOPE: The scope of a Work Package is the physical boundaries established by the equipment or component. If, for example, the work is to be on a valve seat in a valve with a specific TPNS number and it is determined that other work on that valve is necessary, a scope change has not occurred.
- 2.25 SKILL-OF-THE-CRAFT: The level of knowledge/skill expected of a certified technician. Maintenance technicians are trained (formally and OJT) and certified to perform certain tasks. Skill-of-the-craft is considered to be standard industry practices that do not require detailed work instructions to implement. The use of skill-of-the-craft in the performance of an activity is a method where the skills of the technician can be utilized to enhance the work process.
- 2.26 SUPPORT CONDITION REPORT: A Condition Report which identifies support activities including, but not limited to, the refurbishment of warehouse, shop or spare equipment; coating upgrade of plant components and structures, insulation work, etc.; requests for manpower support for outage, operations, engineering; fabrication of specialty tools, stands, carts, etc.; and contingency work instructions for potential work scope that does not have an existing corrective/preventative problem. Condition reports for these activities are designated as Work Type "S" in WMS.
- 2.27 TROUBLESHOOTING: The process of locating and identifying malfunctions through deductive and inductive reasoning. The process may include activities such as taking readings, pulling fuses, stroking valves, changing electronic modules, partial or complete disassembly of a component or other activities.

- 2.28 **USE-AS-IS:** A disposition which may be imposed for a nonconforming condition when it can be established that the discrepancy will result in no adverse conditions and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit and safety.
- 2.29 **VISUAL INSPECTION:** To perform an examination by using sight alone (LER 1-91-021).
- 2.30 **WORK AT RISK:** Preparing work instructions and performing work activities using proposed disposition of engineering documents. Work At Risk SHOULD be held to a minimum, however this option exists in critical situations provided Maintenance Department Manager direction is obtained. Equipment which is to be worked under the "Work At Risk" provisions is declared out of service (inoperable for Technical Specification equipment) during the performance of the job.
- 2.31 **WORK ORDER (WO):** Form used to document Work Instructions in a Work Package and to provide approval and completion signoffs for the work activity.
- 2.32 **WORK PACKAGE:** A package containing a Condition Report, Work Order, Preventive Maintenance Work Order or Modification Work Order and other information required to perform and verify the work (e.g., drawings, technical manuals, etc.).
- 2.33 **WORK START AUTHORITY (WSA):** The person designated for authorizing work start (release of system or equipment for maintenance) and work acceptance (return of system or equipment to service after maintenance). Work Start Authorities include, but are not limited to, Plant Operations, Security and Maintenance.
- 2.34 **WORK SUPERVISOR:** The person assigned the responsibility/accountability for the performance of a specific work activity. This normally will be a craft supervisor or above, but MAY be a certified journeyman in an acting supervisor position (NOV 91-23).

### 3.0 Responsibilities

#### 3.1 Engineering is responsible:

- To prepare Operability reviews.
- To support Work Package development and implementation.
- To develop Post-Modification Test(s) and Special Test(s).

3.2 The Initiator of a Condition Report is responsible:

- To provide complete (quantify, etc.), accurate information on the CR.
- To complete and attach a deficiency tag to the affected equipment or component, when possible.
- To enter deficiency tag number in (DEPT#) block on CR form.

3.3 Maintenance is responsible:

- To support the daily work schedule.
- To review applicable Work Week Activity List(s) for implementation requirements, including craft certification, estimated duration and man-hours.
- To provide Work Control - Scheduling the plan of available resources for each craft discipline.
- To ensure Post Maintenance Testing is performed.

3.4 Nuclear Purchasing and Materials Management (NPMM) is responsible:

- To provide the materials necessary to support scheduled maintenance.
- To stage and deliver materials required for work.

3.5 Nuclear Quality Control - Quality Inspection Planning is responsible:

- To review Work Packages for insertion of Quality Inspection Points I.A.W. the Quality Control Inspection Matrix.
- To Review "Pen and Ink" changes and revisions to Work Packages that effect previously identified QIPs.
- To perform final review of modification Work Packages and Weld Inspection Checklists for safety related activities.

3.6 Operations Work Control Group (OWCG) is responsible:

- To evaluate CRs in accordance with this procedure and OPGP03-ZX-0002.
- To act as WSA for Plant Operations
- To specify and coordinate OPERABILITY test(s) prior to returning Technical Specification equipment to operation.

3.7 Work Control - Planning is responsible:

- To generate Work Packages in support of the Integrated Schedule.
- To source/identify materials required for the work.
- To specify Post-Maintenance Test(s).



3.8 Work Control - Scheduling is responsible:

- To develop and maintain the Integrated Schedule.
- To provide a daily schedule of work activities for Maintenance and support organizations which includes routine and emergent work activities.
- To develop logic schedules, as necessary, to support complex work activities.
- To develop forced outage logic and schedules and maintain a list of forced outage Work Packages.

3.9 Work Package Control Center (WPCC) is responsible:

- To maintain a centralized location from which work packages are stored, released, and returned.
- To assist in maintaining work package status.
- To route work packages as determined by Planning, OWCG, etc.
- To assist in work package closures.

3.10 Work Start Authority is responsible:

- To develop and authorize Equipment Clearance Orders (ECOs) (SPR 910039).
- To release a system or component for maintenance.
- To coordinate Post-Maintenance/Modification Testing.
- To return the system or component to service.

4.0 Procedure

4.1 Condition Identification is the first phase of the Work Process Program. A condition Report is used to identify conditions that affect plant components, systems and structures.

4.1.1 The individual discovering the problem SHOULD:

- Examine the component and the adjacent structures to determine if a deficiency tag already exists and a CR has been initiated. IF a deficiency tag exists THEN no further action is required.



- IF a deficiency tag is not evident, THEN hang a Tag in a conspicuous place on or near the affected equipment. IF the environment in which the equipment is located could affect the legibility of the tag or entry is prohibited by ALARA, THEN hang the tag near the affected equipment or, outside the door. Tags SHOULD not be hung in the Reactor Containment Building.
  - Initiate a condition report including the deficiency tag number in the (DEPT#) block of the CR form.
  - IF the CR identifies support work, not a material deficiency, THEN the supervisor SHOULD submit the CR directly to Planning or applicable organization for processing (ie., manpower request to MSSD). Deficiency tags SHOULD NOT be hung to identify support work.
- 4.1.2 IF it is known or suspected that the condition affects OPERABILITY or SAFETY, THEN the individual discovering the problem SHALL immediately notify the Shift Supervisor.
- 4.1.3 The OWCG SRO/on duty Shift Supervisor SHALL immediately evaluate the CR and determine if it is an Emergency, Priority 1 or Priority 2 condition. Addendum 2 defines the priorities for the Work Management Process.
- IF the reported condition is evaluated as not being an Emergency, Priority 1 or Priority 2, THEN the Shift Supervisor SHALL initiate any actions deemed necessary and provide the appropriate priority for the CR.
- 4.1.4 IF the problem is evaluated as an Emergency, THEN the Shift Supervisor SHALL immediately:
- Initiate actions to mitigate safety concerns and to maintain safe operating conditions in accordance with established procedures.
  - Notify the appropriate personnel (Engineering, Maintenance, etc.) of the condition and direct the immediate implementation of corrective actions.
  - Make appropriate management notifications.

4.1.5 IF the problem is evaluated as a Priority 1 or Priority 2 condition, THEN the OWCG/on duty SRO SHALL inform the applicable Maintenance/Planning Supervisor of the equipment status and any special requirements that need to be followed. Work MAY commence in accordance with OPMP01-ZA-0041, Troubleshoot and Rework Process, provided that:

- An action plan has been developed in accordance with Addendum 4.
- A Work Package, if required, is prepared as soon as possible and the work accomplished is fully documented in, and reconciled with, the approved Work Package prior to returning the system, equipment or component to service/OPERABLE, as required.

4.2 Work Order Evaluation is the second phase of the Work Control Program. The OWCG/on duty SRO evaluates the Condition Report for deficient or degraded material conditions, technical validity, completeness and scheduling in accordance with Addendum 1.

4.2.1 The OWCG SHOULD screen, validate, prioritize and disposition CRs which identify material deficiencies within two working days of receipt.

4.2.2 The OWCG/on duty SRO SHOULD review and evaluate the reported condition to determine if plant OPERABILITY OR SAFETY are affected (LER 1-88-010; SPR 921589).

- IF the deficiency affects the ability of the component to perform its intended function and the component is Tech Spec/Safety Related, and the component is to remain operable/in-service, THEN the OWCG/on duty SRO SHALL contact Engineering for an OPERABILITY review. For non-Tech Spec/non-Safety Related components, an Operability review is not required (IR 92-04, LER 1-92-003, LER 1-93-016).

4.2.3 The OWCG Planner SHOULD review the CR after initial screening and check the existing CRs on the equipment with the same tag/TPNS number to determine if the reported problem duplicates a previously reported condition.

- IF the new CR duplicates or can be combined with an existing CR, THEN the Planner SHOULD add the new CR problem description and Date/Time to the existing CR, notify planning, remove the deficiency tag, void and return the new CR to the Originator with the disposition.
- IF the new CR does not duplicate a previously reported condition, THEN the Planner SHOULD assign the appropriate Work Type Code to the CR (Addendum 1).
- IF a Preventive Maintenance (PM) task can be utilized, THEN the Planner coordinates scheduling the PM, voids the CR pending completion of the PM and enters PM and WAN numbers in CR database. The PM planner adds a step to the PM to remove the deficiency tag.

4.2.4 The OWCG Maintenance Supervisor evaluates the need to perform a field walkdown of identified maintenance problems. During walkdown, the OWCG Maintenance Supervisor SHALL:

- Verify the Equipment/Component TPNS Number is appropriate for the described condition.
- IF it is determined that the problem has been corrected or no longer exists, THEN remove the deficiency tag, void CR, enter justification in data base, and return the CR to the originator with the disposition.
- Determine if troubleshooting in accordance with OPMP01-ZA-0041, Troubleshoot and Rework Process, is required.
- Determine if maintenance can be implemented via the Rover process as described in Addendum 3.
- Provide a manhour estimate for the anticipated corrective action and identify the support requirements such as additional craft, the need for scaffolding and insulation removal and other information that may be of assistance in planning and scheduling the necessary corrective action.

- 4.2.5 The OWCG/on Shift SRO determines the Priority in accordance with Addendum 2, performs a preliminary risk assessment in accordance with Addendum 5, and assigns a Need Date based on Plant requirements. The OWCG Scheduler assigns appropriate schedule target date based on the Integrated Scheduling Matrix and priority (SPR 920864).
- 4.2.6 In addition to prioritizing the CR, the OWCG performs the following actions as described in the Operations Work Control Group Guide:
- **Contacts Engineering** to evaluate valid conditions, determined not to be detrimental to plant operations or reliability, that do not appear to warrant the cost (time and exposure) of corrective action.
  - **Contacts Engineering** If assistance is necessary to determine the nature of the problem.
  - Approves and routes CRs categorized as Rover Maintenance directly to Maintenance for implementation.
  - Routes applicable CRs to the Chem Ops Supervisor or Operational Authority for action as applicable.
  - Routes security discrepancies directly to the Security Supervisor for action.
  - Submits valid CRs to planning and scheduling.
- 4.3 Work Activity Scheduling is the third phase of the Work Process Program. Work Control-Scheduling is responsible for developing the various schedules used in the work management process as described in the Scheduler's Guide.
- 4.3.1 The Integrated Schedule is used to schedule on-line work activities including Corrective Maintenance, Preventive Maintenance, Surveillance Testing, and support tasks. This Schedule is based on a 12 Week Schedule Cycle which specifies when a system, sub-system or component MAY be taken out of service for maintenance or special activities (e.g., special testing requested by Engineering).
- 4.3.2 Resources SHOULD be scheduled and aligned to fully support Unit 1 and Unit 2 activities concurrently (i.e., staggering of Unit 1 and Unit 2 LCO work weeks, scheduling of specialty crews, etc.).

