

SUMMARY REPORT
FOR
REGIONAL EVALUATION
OF
TEXAS UTILITIES ELECTRIC COMPANY
COMANCHE PEAK S.E.S.

DOCKET 50-445

PREPARED BY
U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

January 31, 1985

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A. PROJECT HISTORY

1. Chronological Project Milestones

The application for construction permits for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2 were docketed on July 20, 1973.

Ground breaking occurred on October 8, 1974, and an LWA was granted to the applicant on October 17, 1974. The construction permits (Nos. CPPR-126 and CPPR-127) were issued on December 19, 1974.

There has been no change in principle contractors. Unit 1 has completed preoperational testing. Precore hot functional testing began on February 20, 1983, and was completed on June 10, 1983. The thermal expansion testing was started in November 1984 and completed during the first week of January 1985. The applicant's present projected fuel load date is the first quarter of 1985.

Texas Utilities Electric Company (TUEC) was granted a license to receive and store fuel (SNM-1912) on April 26, 1983, and began receiving fuel on May 4, 1983. The final fuel shipment was received onsite January 17, 1984.

2. Principle Contractors

Gibbs & Hill, Inc. (G&H) is the architect-engineer, and Brown & Root, Inc. is the constructor. Construction management is being performed by Texas Utilities Services, Inc., a wholly owned subsidiary of the owner, Texas Utilities. The nuclear steam supply system vendor is Westinghouse Electric Corporation.

B. QUALITY ASSURANCE ORGANIZATION STRUCTURE

The applicant's present QA organization is shown in Exhibit 1. The present structure has not appreciably changed from that shown in the FSAR. The applicant has recently completed review of the QA program pursuant to 10 CFR 50.55(c). No changes in the QA program were identified.

C. SALP REVIEW

Four SALP reviews have been conducted to evaluate TUEC's performance. The SALP periods were:

- o August 1, 1979-July 31, 1980 (Report 50-445/80-25 and 50-446/80-25)

- o July 1, 1980-June 30, 1981 (Report 50-445/81-20 and 50-446/81-20)
- o October 1, 1981-September 30, 1982 (Report 50-445/82-24 and 50-446/82-12)
- o October 1, 1982-October 31, 1983 (Report 50-445/83-49 and 50-446/83-23)

1. During the period of August 1, 1979, through July 31, 1980, the applicant was evaluated in the following functional areas:

<u>Functional Area</u>	<u>Increase</u>	<u>No Change</u>	<u>Decrease</u>
Quality Assurance, Management and Training		X	
Substructure & Foundations Concrete		X	complete
Liner (Containment & Others) Safety-Related Structures		X	complete
Piping & Hangers (Reactor Coolant & Others)		X	
Safety-Related Components (Vessel, Internals & HVAC)		X	
Electrical Equipment		X	
Electrical (Tray & Wire)		X	
Instrumentation		X	
Fire Protection		X	
Preservice Inspection		X	
Reporting		X	

The board determined that an increase in inspection activities was not warranted as a result of the assessment.

2. During the period of July 1, 1980, through June 30, 1981, the applicant was evaluated in the following functional areas:

<u>Functional Areas</u>	<u>Category</u>
Soils and Foundations	NA
Containment and Other Safety-Related Structures	NA
Piping Systems and Supports	1
Safety-Related Components	1
Support Systems	2
Electrical Power Supply and Distribution	1
Instrumentation and Control Systems	1
Licensing Activities	2

The board concluded that although the overall applicant performance was Category 1, the inspection level of the construction activities should not be changed due to recent programmatic changes which effectively reduce construction inspections.

3. During the period of October 1, 1981, through September 30, 1982, the applicant was evaluated in the following functional areas:

<u>Functional Area</u>	<u>Performance Category 1982</u>
A. Plant Operations - Preoperational Testing	3
B. Construction Activities - Soils and Foundation	Not evaluated
Containment & Other Safety-Related Structures	2
Piping Systems and Supports (includes welding, NDE, and preservice inspection)	2
Safety-Related Components (includes vessel, internals, pumps, etc.)	1
Support Systems (includes HVAC, radwaste, fire protection)	Not evaluated
Electrical Power Supply and Distribution	1
Instrument and Control Systems	1
Vendor Procurement Cycle Controls	3
Licensing Activities	1

The board found that the applicant's management controls were strong and effective with exception of the areas of vendor controls and preoperational testing.

4. During the period October 1, 1982-October 31, 1983, the applicant was evaluated in the following functional areas:

<u>Functional Area</u>	<u>Performance Category 10/1/82 to 10/31/83</u>
Preoperational Testing	2
Emergency Preparedness	2
Radiological Controls	
Radiation Protection	2
Confirmatory Measurements	1
Radwaste Systems, Effluent Treatment, Releases, and Monitoring	2
Transportation, Solid Radwaste	1
Environmental Surveillance	1
Security and Safeguards	2
Soils and Foundation	N/E
Containment and Other Safety-related Structures	2
Piping Systems and Supports (includes welding, NDE, and preservice inspection)	2
Safety-related Components (includes vessel, internals, pumps, valves, etc.)	2
Support systems (includes HVAC, radwaste, fire protection, fuel storage, etc.)	3
Electrical Power Supply and Distribution	2
Instrumentation and Controls	1
Training	2
Design and Design Change Controls	2
Quality Assurance - Preoperational	2
Testing Quality Assurance - Construction	2
Vendor Procurement Controls and Involvement Management Controls	2
Involvement	2
Licensing Activities	2

Note: The notation N/E indicates that the functional area was not evaluated.

The total NRC inspection effort during this SALP evaluation period consisted of 78 inspections reported in 46 NRC inspection reports involving a total of 6,498 hours onsite by NRC inspectors and subcontractors.

The board concluded that the level of applicant involvement and degree of control over site activities was acceptable.

5. The current SALP assessment is for the period November 1, 1983, through December 31, 1984.

D. ESCALATED ENFORCEMENT HISTORY

1. Immediate Action Letter

An Immediate Action Letter was issued on September 7, 1979, confirming a licensee decision not to place concrete in the wall to dome transition area of the Unit 2 containment building until such time as a proper engineering evaluation could be made of the omission and subsequent addition in another location of a group of reinforcing steel shear ties.

2. Civil Penalty

A civil penalty (EA-83-64) for \$40,000 was proposed against the applicant for alleged violation of 10 CFR 50, Appendix B, Criterion I. This was based on the Secretary of Labor Final Decision and Order in Atchison vs. Brown & Root, Inc., 82-ERA-9; June 10, 1983.

A civil penalty (EA-83-132) for \$40,000 was proposed against the applicant for alleged violation of 10 CFR 50, Appendix B, Criterion I. This civil penalty proposal was based on an investigation initiated as a result of allegations made to NRC Office of Investigation by paint QC inspectors employed by Texas Utilities Generating Company (TUGCO). The findings of the investigation were discussed with TUGCO management during an Enforcement Conference held in the Region IV office on December 12, 1983.

E. INDEPENDENT DESIGN HISTORY

The applicant has contracted with Cygna Corporation to review the Comanche Peak design. The review is being done in four phases.

Phase I is complete and in review. The review consisted of a design analysis and interface control evaluation of the spent fuel cooling system.

Phase II is also complete and in review. It consisted of a technical review of the residual heat removal system.

Phase III is in progress and is a result of the December 28, 1983, ruling of the ASLB. This review consists of a pipe and pipe support review of

the main steam and component cooling water system. It also consists of a review of Quality Assurance and corrective action measures.

Phase IV is underway and completion depends on the ASLB findings of Phase III. It consists of an Independent Design Verification Program (IDVP) regarding the component cooling water system.

F. NRC INDEPENDENT MEASUREMENTS INSPECTION

The NRC performed an independent measurements inspection at the Comanche Peak site April 25-May 6, 1983. The report on the results of the examination are contained in NRC Inspection Report 445/83-.5 and 446/83-09. Two violations were identified during this inspection.

G. GENERIC CORRESPONDENCE

TUEC has established procedures providing specific instructions to the nuclear project support group personnel who are responsible for coordination and review of IE Circulars, Bulletins, and generic letters. In each case, a TUEC-appointed coordinator is given responsibility for assigning the cognizant responsible person to review and track all actions and provide documentation. When required, the coordinator shall draft a response to the NRC which will be reviewed by the plant manager - nuclear, licensing engineering supervisor - nuclear, and project support manager - nuclear. The response shall be signed by the vice president - nuclear operations and shall include an affidavit. A permanent record of actions taken is maintained. The applicant's response to NRC has been satisfactory.