4.3.3 Schedule dates for work activities are developed considering the following:

- Recurring, planned work activities (surveillance, EQ program items, preventative maintenance items, and non-technical specification surveillance), SHOULD be scheduled for implementation in the appropriate on-line week based on assigned periodicities.
- Non-recurring work activities (corrective maintenance, modifications, post maintenance tests, etc.) SHOULD be added to the appropriate on-line week based on assigned priorities, resources, work scope and other information available to the scheduler.
- Related work activities SHOULD be grouped, tied together and concurrently scheduled on a component or system basis to the maximum extent feasible. The Scheduler has the authority to adjust the due dates for Preventive Maintenance items forward or backward in order to align related work items so that the number of times equipment is taken out of service for maintenance is minimized. IF the schedule for a preventive maintenance item exceeds the allowable periodicity window, THEN a PM deferral SHOULD be processed in accordance with OPGP03-ZM-0002.
- The work scope is finalized 3 weeks prior to Work Week (N) with the following exceptions:
  - Priority 1 or 2 work.
  - Work activities scheduled within this 3 week period MAY be adjusted to facilitate the process.
  - Priority 3 work MAY be added with concurrence from the Plant Manager or designee.
  - MCBs, IAFOs, IAFTs, and CHMs may be added with concurrence from WSA, Work Control, and Maintenance.
- Activities that may challenge or present a risk to the operation of the plant SHALL be evaluated in accordance with the guidance provided in Addendum 5.

- High priority/Task Ready work activities that require a unit outage or present a High Risk when at-power SHOULD be included in forced outage work lists that can be implemented on short notice.
- Schedules SHOULD be resource loaded to the maximum extent feasible. Schedule changes based on resource limitations SHOULD include management review and approval at a level commensurate with the change involved.
- The status of planning activities to prepare for work implementation SHOULD be monitored on a continuous basis. Items that will not be "Task Ready" for implementation 3 weeks prior to their scheduled date SHOULD be rescheduled to the next earliest opportunity in the 12 week cycle.

4.3.4 The Daily Schedule SHOULD be reviewed by OWCG, Operations Shift Supervisor, Chem-Ops, Health Physics, Maintenance, Engineering, NPMM, Security and Work Control and SHOULD be approved by the Operations Manager and the Maintenance Manager.

- 4.4 Work Activity Planning is the fourth phase of the Work Control Program. Work Control Planning is responsible for developing or assisting in the preparation the Work Instructions needed to perform required work as described in the Planner's Guide.
- 4.4.1 The Planner writes work instructions in sufficient detail such that qualified individuals can perform the activity safely and correctly. The Planner MAY take into account "Skill of the Craft" and write the instructions such that they do not describe step by step actions that the craft are trained on. IF the activity requires step by step instructions, THEN the instructions SHOULD be definitive enough to ensure that the required results are achieved (LER 1-90-01).
- 4.4.2 Troubleshooting work instructions are in accordance with OPMP01-ZA-0041, Troubleshoot and Rework Process.



- 4.4.3 Identify material early enough to ensure availability prior to the work package scheduled start date. Identify material needed to support emergent work promptly, and expedite as necessary to minimize schedule impact.
- Planners MAY reallocate parts reserved for a non forced outage work package scheduled later to satisfy a high priority, near term need, with the approval of the Planning Supervisor.
- 4.4.4 Test Requirements
- Planners specifies Post-Maintenance Test Requirements.
  - Engineering specifies Post-Modification Tests and/or Special Tests.
  - Operations (OWCG/on duty SRO) specifies OPERABILITY Tests.
- 4.4.5 Work Package Review and Approval
- 4.4.5.1 Work Packages are reviewed for technical content and accuracy and approved by Planning or a Work Group Supervisor (LERs 1-91-013, 1-91-021, 2-89-006).
- 4.4.5.2 Upon completion of planning activities and a final review, the Planner transmits the Work Package to the Work Package Control Center (WPCC) where the Work Package is routed for other approvals, as requested. Once the approvals are obtained, Work Packages are held by the WPCC until released for work start.
- 4.4.5.3 Work Packages are routed for other approval as follows (SPRs 921543, 900407, 900503):
- Work Packages are routed to Quality Control based on the Quality Classification and the QC Review Matrix.
  - Work Packages are routed to Engineering as required by Engineering program procedures (SPR 940350).

4.4.5.4 Additional Work Instructions, or clarifications, that do not alter the Scope or Intent of work activities MAY be added as "Pen and Ink Changes".

- The Work Supervisor is responsible and authorized to make Pen and Ink changes.
- Pen and ink changes which alter or change previously identified QC inspection points, are routed to QC for review or, for work in progress, QC SHOULD be contacted for assistance.
- IF the changes affect radiological conditions, PMT, etc. THEN, the work supervisor is responsible for making the appropriate notification and coordination.

4.4.5.5 A Work Package Revision is required when additional instructions or clarifications change the Scope or Intent of the work activity.

- Revisions are required to be routed the same as the original Work Package, including WSA (SPR 910151).

4.5 Work Release and Implementation is the fifth phase of the Work Process Program. The Work Supervisor is responsible for performing the work in a safe and quality manner within the constraints of the implementation schedule.

#### 4.5.1 Work Release

4.5.1.1 The Work Start Authority (WSA) SHALL:

- Review the daily schedule and determine the activities scheduled to be released for work.
- Perform a final review of the work package to ensure that current plant conditions support accomplishment of the work package as currently scheduled. Determine if the activity may challenge or present a risk to the safe operation of the plant in accordance with the guidance provided in Addendum 5.
- Authorize the Equipment Clearance Order (ECO) to be established.

- Release the work package for implementation.

#### 4.5.2 Work Assignment

- 4.5.2.1 The Work Supervisor SHALL ensure personnel have the necessary skills, experience and training certification specific to the work task (OMR 85-21, LER 1-93-07).

#### 4.5.3 Work Performance

- 4.5.3.1 With the exception of Emergency work and as noted in 1.2.5, personnel SHALL not perform maintenance, alter, change or modify plant equipment without an approved work document and authorization from the WSA.

- 4.5.3.2 IF the configuration of the equipment does not match the configuration of the work documents, THEN notify the Work Supervisor (SPR 910484; DR 91-027; SER 84-069).

- 4.5.3.3 The Work Supervisor reviews Work Packages prior to work performance to ensure the package is "Task Ready". This includes (LER 2-91-010):

- Sufficient information and direction is contained to support work performance by qualified craftsmen.
- Activities which have been evaluated as a risk potential, are pre-job briefed and directly supervised as described in Addendum 5.
- Required permits and clearances are in order.
- Parts are available.
- Documents, or appropriate extracts, listed in the implementing reference section are in the package and are the latest revision.

- 4.5.3.4 The Work Supervisor SHALL evaluate the need to conduct a pre-job brief prior to work start (SPR 910422, IR 93-03).

4.5.3.5 IF during work in progress, a discrepancy is discovered that is not within the Scope or Intent of the work document, THEN a revision and/or a Condition Report is written.

- Changes, revisions, additions or modifications to work documents are accomplished in accordance with Steps 4.4.5.4 or 4.4.5.5.

4.5.3.6 IF conditions prevent performance of a PM, THEN the following actions are performed as required:

- IF the cause is apparent, (ie., broken part, leaking fitting, etc.) THEN make a one time change to the PM to allow completion of the PM (SPR 933531).
- IF the cause is NOT apparent, THEN correct the condition using OPMP01-ZA-0041, to allow completion of the PM (SPR 933531).
- IF a change to the work instructions is required due to a temporary condition, THEN the Work Supervisor is authorized to make "Pen and Ink Changes" to the PM in accordance with 4.4.5.4.
- For condition(s) that will affect the next performance of the PM (ie., changes to the PM work instructions are required), a Feedback SHALL be initiated.

4.5.3.7 A "Working Copy" MAY be used under certain conditions such as work in a contamination area or in areas where oil, water, etc. could damage the original Work Package or if multiple crews are used to complete the activity.

- A "Working Copy" MAY also be used to continue work while the original work package is being revised if the revision will not impact the work being performed.
- Following completion of work, all data, work information, signatures, initials and dates from the "Working Copy" SHOULD be transcribed to the original work document and the "Working Copy" properly discarded/destroyed. QC signatures SHALL be transcribed by QC personnel.

- 4.5.3.8 IF the work document contains a hold point or verification point, THEN the craft ensures the appropriate group is notified and the hold or verification point is complete prior to continuing the work (SPR 870304).
- 4.5.3.9 Proper documentation of work performed is the responsibility of the craft performing the work. Work documentation includes, but is not limited to:
- Detailed as-found, as-left, difficulties in job completion, and/or potential failure mechanism. Repeating the Work Instructions or procedure steps is not required.
  - Start/completion times/dates
  - Parts and material information that provide pertinent equipment historical data not detailed in the job step.
- 4.5.3.10 The back-dating of any work document is prohibited. Late entries MAY be made by the Performer or the Supervisor by stating the entry is a "Late Entry" and using the date the activity occurred. The entry SHALL then be initialed and dated by the person making the late entry, using the date the late entry is made (Speakout 12266).

4.5.4 Work Completion

- 4.5.4.1 Work Package SHOULD not be considered complete unless the equipment is in design configuration (e.g., approved drawing, approved engineering documents, etc.).
- 4.5.4.2 Upon completion of the work, the Work Supervisor ensures the following:
- Review of the Work Package to verify signatures, signoffs and summary documentation are complete and correct.
  - Part retention requirements for Root Cause Analysis are evaluated for conditions identified as a CAQ-S or SCAQ, with assistance from Engineering as required.
  - All required QC inspections are performed.

- Work areas are restored to original cleanliness or better.
- Deficiency tag is removed and discarded.
- The revision level of the documents used is verified. IF a revision change occurred, THEN an evaluation is performed to determine if the revision invalidated the work performed and the need for revising the Work Package (ISEG RPT 9-87; DR 89-07).
- IF the Work Group used References that were not listed in the Reference Section, THEN the Work Supervisor ensures the References used are added to the Reference Section.
- All specified tests have been completed, a technical justification for not performing the PMT is provided in the Work Package, or document performing the PMT is referenced in the work package prior to the WO being complete.

#### 4.5.5 Maintenance Shift Turnover

- 4.5.5.1 Shift turnovers, written or oral, are conducted such that essential information is transferred in a timely and accurate manner (IEN 86-007).
- Work Packages are updated to reflect current work status, necessary turnover instructions, problems encountered or any other important information about the job.
  - As a minimum, a review of the latest sequence of completed/documented Work Instruction steps are done at turnover.

#### 4.5.6 Work Start Authority Review

- 4.5.6.1 The WSA reviews the package for:
- Work completion.
  - Post-Maintenance, Post-Modification test completion.



- The OWCG/on duty SRO will evaluate/specify the OPERABILITY testing requirements.

4.5.6.2 The WSA will update package status and forward the package to WPCC for closure.

4.6 Work Package Closure is the final phase of the Work Process Program. The WPCC is responsible for preparing the Work Package for final review and record retention.

4.6.1 WPCC SHOULD remove and destroy documentation not required for retention. Documentation required to be retained with the package and forwarded for retention includes, but is not limited to, all documentation that contain sign-offs, initials or M&TE data. Retrievable documents must be referenced in the Work Package but need not be kept as part of the package.

4.6.2 WPCC updates the Work Package status in WMS and forwards Work Packages to Engineering for final review/equipment history.