H. LICENSEE AND CONTRACTOR INITIATED STOP WORK ACTION

There have been a total of 47 stop work orders issued by the applicant and his contractors since 1975. See Exhibit 2 for a summary of the stop work orders.

I. CONSTRUCTION DEFICIENCY REPORTS (10 CFR 50.55(e))

The applicant has reported 45 significant construction deficiencies. See Exhibit 3 for a summary of these reports.

J. PART 21 NOTIFICATIONS

Of the 17 Part 21 reports received by NRC, 5 resulted from 10 CFR 50.55(e) items and are being tracked by the applicant. They are included in Exhibit 3 of this report. A followup inspection was conducted by the Resident Reactor Inspector to determine the status of the remaining 12 Part 21 reports. All of the reports were closed except for the following:

1. Brown-Boveri Electric, Inc. report of June 16, 1981, regarding overcurrent relay drop-out problems. This item is being tracked on an applicant nonconformance report (NCR).
2. G&H report of July 31, 1981, regarding tornado venting, tracked by several engineering documents.
3. Transamerica DeLaval, Incorporated (TDI) reports of October 28, 1982, September 21, 1983, and March 20, 1984, regarding problems with the emergency diesel generators (EDGs). The generic implications of the TDI problems has resulted in NRC concern regarding the reliability of the EDGs. An owners group detailed a comprehensive teardown and inspection plan. The teardown and inspection of the Unit 1 EDGs has been completed. The results of the evaluation have been completed by the owners group. The final acceptance by the applicant of the testing has not been completed at this time.

K. NRC INSPECTION ACTIVITIES

1. Construction Inspection

The routine MC 2512 inspection program is approximately 97% complete for Unit 1 and Common; however, an augmented program has been implemented to correspond to applicant final completion inspection. This augmented program linked to the activities of completion and will be ongoing until final construction and inspection completion.

2. Construction Appraisal Team

- a. The Construction Appraisal Team (CAT) performed an inspection of CPSES on January 24-February 4, 1983. Four enforcement findings were identified regarding procedures for equipment installation, maintenance of items stored outdoors, drawing control, and control of ventilation system fabrication. Details of the inspection are contained in NRC Inspection Report 445/83-18; 446/83-12. The enforcement findings were transmitted to the applicant on May 31, 1983.
- b. On June 27-September 16, 1983, a followup inspection to CAT inspection was performed by the Region IV staff. No new violations or deviations were identified. Details of this inspection are contained in NRC Inspection Report 445/83-28; 446/83-14.

3. Special Inspection

- a. Special inspections to evaluate the applicant's turnover/access control process were conducted in four areas. The areas and results are discussed below.

- (1) The inspection of the fuel building was conducted on May 23 - June 10, 1983. Two violations were identified concerning conduit, cable tray, and pipe supports and piping sway strut jam nuts. The details of the inspection are contained in NRC Inspection Report 445/83-23.
- (2) The inspection of the cable spread room was conducted on March 13 - April 11, 1984. The areas examined included electrical raceway and raceway supports, cable routing, cable terminations, electrical separations, HVAC, and fire protection/detection. No violations were identified. The details of the inspection are contained in NRC Inspection Report 445/84-10.
- (3) The inspection of the containment building was conducted on May 14 - June 20, 1984. Areas examined during the inspection included piping and pipe supports, containment penetrations, HVAC ducts and supports, electrical raceways and supports, safety-related equipment, "as-built" program, QC inspector and welder qualifications, and followup on one unresolved item from the special inspection of the fuel building.

Two violations were identified concerning proper inspection of cable tray hangers and design document control. The details of the inspection are contained in NRC Inspection Report 445/84-16.

- (4) The inspection of the safeguards/auxiliary buildings was conducted on July 16-September 7, 1984. The areas examined included piping and pipe supports, HVAC ducts and supports, electrical raceways and supports, installation of prime motors (electric motors and steam turbine) and pumps, and "as built" program. Portions of four safety-related systems were examined during the inspection. These included the Auxiliary Feedwater System, Containment Spray System, Component Cooling Water System, and Chemical and Volume Control System. In addition, electrical separation was examined through out the buildings.

Two violations were identified concerning QC inspection of electrical separation and proper inspection of cable tray hangers. The details of the inspection are contained in NRC Inspection Report 445/84-26.

- b. On July 9, 1984, the NRC Technical Review Team (TRT) began intensive onsite efforts to complete a portion of the reviews necessary for the staff to reach a decision regarding the licensing of CPSES Unit 1. The onsite effort covered a number of areas, including allegations of improper construction practices at the facility. On September 18, 1984, the NRC met with TUEC representatives to present a number of technical issues in the electrical/instrumentation, civil/structural, and test program areas having potential safety implications. On November 29, 1984, the NRC provided a second set of technical issues for TUEC response. On January 8, 1985, the NRC provided a third set of technical issues for TUEC response.

4. Preoperational Testing and Operational Preparedness

MC 2513 is directed toward inspection of activities involved in preoperational testing and operational preparedness. These inspection activities are summarized as follows:

	<u>% Complete</u>
Preoperational Test Procedure Review	100
Preoperational Test Witnessing	99
Preoperational Test Results Evaluation	85
Operation Staffing	80
Quality Assurance	100
Operating Staff Training	100
Technical Specification Review (Final Draft)	100
Operational Procedure Review (including Surveillance Procedures)	75
Radiation Protection	75
Radwaste	75
Environmental Monitoring	75
Emergency Planning	75
Security	75

5. Startup Testing

Inspection activities established in MC 2514 define the inspection program for the startup testing phase. Since this program generally starts with fuel loading, the program, except for procedure review, has not begun. The program includes:

- QA/QC Technical Specification Review (complete for Final Draft)
- *Startup Procedure Review
 - Initial Fuel Load
 - Precritical Checks

Power Ascension Testing
Initial Criticality/Low Power Testing
Data Review

*Those required for OL issuance are 75% complete

6. TMI Open Items

Most of the TMI lessons-learned issues were specifically addressed during the FSAR review and appear in "The Safety Evaluation Report," NUREG-0737 and its supplements. These items are being tracked and verified during preoperational testing inspection activities (MC 2513). The individual items will be inspected and closed out in accordance with the temporary instruction.

7. Allegations

There are a number of allegations made regarding Comanche Peak which are being pursued by the staff. The more significant of these allegations involve issues that arose before the ASLB. These allegations are generally divided into the following areas:

- o Intimidation of QC Construction Inspectors
- o Practice Involving Drilling through Rebar
- o Falsification of QC Records and Poor QA Practices
- o Worker Firing and Co-Worker Discouragement
- o Improper Documentation
- o Construction Practices with QA/QC Deficiencies
- o Improper Welding of Socket Connections
- o QA/QC Documentation of Penetrations
- o Independence of CYGNA

8. NRR Confirmatory Items (To be verified by Region IV)

<u>SER Section</u>	<u>Description of Item</u>
5.3.1.2/5.3.1.3 5.3.2/5.3.3	Fracture-toughness properties of Unit 2 Reactor vessel materials (SSER #1 5.3.1.2, 5.3.1.3, 5.3.2, and 5.3.3) (Discussed in SSER #6)

- 9.1.4 Handling of heavy loads in conformance with the guidelines of NUREG-0612 (SSER) #1 9.1.4) (Complete except for "Control of heavy loads - Phase II)
- II.E.1.1 Recommendation GL-3: Verification by test of the capability of the turbine-driven AFW pump to operate for 2 hours without AC power
- II.E.4.2 Containment isolation dependability
- 3.9.6 Periodic leak testing of pressure isolation valves
- 9.5 Documentation of applicant's commitments on fire protection

9. Outstanding items including enforcement and unresolved items will be provided in a subsequent report.

L. CONSTRUCTION STATUS

Most active systems are sufficiently complete to conduct preoperational tests. Pipe support design and installation remain as major pacing effort at this time. Also, there is a considerable effort in the area of attaining separation in the electrical area.

There is a considerable effort directed to engineering design review of site changes. In conjunction with this effort, site QA is verifying that the changes have been inspected and that proper documentation is available.

M. PREOPERATIONAL TEST RESULTS

The applicant's startup group has determined that the plant will be ready for fuel load when the following systems have been prerequisite/preoperational tested. Not all systems are required to be preoperational tested per NRC Regulatory Guide 1.68, Revision 2. The percent complete refers to the conduct and results approval only.