## 5.0 References

5.1	OWCG Guide	
5.2	Planner's Guide	
5.3	Scheduler's Guide	
5.4	WPCC Guide	
5.5	INPO 90-023	Maintenance Work Package Planning
5.6	INPO 92-001	Guidelines for the Conduct of Maintenance at Nuclear Power Stations
5.7	OPGP03-ZA-0010	Performing and Verifying Station Activities
5.8	OPGP03-ZA-0109	Configuration Management Program
5.9	OPGP03-ZM-0002	Preventive Maintenance Program
5.10	OPGP03-ZM-0021	Control of Configuration Changes
5.11	OPGP03-ZM-0025	Post Maintenance Testing Program
5.12	OPGP03-ZX-0002	Condition Reporting Process
5.13	OPMP01-ZA-0041	Troubleshoot and Rework Process

## 6.0 Support Documents

6.1	Addendum 1	Condition Report Completion
6.2	Addendum 2	Work Process Priorities
6.3	Addendum 3	Rover/Minor Maintenance Guidelines
6.4	Addendum 4	Priority 1 and 2 Work Activity Action Plans
6.5	Addendum 5	Work Risk Assessment
6.6	Addendum 6	Work Process Flowchart

ADDENDUM 1  
CONDITION REPORT WORK ORDER EVALUATION  
(Page 1 of 2)

**WORK ORDER EVALUATION**

PRIORITY	Enter the priority assigned to this activity.
OTL #	Enter the OTL number (if assigned from the appropriate unit's control room OTL log.)
LCO EXP DATE/TIME	If the identified condition or problem has placed the unit in an LCO situation, enter the date/time by which the condition must be corrected to mitigate additional actions.
WSA	Enter the acronym for the appropriate Work Start Authority for the system (component).
MODE	Enter the applicable Mode which the activity may be worked in or is required to be worked in (Select modes 1 through 6, any combination of 1 through 6, Defueled or all).
SPECIAL PROGRAM	Enter the special program code (if one applies to the equipment and its condition). These codes are used to group special interest, significant/important activities. (MCB,JAFO,IAFT,CHM)
NEED DATE	Enter the need date which drives the planning, material procurement and scheduling of this activity. (This date SHOULD be established to support any identified commitments or as determined from a review of the scheduling cycle for the affected system/component and the priority.)
LCO (Y/N)	Enter Yes or No indicating if the problem described or the intended maintenance places the unit in an LCO.
WAN	Enter the WAN (work activity number) assigned by WMS for the Work Order after entry into WMS.
FCD MLST	Enter the appropriate Milestone code from the milestone coding chart.
WORK GROUP	Enter the lead Maintenance craft assigned to perform the work. Refer to the Maintenance Department divisional responsibility matrix.

ADDENDUM 1  
CONDITION REPORT WORK ORDER EVALUATION  
(Page 2 of 2)

**WORK TYPE** Enter the code for the type of work activity identified by the defect/request block. These codes include C-Corrective, P-Preventive, M-Modification and S-Support.

Select one of the action choices from the block.

**VOID** - Return the CR to the Originator with comments.

**WORK ORDER** - Enter the CR into WMS and plan as a Work Order.

**MINOR MAINT.** - Process the CR as Rover/Minor Maintenance.

**INVALID** - Return the CR to the Originator with justification/comments.

**COMMENTS/  
RECOMMENDATION:** Enter significant recommendations, observations and investigation (e.g., system, train or component taken out of service due to deficiency, etc). This block MAY also be used to document actions taken under minor work activities.

IF THE ACTIVITY IS PERFORMED AS MINOR WORK THE WORK SUPERVISOR ENSURES THE FOLLOWING FIELDS ARE COMPLETED.

**START** Print the name of the WSA contacted prior to performing the activity as minor work and the date/time of the contact.

**#PERSON** Enter the ideal number of craft personnel required to perform the activity.

**CLOSEOUT  
SIGNATURE** Sign and date to indicate that all work performed under this CR as minor work was adequately documented and the minor work activity has been reviewed and completed.

**COMPL** Print the name of the WSA contacted upon completion of the minor work activity and the date/time of the contact.

**HOURS** Enter the total number of craft person hours expended to perform the activity as minor work.

**DISCOVERY CODES**

STATUS CODES

SYSTEM  
A - IN SERVICE  
(OPERATING/STANDBY)  
B - IN TEST  
C - IN MAINTENANCE  
D - OUT OF SERVICE(NOT IN  
MAINTENANCE)

TRAIN  
E - IN SERVICE  
(OPERATING/STANDBY)  
F - IN TEST  
G - IN MAINTENANCE  
H - OUT OF SERVICE (NOT IN  
MAINTENANCE)

SYMPTOM CODES

A - PHYSICAL FAULT  
B - OUT OF SPECIFICATION  
C - DEMAND FAULT  
D - ABNORMAL  
CHARACTERISTIC  
E - RELEASED LEAKAGE  
F - CONTAINED LEAKAGE  
N - NOT APPLICABLE

DETECTION CODES

A - OPERATIONAL ABNORMALITY  
B - IN-SERVICE INSPECTION  
C - SURVEILLANCE TESTING  
D - PREVENTIVE MAINTENANCE  
E - SPECIAL INSPECTION  
F - AUDIOVISUAL ALARM  
H - ROUTINE OBSERVATION  
J - INCIDENTAL OBSERVATION  
K - CORRECTIVE MAINTENANCE  
O - OTHER (USE ONLY IF NOT A  
FAILURE)

ADDENDUM 2  
WORK PROCESS PRIORITIES  
(Page 1 of 1)

This priority system provides guidance for determining the appropriate schedule for activities within the Work Process.

EMERGENCY

Emergency maintenance actions required to be performed immediately to prevent or mitigate the consequences of an accident, prevent the release of radioactive material to the environment or to protect human life and/or property. Emergency maintenance is performed at the discretion of the Shift Supervisor/Emergency Director and MAY start without an approved work package. Emergency Maintenance SHOULD only be used during Emergency Plan events (SPR 930125).

PRIORITY 1

Actions required to restore a system or function to OPERABLE status to decrease the risk of radiation exposure, eliminate a personnel safety hazard, return the plant to full power operation, or satisfy a Tech Spec Limiting Condition for Operation (LCO) action statement. The work SHOULD continue until completed or until the circumstances requiring the priority action no longer applies.

PRIORITY 2

Actions required to mitigate or resolve equipment or component problems which restrict the desired level of plant operation. Priority 2 SHOULD be used only for important activities that must override the normal work schedule.

PRIORITY 3

Actions assigned and coordinated on a routine basis. Priority 3 SHALL be assigned to corrective work that supports plant operations. Priority 3 work MAY be further governed by a scheduling milestone.

PRIORITY 4

Activities which do not impact plant operation or prevent accomplishment of program events or milestones (e.g., rework of non-essential or non-plant equipment, painting, inspections, etc.).

PRIORITY 5

Activities which can be deferred (e.g., outage activities, modifications, activities on hold for budgetary purposes, etc.). Preparatory or prerequisite activities which support a Priority 5 item SHOULD be assigned the priority necessary to provide the required level of support.

ADDENDUM 3  
ROVER/MINOR MAINTENANCE GUIDELINES/CRITERIA  
(Page 1 of 2)

The Rover process is a method by which relatively simple maintenance tasks can be accomplished. Tasks of this nature typically do not require detailed work instructions. This process utilizes the skill/certification of the individuals assigned, in conjunction with specific criteria, to determine when maintenance MAY be implemented via a Minor Maintenance or OPMP01-ZA-0041 Work Package (SPR 933531).

Maintenance implemented via the Rover/Minor Maintenance Process is not required to be scheduled. Rover/Minor maintenance work is used to increase process efficiency by allowing qualified/certified technicians to implement the work directly. Rover/Minor maintenance expedites the work process and ensures that work is available (i.e., discretionary/fill in) should the scheduled activities not be performed as planned.

New Condition Reports are evaluated by the OWCG staff to determine their applicability to the Rover/Minor Maintenance process. If the item can be worked as Minor Maintenance as defined in 2.7, the CR itself can be used to document the work performed including parts used. The controlling document for a OPMP01-ZA-0041 Work Package is the CR.

Rover Work Packages MAY be used to perform maintenance activities within the following limitations:

- The task SHALL be within the skill/certification level of the individual assigned technician(s).
- The scope of work does not require testing in accordance with Generic Letter 89-10 Program.
- The scope of work does not require testing in accordance with the ASME XI Inservice Testing Program.
- Minimal coordination is required (scaffold, ECO, etc.)

ADDENDUM 3  
ROVER/MINOR MAINTENANCE GUIDELINES/CRITERIA  
(Page 2 of 2)

Processing a Rover Condition Report:

- Evaluate the CR for Rover/Minor Maintenance criteria compliance.
- If the CR fits the Rover/Minor Maintenance criteria, annotate the CR in WMS as a Rover/Minor Maintenance. For a Rover Work Package, attach the CR to the OPMP01-ZA-0041 Work Package. For Minor Maintenance, the work MAY be documented directly on the CR. For both Rover and Minor Maintenance, status the CR in accordance with the WMS status codes.
- Route/Notify QC for inspection planning per OPMP01-ZA-0041.
- If the problem is corrected under the Rover/Minor Maintenance, process the CR through closure.
- If the problem is not corrected under the Rover/Minor Maintenance, then the original CR SHOULD be forwarded to planning with comments addressing the recommended actions.



ADDENDUM 4  
PRIORITY 1 and 2 WORK ACTIVITY ACTION PLANS  
(Page 1 of 3)

PRIORITY 1 & 2 CONDITION REPORT ACTION PLANS

The proper and expedient completion of Priority 1 & 2 Condition Reports is essential to efficient operation of the Plant. Therefore, Priority 1 & 2 work activities require additional review and coordination. The attached checklist is designed to provide a clear understanding of the impact on the Plant and to develop a plan of action that will ensure expedient completion of Priority 1 and 2 activities.

Each Priority 1 & 2 Condition Report will require Operations to initiate the Operations Impact Checklist; and communicate with the Planner and Maintenance Supervisor to develop expectations, a plan of action and a task owner. The plan of action SHOULD include a need date, special coordination of activities and a fragnet if deemed necessary.

These actions will help ensure Priority 1 & 2 activities are effectively communicated and completed as soon as possible to minimize impact on the plant.

ADDENDUM 4  
PRIORITY 1 and 2 WORK ACTIVITY ACTION PLANS  
(Page 2 of 3)

(SAMPLE)  
**PRIORITY 1 & 2 ACTION PLANS**

Management Expectation:

- Completion of Operations Impact Checklist
- Plan of Action Meeting Completion

1. *Review by Operations, Planner, Maintenance Supervisor of Priority 1 & 2 issues*

- Operations needed start Date/Time \_\_\_\_\_
- Operations impact
  - LCO  Expiration Date/Time \_\_\_\_\_
  - Licensing Agreement
  - Management Initiative
  - Power Reduction Required
  - Power Production Efficiency
  - Health/Safety Concerns
  - Environmental Impact
  - Management Notification
  - Reactor Trip/ESF Potential
- Planning estimated work package preparation completion date/time: \_\_\_\_\_
- Planning evaluate/estimate parts availability: \_\_\_\_\_
- Discuss potential contingency plans, factor worst case scenario/factor best case scenario.  
Comments: \_\_\_\_\_
- Discuss anticipated Maintenance and Operations Testing.  
Comments: \_\_\_\_\_
- Implementing craft estimated work start date/time: \_\_\_\_\_
- Consider Craft certification, Ops needs, resource availability, coordination with other craft, Engineering support, QC support, vibration, ECO, scaffold, insulation etc.
- Work around the clock?  (Check applicable)
  - Day shift only?
  - Weekends?
  - Call outs?