<u>System</u>	<u>Description</u>	<u>Preoperational *% Complete</u>
01	125 V DC Class IE Power Systems	90
02	6.9 KV/480v Class IE AC Distribution Systems	90
03	Startup Power Systems	100
04	Service Water System	100
06	Fire Protection/Detection Systems	90
07	Control Room - HVAC System	80
08	Battery Rooms - HVAC System	80
11	Component Cooling Water System	100
12	Communication System	90
22	Sampling System	100
24	Primary Plant Ventilation System	90
29	Diesel Generator and Auxiliaries System	90
31	Safety Chill Water System	100
32	Auxiliary Building - HVAC	100
34	Main Steam System	90
36	Safeguards Building - HVAC System	100
37	Auxiliary Feedwater System	100
39	Diesel Generator - HVAC System	100
40	Fuel Handling and Vessel Servicing Systems	100
41	Liquid Waste Processing System	100
42	Fuel Building - HVAC System	100
44	Steam Generator Blowdown System	100
45	Containment Ventilation System	100
46	Containment Hydrogen Purge System	100
47	Fuel Pool Cooling and Cleanup System	100
48	Containment Spray System	100
49	Chemical and Volume Control System	100
55	Reactor Coolant System	100
56	Boron Recycle System	100

57	Safety Injection System	90
58	Residual Heat Removal System	100
60	Solid Waste Processing System	100
61	Gaseous Waste Processing System	100
64	Reactor Protection System	90
65	Containment Atmosphere Monitoring System	100
66	Nuclear Instrumentation System	100
67	Hydrogen Recombiner System	100
68	Rod Control System	100
70	Radiation Monitoring System	100
73	Protection and Surveillance Package (N-16)	100
74	Movable Incore and Flux Mapping System	100
75	Structural Integrity and Leak Rate Testing	100
78	ERF Computer (SPDS) System	100
80	Seismic Monitoring System	100
81	Cranes and Hoists	100
82	Meteorological Monitoring System	100
91	Loose Parts Monitoring System	100

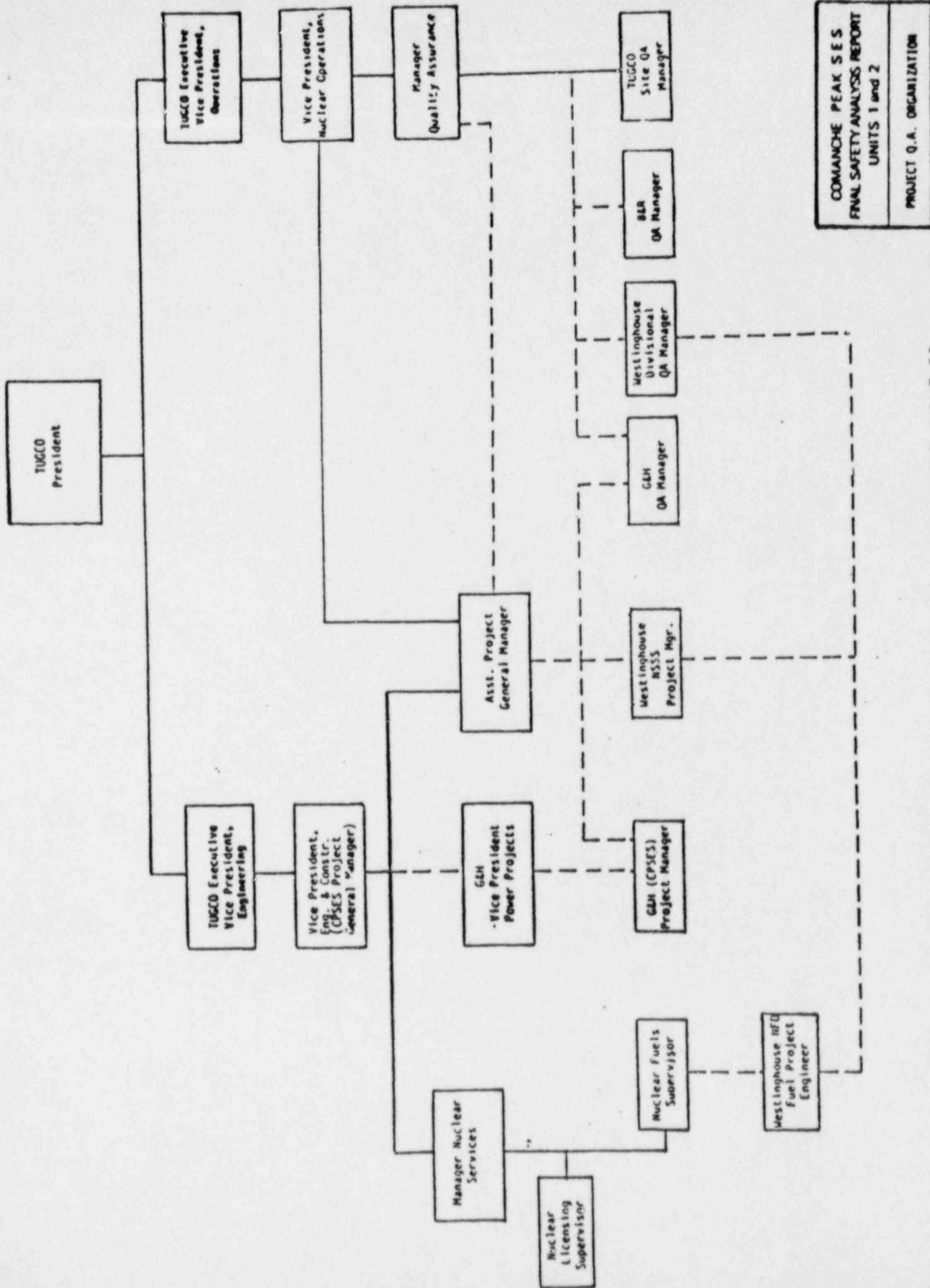
* 90% indicates the physical testing is complete with the remaining 10% allowed for review and acceptance of test results.