ADDENDUM 4

PRIORITY 1 and 2 WORK ACTIVITY ACTION PLANS

(Page 3 of 3)

(SAMPLE)  
**PRIORITY 1 & 2 ACTION PLANS**

2. *Schedule plan of action based on impact from item #1.*

- Fragnet worst case scenario.
- Overlay best case scenario.
- Overlay anticipated plan of action.
- Allow time for all work expected to require one (1) hour or greater (eg. briefings, ECO, scaffold, insulation, PMT, vibration, engineering hold points, QC hold points, shift turnover).
- Factor durations based on resource availability including RPO, RO, MSSD, Crafts, Supervisors, etc.
- Flag field work start, field work complete, PMT complete, LCO exit, power resumption, event termination.
- Assign task owners by name, extension numbers, beepers for each scheduled activity.
- Assign the overall owner by name, organization, phone number, beeper.

ADDENDUM 5  
WORK RISK ASSESSMENT

(Page 1 of 6)

Activities which may challenge or present a risk to the operation or safe shutdown of the plant SHALL be evaluated to provide a high degree of assurance that the activity is planned, scheduled and executed in a manner that minimizes risk (LER 1-94-011).

Table 1 identifies the systems/procedures with risk potential. Activities associated with these systems/procedures SHALL be evaluated in accordance with the "Work Risk Assessment" screening form. This form accompanies the Work Package through activity implementation. Once the activity has been satisfactorily completed, the form SHOULD be forwarded to the appropriate Operations Manager with any comments.

Activities which are deemed a risk are subject to the following requirements:

1. Pre-job briefing in the Control Room in accordance with the "Actuation Risk Briefing Checklist" (required for Low, Medium and High Risk)
2. Direct/Field Supervision (required for High Risk)
3. Operations Manager approval (required for High Risk)

ADDENDUM 5  
WORK RISK ASSESSMENT  
 (Page 2 of 6)

TABLE 1

SYSTEM	SYSTEM NAME	SYSTEM	SYSTEM NAME
AC	CLOSED LOOP AUXILIARY COOLING WATER	DG	STANDBY DIESEL GENERATOR (MECHANICAL)
AF	AUXILIARY FEEDWATER	DG	STANDBY DIESEL GENERATOR (ELECTRICAL)
AN	ANNUNCIATOR	DI	STANDBY DIESEL COMBUSTION AIR INTAKE
BS	7300 PROCESSOR SUPPORT	DJ	125V DC CLASS 1E
CC	COMPONENT COOLING WATER	EH	ELECTRO-HYDRAULIC CONTROLS
CD	CONDENSATE	EW	ESSENTIAL COOLING WATER & ECW SCREEN WASH
CH	ESSENTIAL CHILLWATER ONLY	FC	SPENT FUEL POOL COOLING & CLEANUP SYSTEM & REACTOR CAVITY FILTRATION SYSTEM
CM	CONTAINMENT MONITORING	FP	FIRE PROTECTION-FOAM WATER
CP	CONDENSATE POLISHER	FP	FIRE PROTECTION-HALON
CR	CONDENSER AIR REMOVAL	FW	FEEDWATER
CS	CONTAINMENT SPRAY	FW	FEEDWATER SYSTEMS TURBINES & PUMPS ONLY, INCLUDES SGFPT CONTROL SYSTEM
CV	CHEMICAL & VOLUME CONTROL	GC	STATOR COOLING WATER
CW	CIRCULATING WATER	GE	MAIN GENERATOR EXCITER
DA	125V DC NON-CLASS 1E	GM	MAIN GENERATOR (W/O AUXILIARIES)
DB	DIESEL GENERATOR (BOP, TSC & EOF)	GS	TURBINE GLAN SEAL
DC	250V DC NON-CLASS 1E	HB	HVAC-CONTROL ROOM
DE	48V DC NON-CLASS 1E	HC	HVAC-CONTAINMENT BUILDING

ADDENDUM 5  
WORK RISK ASSESSMENT

(Page 3 of 6)

TABLE 1

SYSTEM	SYSTEM NAME	SYSTEM	SYSTEM NAME
HF	HVAC-FUEL HANDLING	PG	13.8 KV EMERGENCY POWER
IA	INSTRUMENT AIR	PK	4 K VAC CLASS 1E POWER
II	INCORE INSTRUMENTATION	PL	480 VAC CLASS 1E LOAD CENTERS
JW	STANDBY DIESEL GENERATOR JACKET WATER	PM	480 VAC CLASS 1E MCC & DISTRIBUTION PANELS
LP	FEED PUMP TURBINE LUBE OIL SYSTEM	RA	RADIATION MONITORING
LT	MAIN TURBINE LUBE OIL SYSTEM	RC	REACTOR COOLANT
LU	STANDBY DIESEL GENERATOR LUBE OIL	RH	RESIDUAL HEAT REMOVAL
MS	MAIN STEAM	RI	DIGITAL ROD POSITION INDICATION
NI	NUCLEAR INSTRUMENTATION (NEUTRON FLUX)	RS	ROD CONTROL
NN	ISO-PHASE BUS, NON-SQNC BUS VAT, GEN C/B	SD	STANDBY DIESEL GENERATOR STARTING AIR
OC	OPEN LOOP AUXILIARY COOLING	SF	ENGINEERED SAFETY FEATURES ACTUATION
PA	STANDBY TRANSFORMER	SI	SAFETY INJECTION
PB	MAIN & AUXILIARY TRANSFORMERS INCLUDING GEN GCB & BUS DUCT COOLING	SM	ESF STATUS MONITORING
PC	13.8 K VAC AUXILIARY POWER	SP	SOLID STATE PROTECTION
PD	4 K VAC NON-CLASS 1E	TM	MAIN TURBINE
PE	480 VAC NON 1E LOAD CENTERS	VA	120 VAC CLASS 1E VITAL POWER
PF	480 VAC NON 1E MCC & DISTRIBUTION PANNELS	VC	120 VAC NON 1E VITAL POWER



**ADDENDUM 5**  
**WORK RISK ASSESSMENT**  
(Page 4 of 6)

**TABLE 2**

OPERATIONS DEPARTMENT SURVEILLANCES	
PROCEDURE NUMBER	DESCRIPTION
OPSP03-CS-0001	CONTAINMENT SPRAY PUMP TESTS
*PSP03-CS-0002 THRU PSP03-CS-0006	CONTAINMENT SPRAY PUMP TESTS
OPSP03-FW-0001	FEEDWATER SYSTEM VALVE OPERABILITY TEST
OPSP03-MS-0001	MAINSTEAM SYSTEM VALVE OPERABILITY TEST
OPSP03-MS-0003	MAIN TURBINE INLET VALVE OPERABILITY
*PSP03-SB-0001	STEAM GENERATOR BLOWDOWN SYSTEM VALVE OPERABILITY TEST
OPSP03-SP-0005R	SSPS LOGIC TRAIN R FUNCTIONAL TEST
OPSP03-SP-0005S	SSPS LOGIC TRAIN S FUNCTIONAL TEST
OPSP03-SP-0006R	TRAIN R REACTOR TRIP BREAKER TADOT
OPSP03-SP-0006S	TRAIN S REACTOR TRIP BREAKER TADOT
OPSP03-SP-0007A, B, C	SSPS ACTUATION TRAIN MASTER RELAY TESTS
OPSP03-SP-0008A, B, C	SSPS TRAIN SLAVE RELAY TESTS, OUTPUTS BLOCKED
OPSP03-SP-0009A, B, C	SSPS ACTUATION TRAIN SLAVE RELAY TESTS
OPSP03-SP-0010A, B, C	TRAIN DIESEL SEQUENCER MANUAL LOCAL TESTS
OPSP03-SP-0011A, B, C	TRAIN DIESEL GENERATOR SLAVE RELAY TESTS
OPSP03-NI-0001	DAILY POWER RANGE CHANNEL CALIBRATION
OPOP07-TM-0001	TURBINE OVERSPEED TEST MONTHLY
ENGINEERING SURVEILLANCES	
PROCEDURE NUMBER	DESCRIPTION
OPSP10-RC-0001	RCS FLOW DETERMINATION

ADDENDUM 5  
WORK RISK ASSESSMENT SAMPLE  
(Page 5 of 6)  
(SAMPLE)  
WORK RISK ASSESSMENT

C/PM/PROCEDURE NO. \_\_\_\_\_ SYSTEM \_\_\_\_\_ UNIT \_\_\_\_\_

WAN NO. \_\_\_\_\_ COMPONENT \_\_\_\_\_

MODE: \_\_\_\_\_ POWER: \_\_\_\_\_

Does this activity:

YES/NO INITIALS

- 1) Require any bistables tripped? \_\_\_\_\_
- 2) Affect a circuit that inputs to a Reactor trip, Turbine trip or ESF actuation? \_\_\_\_\_
- 3) Affect equipment in more than one train at a time? \_\_\_\_\_
- 4) Affect systems that if lost could result in a Reactor trip, Turbine trip or ESF actuation? \_\_\_\_\_
- 5) Will be performed by NON-Certified Technicians? \_\_\_\_\_

SCREENED BY \_\_\_\_\_ DATE \_\_\_\_\_  
Work Supervisor

IF ANY OF THE ABOVE ANSWERS ARE YES, the WORK START AUTHORITY SHOULD COMPLETE THE FOLLOWING:

REACTOR TRIP POTENTIAL	LOW	___	MEDIUM	___	HIGH	___	NONE	___
TURBINE TRIP POTENTIAL	LOW	___	MEDIUM	___	HIGH	___	NONE	___
ESF ACTUATION POTENTIAL	LOW	___	MEDIUM	___	HIGH	___	NONE	___

COMPENSATORY ACTIONS IF REQUIRED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CONTROL ROOM PRE-JOB BRIEF REQUIRED YES \_\_\_\_\_ NO \_\_\_\_\_  
(Required for Low, Med. & High Risk)

DIRECT SUPERVISION REQUIRED (Required for HIGH RISK) YES \_\_\_\_\_ NO \_\_\_\_\_

APPROVED \_\_\_\_\_ / \_\_\_\_\_ Work Start SRO  
DATE

APPROVED \_\_\_\_\_ / \_\_\_\_\_ SHIFT SUPERVISOR

DATE (Required for Low, Medium and High Risk)

APPROVED \_\_\_\_\_ / \_\_\_\_\_ OPS MANAGER

DATE (Required for High Risk)

NOTE:

- 1. Operations SHOULD attach this sheet to the front of the work package/procedure submitted for approval to start work.

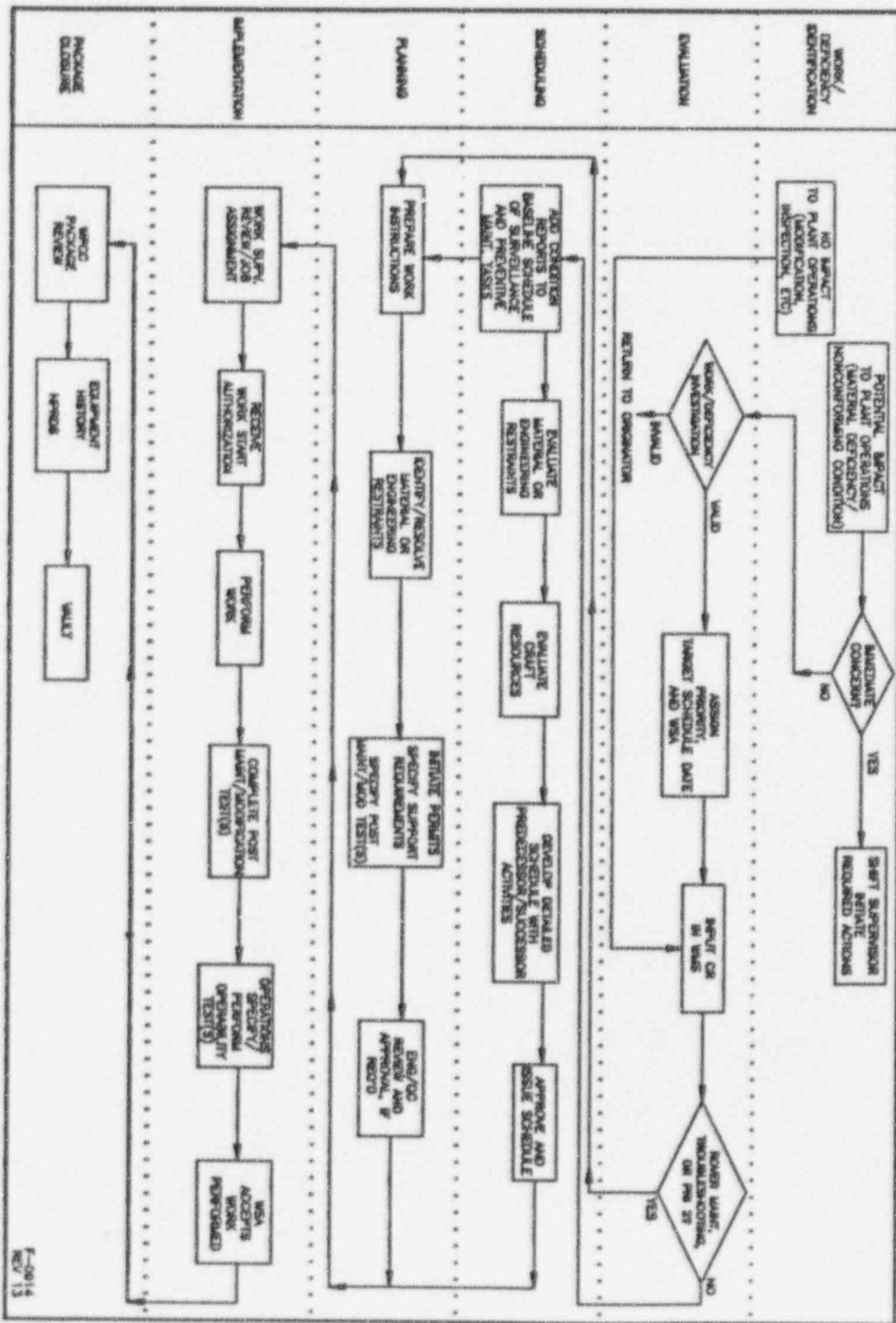
ADDENDUM 5  
WORK RISK ASSESSMENT  
(Page 6 of 6)

Actuation Risk Briefing Checklist:

The supervisor responsible for the activity SHOULD discuss the following items with the crew performing the activity (Ensure the On-Shift crew is represented in the briefing).

- The scope of the activity to be performed.
- The potential actuation(s) that could occur during the performance of this activity.
- The critical manipulations or steps in the activity when the actuation could occur.
- The barriers in place to prevent the actuation from occurring and any additional barriers that may be needed.
- The communication network used to control the pace and communicate the status of the activity.
- The Command and Control function of the activity supervisor.
- The activity termination criteria and potential contingency actions if an actuation occurs.
- The impact the activity performance could have on other concurrent activities or plant conditions.
- Any compensatory measures to be taken to minimize the risk. Assign responsibility for these actions, as appropriate.

**ADDENDUM 6**  
**WORK PROCESS FLOWCHART**  
 (Page 1 of 1)



F-0814  
REV 13

320 Civil

SIP 466 (04/93)  
REV 3

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

OPGPO3-ZX-0002

# STATION PROBLEM REPORT

CAG \_\_\_\_\_ CATEGORY  1  2  3  4  5  6 SPR NO. 940567

## PART 1: IDENTIFICATION OF CONCERN

A. UNIT #  1  COMMON INITIATED: NAME R.E. Pierce DEPT I SEG  
 2  BOTH POSITION Staff Engr PHONE NO. 8012  
DATE 3-3-94 TIME 9:45 AM  
DISCOVERY: DATE 3-3-94 TIME 9:45 AM  
EVENT: DATE \_\_\_\_\_ TIME \_\_\_\_\_  
IMMEDIATE SUPERVISOR: M.W. Dannhardt DATE \_\_\_\_\_ TIME \_\_\_\_\_  
SIGNATURE (NOT REQUIRED)

COMMENTS Received FAX transmittal from Whiting Corporation (Dan Zimbrick). FAX attached.

B. PROBLEM DESCRIPTION  
Whiting Corporation recommends discontinuing the use of the U-1/U-2 polar crane main hoist trolley because they have found significant overstress problems in bolted connections on this equipment at another plant having similar design.

This announcement was made by Whiting Corporation in accordance with the requirements of 10 CFR 21.

C. IMMEDIATE COMPENSATORY OR REMEDIAL ACTIONS TAKEN [ ] CONTINUATION SHEET ATTACHED  
The following personnel were immediately notified:  
1) Shift Supervisors in both units.  
2) Design Engineering Civil/Structural & VETIP  
3) Licensing  
4) Mechanical Maintenance  
5) System Engineer.

D. IDENTIFICATION [ ] CONTINUATION SHEET ATTACHED  
SYSTEM JC COMPONENT NAME Containment Polar Crane  
COMPONENT NO. 7C101 NCP 101 A BLDG RCB ROOM -  
& 7C102 NCP 201 A

### INSTRUCTIONS FOR PART 1 COMPLETION

DESCRIBE YOUR CONCERN GIVING AS MUCH INFORMATION AS POSSIBLE. FILL IN ALL APPLICABLE SECTIONS OR ATTACH DOCUMENTATION. INDICATE WHAT, WHEN, WHO, WHY, WHERE, HOW. LIST ANY REFERENCES.

DESCRIBE ALL IMMEDIATE COMPENSATORY/REMEDIAL ACTIONS TAKEN

NOTE: IF POTENTIALLY REPORTABLE, OR IF ANY DOUBT EXISTS REGARDING REPORTABILITY, THEN DELIVER IMMEDIATELY TO THE SHIFT SUPERVISOR. OTHERWISE, DELIVER TO THE CAG ADMINISTRATOR.

ORIGINATOR

**PART 2: REPORTABILITY**

	MODE	Rx Power	Rx Press	Rx Temp	Trip T
A. UNIT 1	4	0	275	340	N/A
UNIT 2	Defueled	-	-	-	-

ESF ACTUATION N/A INITIATING SIGNAL N/A

**B. OPERABILITY/REPORTABILITY DETERMINATION**

OPERABILITY REVIEW REQUIRED [ ] WITHIN 24 HOURS [ ] OTHER (See Comments)

[ ] REPORTABLE PER \_\_\_\_\_ WITHIN \_\_\_\_\_  
LAW/PERMIT/LICENSE TIME:HOURS

[ ] REPORTABILITY REVIEW REQUIRED [ ] NOT REPORTABLE

COMMENTS Due by 1600 hrs on 3-10-94

**NOTIFICATIONS**

DUTY PLANT MANAGER [ ] N/A PERSON CONTACTED L. MYERS DATE/TIME 3-3-94/1340 INITIALS DM

NRC RESIDENT INSP [ ] N/A PERSON CONTACTED \_\_\_\_\_ DATE/TIME \_\_\_\_\_ INITIALS \_\_\_\_\_

NRC OPS CENTER [ ] N/A PERSON CONTACTED \_\_\_\_\_ DATE/TIME \_\_\_\_\_ INITIALS \_\_\_\_\_

OTHER [ ] N/A PERSON CONTACTED H. SWITZERWORTH DATE/TIME 3-3-94/1340 INITIALS DM

SHIFT SUPERVISOR DM DATE/TIME 3-3-94/1340

**C. REPORTABILITY REVIEW**

[ ] REPORTABLE PER \_\_\_\_\_ WITHIN \_\_\_\_\_ [ ] NOT REPORTABLE  
LAW/PERMIT/LICENSE TIME:HOURS

LICENSING REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_

D. WRITTEN REPORT TO NRC TYPE \_\_\_\_\_ DUE DATE \_\_\_\_\_

**PART 3: ACTION ASSIGNMENT**

CAG RECEIVED DATE 3/4/94 TIME 0702  
EVENT CODES EKIF

DEPARTMENT DED/CIVIL ACTION INVESTIGATION DUE 4-3-94

DEPARTMENT DED ACTION OPERABILITY DUE 2-10-94/1600

DEPARTMENT DED ACTION REPORTABILITY DUE 3-10-94/1340

**PART 4: ACTIONS TO BE COMPLETED**

[Remedial/Compensatory (R) or corrective (C)]

PRIORITY \_\_\_\_\_ DUE DATE \_\_\_\_\_ APP. AUTHORITY \_\_\_\_\_ DATE \_\_\_\_\_

PRIORITY \_\_\_\_\_ DUE DATE \_\_\_\_\_ APP. AUTHORITY \_\_\_\_\_ DATE \_\_\_\_\_

CATE 5 CLOSURE APPROVAL AUTHORITY \_\_\_\_\_ DATE \_\_\_\_\_ OA/OC \_\_\_\_\_ DATE \_\_\_\_\_

CATE 5/6 CLOSURE CAG \_\_\_\_\_ DATE \_\_\_\_\_ [ ] CONTINUATION SHEET ATTACHED

SHIFT SUPERVISOR LICENSING

CAG

CAG/OA/OC/APPROVAL AUTHORITY





# WHITING CORPORATION

15700 LATHROP, HARVEY, IL 60426-5198 • (312) 468-9400 • FAX: (312) 785-0755 • TELEX: 25-3274

March 2, 1994

VIA FAX: (512) 972-8298

**HOUSTON LIGHT & POWER**  
South Texas Project  
8 Miles West of Wadsworth on FM 521  
Wadsworth, Texas 77483

Attention: J. Joe Sheppard, Manager Nuclear Licensing

Reference: Whiting Crane Serial Nos. 11256 and 11257

Dear Joe:

This letter is to inform you of a safety concern related to operation of the referenced crane(s).

On a crane of similar design to yours, an analysis revealed significant overstress on bolted connection points of the trolley main hoist components. These overstressed conditions can result in metal fatigue and failure. Failure at the connection points could cause a dropped load and components falling from the trolley. It is very likely that your crane has the same condition.

Serious accidents of this type are likely to result in personal injury or death to persons working in the area of the crane and cause significant property damage.

Whiting Corporation, a Delaware corporation, has no direct responsibility for the design of equipment sold in 1983 or earlier by Whiting Corporation, an Illinois corporation. We are, however, obligated to inform you concerning this serious safety problem in accordance with 10 CFR 21.

Until the time that analysis and any necessary repairs can be made, we recommend that you discontinue use of the main hoist on the referenced crane(s) to avoid the risk of a failure as previously described.

Whiting Corporation, a Delaware corporation, is willing to assist in repair of these trolleys by providing engineering, repair part bills of material, and field service supervision at a reasonable cost. In most cases the trolley can be repaired without a significant expenditure. In addition, Whiting Corporation may be able to assist in establishing a temporary derating for the crane to a capacity lower than originally specified.

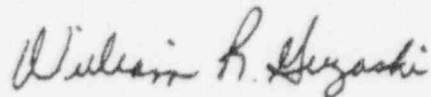
**WHITING CORPORATION**

J. Joe Sheppard  
March 2, 1994  
Page -2-

At your earliest convenience please contact Mr. Mark Kwasny,  
Customer Service Manager, at (312) 468-9400, extension 4020  
concerning specific repair requirements.

Very truly yours,

**WHITING CORPORATION**



William R. Guzaski  
Engineering Manager

# SPR SCREENING CRITERIA FOR START-UP ISSUES

EPR NUMBER 940567

YES	NO	CRITERIA
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the problem described in the SPR needed to comply with the STP Technical Specifications or other license commitments?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do the consequences of not correcting the problem affect the ability of a safety system to satisfy its design function?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do the consequences of not correcting the problem create or could create a condition that jeopardizes the safe or reliable operation of the Units?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do the consequences of not correcting the problem create or have the potential to create a condition that will or could affect the station's ability to effectively support unit operation or mitigate emergency situations?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the problem described in the SPR impact the reliability of the system to perform its design function?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the problem described in the SPR considered to be a mode restraint? (which mode - 1[], 2[], 3[], 4[], 5[])

If the answer to any of the above criteria is YES, the problem described in the SPR needs to be corrected prior to mode change or unit start-up, unless justification for deferral is provided.

COGNIZANT DEPT. [Signature]

OPERATIONS [Signature]

CAG DATABASE UPDATED Drenda Williams

DATE 3-7-94

## Houston Lighting &amp; Power Company

D<sup>2</sup>

OFFICE MEMORANDUM

March 09, 1994

To Unit 2 Shift Supervisor

ST-HS-HS-28111

From S. E. Thomas

File No.: Z23

Subject OPERABILITY REVIEW POLAR CRANE - SPR 94-0567

- References: 1) ST-HS-HS-28048, OPERABILITY REVIEW POLAR CRANE, Dated 3/4/94  
2) PCF 157308A

The previously issued operability review for the polar crane (Reference 1) allowed the use of the main hoist for 20 tons.

In evaluating the polar crane's capacity to accommodate the reactor head lift, Whiting has recommended that some bolts be changed out on a gear box on the main hoist. PCF 157308A was issued on March 9, 1994 to change out the bolts in Unit 2 as recommended by Whiting.

Upon completion of the bolt change out per the referenced PCF, DED recommends that the main hoist on the Unit 2 polar crane be considered operable for up to 310 ton lifts based on recommendation from Whiting. Lifting for additional loading is not recommended at this time.

DED will be working with Whiting to obtain the full rated capacity. DED will also be working with the System Engineering Department, the Maintenance Department and Whiting to evaluate the configuration on the Unit 1 polar crane. Both these actions to obtain the full load rating and Unit 1 evaluation will be accomplished via Corrective Action(s) to SPR 940567.

Should you have any questions, contact myself or R. L. Engen at extension 7162 or 7337 respectively.

RLE/hg

## ATTACHMENT

pc: T. H. Cloninger Unit 1 Shift Supervisor  
J. F. Groth J. P. Bleau  
L. W. Myers R. M. Attar  
G. L. Parkey D. W. Stonestreet  
J. J. Sheppard RMS Correspondence  
H. H. Butterworth R. G. Asbury  
W. M. Dowdy



## WHITING CORPORATION

15700 LATHROP, HARVEY, IL 80426-5198 • (312) 468-9400 • FAX: (312) 785-0755 • TELEX: 25-3274

March 8, 1994

Houston Lighting & Power Company  
South Texas Project Generating Station  
P.O. Box 289  
Wadsworth, TX 77483

Attention: Mr. Rob Engen  
Manager Design Engineering Dept.  
(Fax. 512-972-8041)

Subject: Reactor Building Polar Cranes (Units 1 & 2)  
S/N 11256 & 11257  
500/15 Ton Capacity  
Built on Whiting Reqn. 68918-30 (1976)  
Trolley bolted connections related to a  
10 CFR Part 21 notification.  
Main Hoist Unit Replacement Bolts

Dear Mr. Engen:

As requested, attached are a set of marked drawings (U-77587 & U75473) and copies of the pages in Whiting's Bill of Materials (BOM) (Reqn. 68919, page 13 of 126, and Reqn. page 13 of 126) which identifies the Main Hoist Unit support bolts that were in question.

HL&P's letter to Whiting (dated 3/8/94) states that an inspection on crane S/N 11256 (unit 2) discovered that at each of the four corners of the main hoist unit (gear box), one of the two bolts is marked as an A325 bolt and the other is not marked. This is contrary to what is specified in Whiting's BOM, which specifies all eight bolts to be A325 (see attached BOM).

Therefore, based on this information and the results of an engineering review, it is recommended that for the scheduled lift of 310 Tons on 3/10/94, the two hoist unit support bolts in the corner identified as '1' on the attached marked drawing U-77587, be replaced with A325 bolts (3/4" diameter 2-1/2" or 2-3/4" long) on crane S/N 11256. Since these bolts are in tolerance holes, the replacement bolts must be tolerance bolts (see attachment L-2695-1). When installing them, the bolts should be torqued to 200 to 230 foot-pounds. The bolts in the other three corners need not be replaced at this time, but they should be checked for tightness (200 to 230 foot-pounds of torque for A325 bolts and 130 to 150 foot-pounds of torque for the unmarked bolts). In the future, the remaining unmarked bolts will need to be changed before using the main hoist for loads greater than 310 Tons.

Also, before using the main hoist on crane S/N 11257 (unit 1) an inspection of the sheave nest bolts, bearing support bolts and the main hoist unit bolts (all previously identified) will need to be performed and the proper corrective action taken before using it to lift a load. This inspection and the expected corrective action should be similar to the action taken on crane S/N 11256.

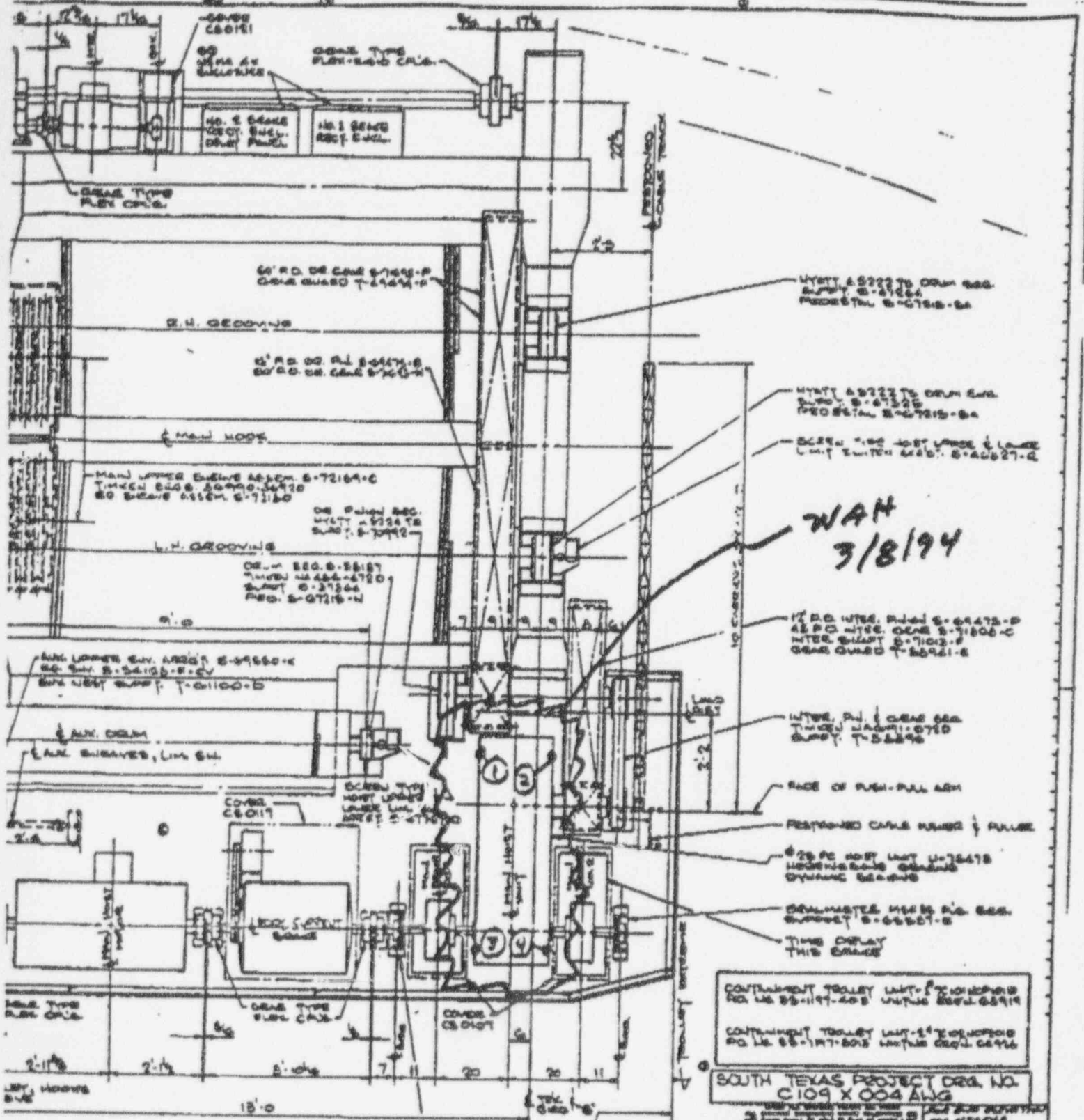
Sincerely,

*Wm Horwath*

William A. Horwath, P.E.  
Engineering Supervisor  
Engineering Analysis Group

pc: R. Norby  
M. Kwasny  
E. Guzaski/QA File  
.. Teggelaar  
C. Skorpinski  
S. Pendrick/Engr File  
E. Toretta (WSI)  
M. White (WSI)  
file





WAM  
3/8/94

CONTAINMENT TROLLEY UNIT-PT. 101000010  
PO. LB. 88-117-8018 UNIT# 88919

CONTAINMENT TROLLEY UNIT-PT. 101000010  
PO. LB. 88-117-8018 UNIT# 88916

SOUTH TEXAS PROJECT DRA. NO.  
C109 X 004 AWG

NOTED: HUBS & SHAFTS  
1-2 BALL BEARING ASSEMBLY  
ASSEMBLY - 8-2178-B  
88-05017

CENTER SECTION  
ASSEMBLY  
1183-7

NOTE:  
TRAILER TRAVEL RESTRICTED  
AREA LIMIT SYSTEMS ADAPTED  
FOR 88-117-8018 UNIT# 88919

NOTE:  
ADAPTER ASSEMBLY, HUBS, SHAFTS  
AND BEARINGS ADAPTED TO MATCH  
UNIT# 88-117-8018 UNIT# 88919  
AND UNIT# 88-117-8018 UNIT# 88916

1	8-17-79	DESIGN	W. J. BROWN
2	8-17-79	REV. 1	W. J. BROWN
3	8-17-79	REV. 2	W. J. BROWN
4	8-17-79	REV. 3	W. J. BROWN
5	8-17-79	REV. 4	W. J. BROWN
6	8-17-79	REV. 5	W. J. BROWN
7	8-29-82	REV. 6	W. J. BROWN

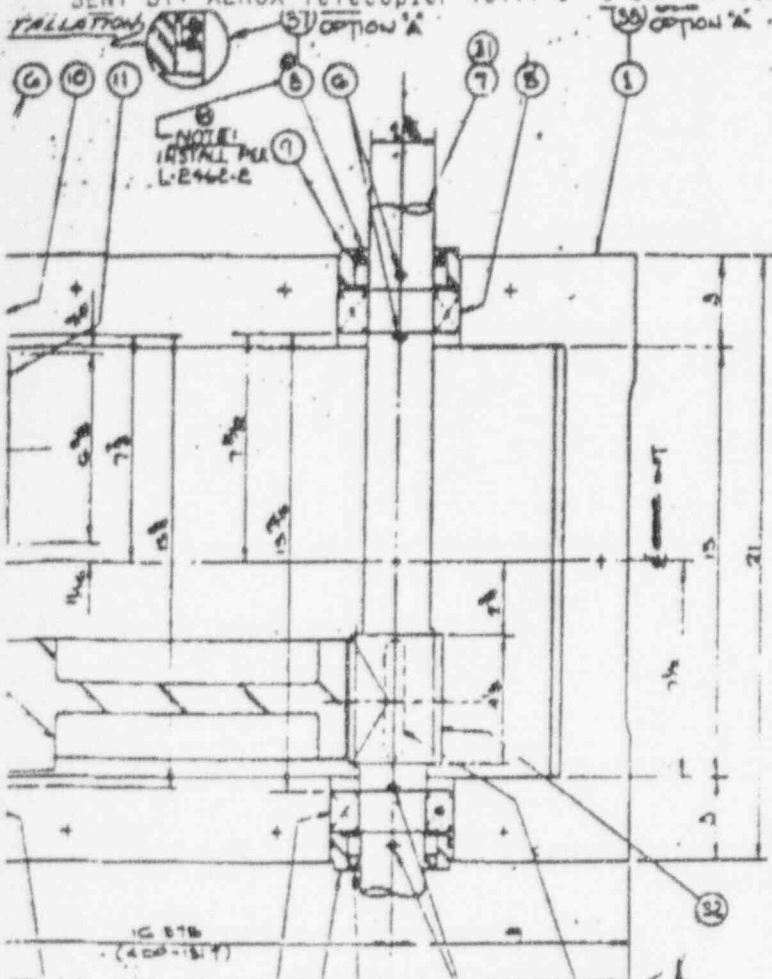
  

WHITING CORPORATION	
88-117-8018	88-117-8018
REV. 6-29-82	REV. 6-29-82
BY R.M. FOR 1-18-77	BY R.M. FOR 1-18-77
DATE 8-17-79	DATE 8-17-79
APP. R.M.	APP. R.M.
APP. J.W.	APP. J.W.
APP. J.W.	APP. J.W.
APP. J.W.	APP. J.W.

77587



**INSTALLATION**

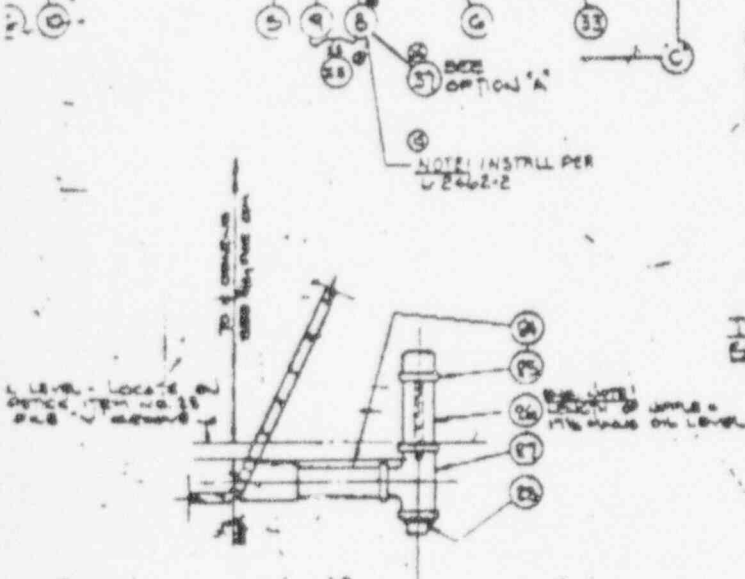
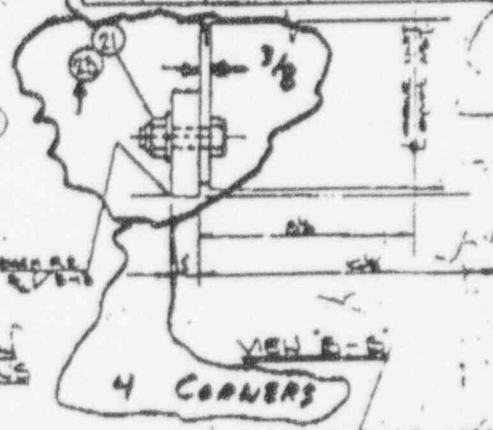
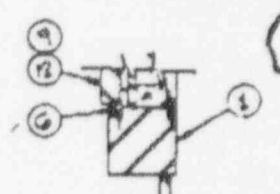


WAM  
3/8194

CHANGE TO  
 $\frac{3}{4} \times 2\frac{1}{2}$   
A325 BOLT  
WITH HARDENED  
FLAT WASHER  
(OR  $\frac{1}{2} \times 2\frac{3}{4}$ )

ITEM	QTY	DESCRIPTION	REF. NO.
1	1	GEAR CASE (CASE HALF)	37510
2	1	GEAR CASE (CASE HALF)	37510
3	1	INTERMEDIATE GEAR...	37510
4	1	WATER SEAL	37510
5	1	WATER SEAL	37510
6	2	OIL SEAL	37510
7	2	OIL SEAL	37510
8	2	OIL SEAL	37510
9	2	OIL SEAL	37510
10	2	OIL SEAL	37510
11	2	OIL SEAL	37510
12	2	OIL SEAL	37510
13	2	OIL SEAL	37510
14	2	OIL SEAL	37510
15	2	OIL SEAL	37510
16	2	OIL SEAL	37510
17	2	OIL SEAL	37510
18	2	OIL SEAL	37510
19	2	OIL SEAL	37510
20	2	OIL SEAL	37510
21	2	OIL SEAL	37510
22	2	OIL SEAL	37510
23	2	OIL SEAL	37510
24	2	OIL SEAL	37510
25	2	OIL SEAL	37510
26	2	OIL SEAL	37510
27	2	OIL SEAL	37510
28	2	OIL SEAL	37510
29	2	OIL SEAL	37510
30	2	OIL SEAL	37510
31	2	OIL SEAL	37510
32	2	OIL SEAL	37510
33	2	OIL SEAL	37510

OPTION A  
OIL LIP SEAL  
INSTALLATION - SEE  
BPM IF REQUIRED



1. LEVEL - LOCATE ON  
DRIVE WITH NO. 33  
ON 6 - 1/2" SQUARE

FOR LOCATING DOWEL PIN ASSEM. SEE R-63247

**NOTE:**

USE 1/2" DIAMETER COIL BEANS OR CASE CANNERS  
FOR CANNING & VENTILATION COVER

**SECTION A-A**

LOCATOR NOTE:

USE TO BE LOCATED  
DRIVE FOR PROPER FIT. BEFORE USE  
WET OR LEVEL TO ADJUST OR SPACERS  
APPROPRIATE TO THE DRIVE. NO OIL  
NO OIL TO BE LOCATED FOR RECEIVING LOCATOR

WHITING CORPORATION

66300

70-40 1000 WEST UNIT

ASSEMBLY

DRY END

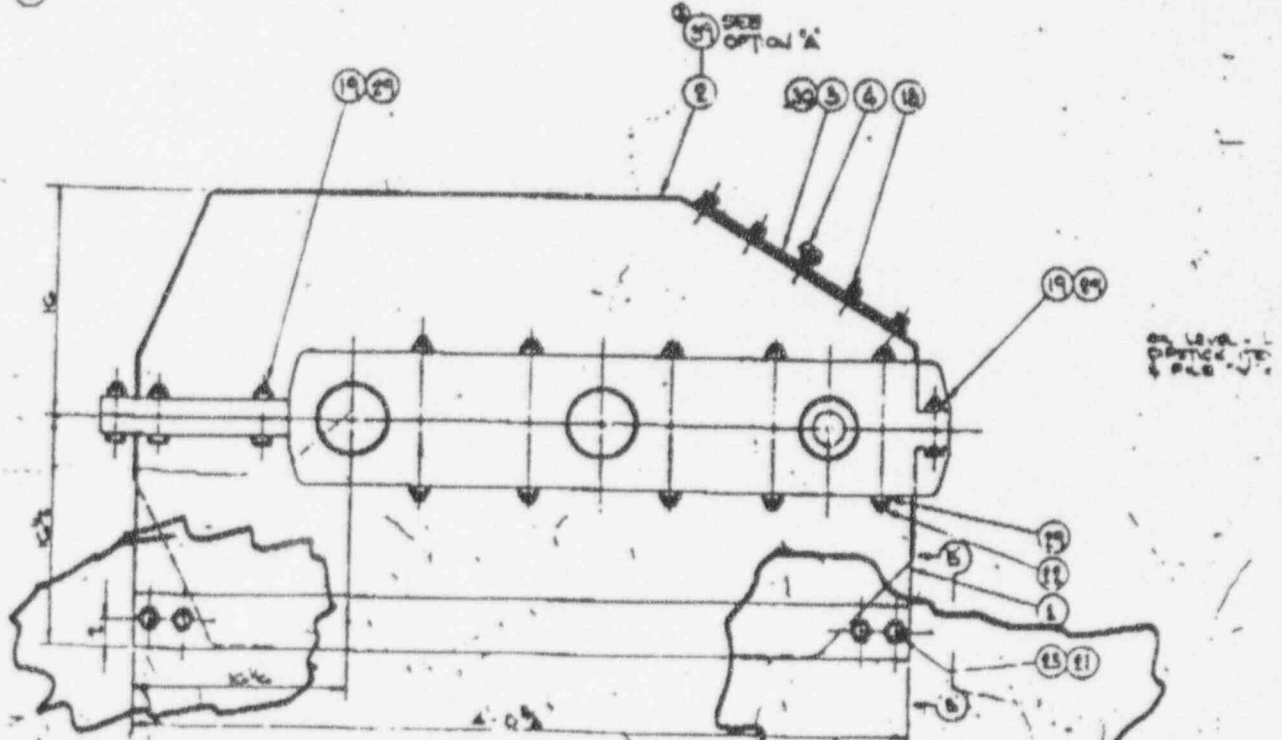
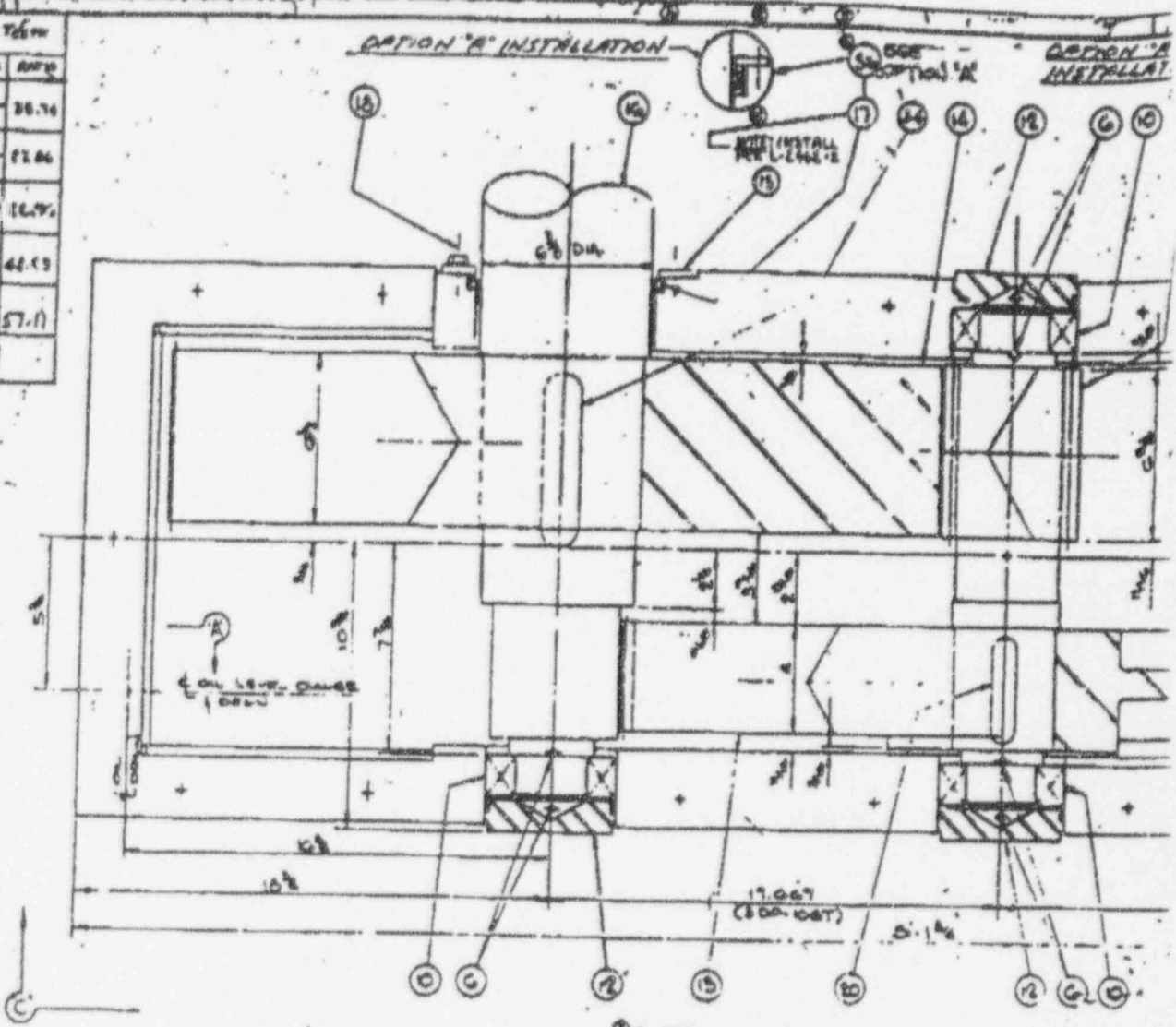
DRY END REACTION

DATE: 3-9-94

1075473

*General per Tonnis as follows*

NUMBER	FACTORS	OPTION	AMOUNT
19	118		26.74
	12	92	
20	106		21.86
	10	70	
21	100		16.70
	18	88	
12	119		41.43
	18	88	
11	12		57.11
		29	



MU-75473 CONT ELEVATION C-C



# WHITING CORPORATION BILL OF MATERIAL

35-1197-8013 BROWN-ROOT INC - HOUSTON

DEST. OR NO. & NAME

SO. TEXAS PROJECT

SIN 11257

RBM

HMF 1

1/20/77

DESTINATION

1 - 500/15 TON 5 MOTOR YOLLEY 261-0 C TO C

ENGINEER

PROJ. ENGR.

DATE

PROD

U77587-3, U77588-2 DUP MATL SEE REQR 68919, QA LEVEL 1

DRAWING NUMBER

QTY.

DESCRIPTION

SOURCE

COM

#25 FC MAIN HOIST UNIT CONTD

DRG. U-75473

1 1 CASE FC 25 HOIST DR SUB-ASSEM

573943

50979

987

2 8 3/4 X 2-1/2 A325 HS BOLT

29931

6

3 8 3/4 HARDENED WASHER

8

4 8 3/4 FLEX-LDC NJT #30FA1210

8

ITEM 23 ON U-75473

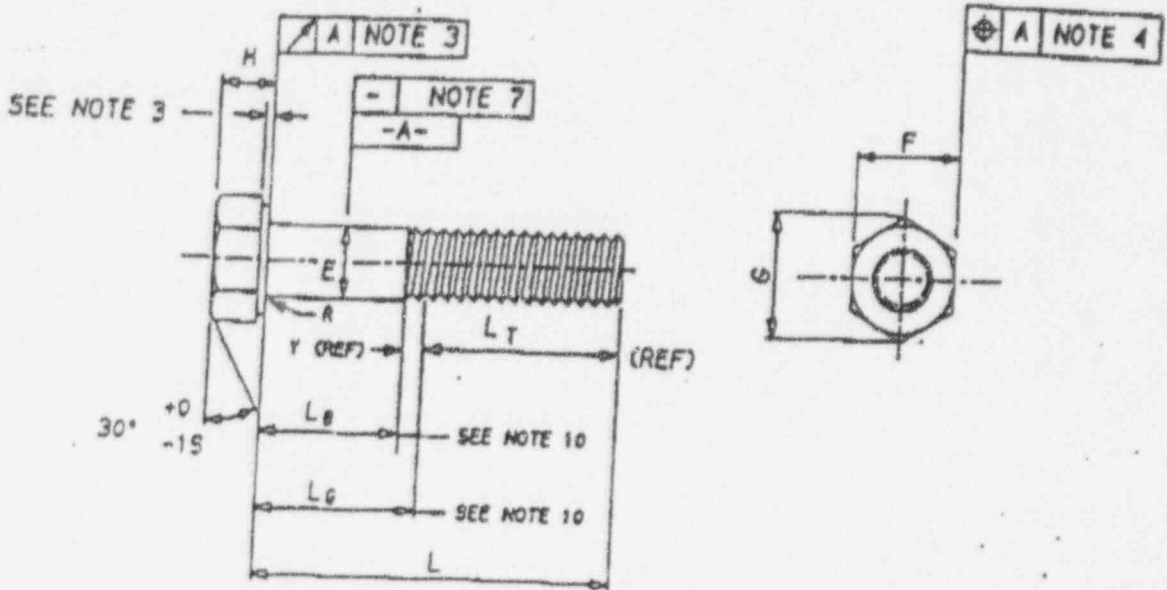
9945

DEPARTMENTS TO GET ALL BILLS OF MATERIAL	PROD. ENGRS. <input type="checkbox"/>	PROD. CONTROL <input type="checkbox"/>	INSPECTION <input type="checkbox"/>	PURCH. MASTER <input type="checkbox"/>		STORES <input type="checkbox"/>	ROUTING <input type="checkbox"/>	
OTHER DEPARTMENTS CHECK APPLICABLE ONE	TRAMBEAM <input type="checkbox"/>	LADLE & SWENSON <input type="checkbox"/>	CRANE NORTH <input type="checkbox"/>	M-ORDER <input type="checkbox"/>	SPECIAL PRODUCTS <input type="checkbox"/>	CRANE SOUTH <input type="checkbox"/>		
	CONTRACT <input type="checkbox"/>	LOADING <input type="checkbox"/>	FORGE <input type="checkbox"/>	STRUCTURAL <input type="checkbox"/>	WELDING <input type="checkbox"/>	SUB- <input type="checkbox"/>		
								ELECTRIC SERVICE

14

WHITING CORPORATION  
ENGINEERING STANDARDS

**FASTENERS  
THREADED  
DIMENSIONS**



Nominal Size or Basic Product Dia (15)	E		F		G		H		A		Lt	Y	Z	Radius of Fillet	Thread Length (10)	Transition Thread Length (10)	Radius of Bearing Surface DIA (3)
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min							
	Basic		Basic		Basic		Basic		Basic								
1/2	0.500	0.493	0.875	0.850	1.010	0.989	0.312	0.307	0.621	0.610	1.00	0.10	0.016				
5/8	0.625	0.617	1.063	1.031	1.227	1.195	0.406	0.399	0.781	0.766	1.00	0.10	0.016				
3/4	0.750	0.740	1.250	1.214	1.443	1.393	0.493	0.484	0.969	0.949	1.00	0.10	0.016				
1	1.000	0.990	1.625	1.575	1.876	1.796	0.627	0.601	1.263	1.231	1.75	0.31	0.020				

Nominal Length	Nominal Size		
	1/2	5/8	3/4 to 1
to 6. incl	+0.00 -0.12	+0.00 -0.12	+0.00 -0.10
Over 6	+0.00 -0.10	+0.00 -0.25	+0.00 -0.25

POINT Point shall be chamfered or rounded at manufacturer's option.

**MATERIAL**  
ASTM A325 or A490  
As specified

WAZ  
318194

All dimensions are in inches.  
For General Requirements and Notes see L2696

HEAVY HEX STRUCTURAL BOLTS	
WITH RESTRICTED BODY TOLERANCE	L-2695-1

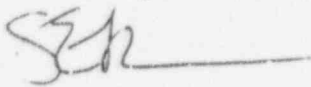


## Houston Lighting &amp; Power Company

CAG

## OFFICE MEMORANDUM

To Unit 1 and Unit 2 Shift Supervisors

March 10, 1994  
FILE NO. M13.04  
ST-HS-HS-028119From S. E. Thomas 

Subject REPORTABILITY REVIEW POLAR CRANE - SPR 94-0567

- References:
- 1) SPR 940567 Operability Review; ST-HS-HS-28048 Dated March 4, 1994 and ST-HS-HS-28111 dated March 9, 1994
  - 2) ST-HS-WG-00002; Letter to Whiting Documenting the Unit 2 Polar Crane Inspection Results
  - 3) OPGP03-ZA-0069 - Heavy Loads Procedure

Station Problem Report 940567 was written on 3/3/94 to document a 10CFR part 21 report written by Whiting Corp. on the polar crane. Whiting's report to STP stated;

"On a crane of similar design to yours, an analysis revealed significant overstress on bolted connection points of the trolley main hoist components. These overstressed conditions can result in metal fatigue and failure. Failure at the connection points could cause a dropped load and components falling from the trolley. It is very likely that your crane has the same condition."

Whiting later clarified the areas of concern on the cranes supplied to STP as being:

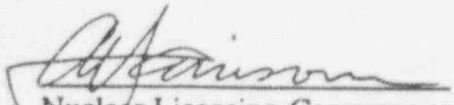
- connection of the output shaft of the main hoist gear box to the bearing pedestal (*or bearing pedestal bolts*),
- connection of the main hoist gear box,
- upper sheave nest girder connections, and
- bearing cap studs.

Based on inspection of the Unit 2 polar crane (Reference 2), Whiting has evaluated the stresses on the polar crane for the specific configuration at STP. Whiting's evaluation shows that for loads applied during construction, some of the connections may have been overstressed above the allowable stresses. However, none of the stresses exceeded the yield strength for the connections/bolts. Whiting has also determined that none of the connections were overstressed for the loads applied since the plant has been in operation. The maximum load which occurs during plant operation is 310 tons (Reference 3, Addendum 1). Accordingly, there is no concern with metal fatigue or loads applied during plant operation.

The Unit 1 polar crane has one connection on the bearing pedestal which is different than Unit 2. This connection may be overstressed during the plant operation lifts but these stresses would not exceed yield. This connection is not considered a problem since the polar crane has been tested during construction for loads significantly higher than the operational loads and the connection does not show any visible signs of distress or loose bolts.

Therefore, this condition has been evaluated against, but not reportable, under the requirements of 10CFR50.73 (a)(2)(ii, v, & vi) in that there is no evidence to demonstrate that this condition is outside of the design basis of the plant.

If you have any questions regarding this reportability review, please contact R. M. Attar or R. Engen at site extension 8155 or 7337 respectively.

  
Nuclear Licensing Concurrence

3/10/99  
Date

RJE  
RLE/

pc: T. H. Cloninger R. G. Asbury  
J. F. Groth J. P. Bleau  
L. W. Myers R. M. Attar *rd*  
G. L. Parkey D. W. Stonestreet  
H. H. Butterworth J. J. Sheppard  
W. M. Dowdy RMS Correspondence  
A. W. Harrison