The preoperational test program is approximately 95% complete (factoring in retesting).

N. CONCLUSION

Prediction of the fuel load date by Region IV, based solely on physical work and testing to be done and the past progress rate would not yield a realistic date because other activities such as the ASLB, TRT, and corrective actions are more controlling. When schedules for these activities are available, readiness for fuel load can be predicted.

EXHIBIT 1



COMANCHE PEAK S ES
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

PROJECT Q.A. ORGANIZATION

EXHIBIT 2

STOP WORK NOTICES

Page 1

ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
Construction	07/26/75	Category 1 Concrete Pours	08/01/75	Testing lab implemented their quality program to correct deficiencies and prevent recurrence
Chicago Bridge & Iron Co.	09/03/75	Work on containment liner which precludes radiography	09/04/75	Performed MT examination in lieu of RT on reactor cavity containment liner.
Construction	12/19/75	Category 1 Concrete Pours	12/22/75	Provided clarification of discrepancies noted on surveillance report
Construction	12/23/75	Concrete Aggregate	12/30/75	Mixed aggregates from several locations to provide a composite aggregate that met requirements
Construction	02/12/76	Category 1 Concrete Pours	Varied with complexity	Planning implemented in accordance with Reg. Guide 1.55
Construction	04/28/76	Off-Loading of volume control tank	04/29/76	Obtained purchase order
Construction	07/23/76	On site miscellaneous steel fabrication on Safety Related Items	08/03/76	Revised inspection procedure
Construction	07/23/76	On site miscellaneous steel installation of safety related items	07/29/76	Revised inspection procedure

STOP WORK NOTICES

Page 2

ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
Construction	08/02/76	On site miscellaneous steel fabrication of safety related items	08/05/76	Revised inspection procedure
Construction	08/20/76	Receiving Safety Related Mechanical Equipment that Requires Maintenance	09/16/76	Issued procedure for surveillance of maintenance of mechanical equipment
Construction	08/20/76	Receiving Safety Related Electrical Equipment that Requires Maintenance	09/16/76	Issued procedure for surveillance of maintenance of electrical equipment
R. W. Hunt Co.	11/18/76	Calibration Activities	02/15/77	Established and implemented an acceptable program
Construction/ Quality Assurance	11/30/76	Calibration Activities	02/14/77	Established and implemented an acceptable program
Construction	01/24/77	Calibration of Optical Field Survey Instruments	01/27/77	Corrected discrepancies
Engineering	07/01/77	Design change document legibility	None	Discontinued practice of telecopying design changes
Bostrom Bergen Co.	07/12/77	All safety related work by Bostrom Bergen in Fresno	08/10/77	Supplier corrected survey deficiencies and was resurveyed
Construction	07/21/77	All Safety Related activities at miscellaneous steel fab shop	07/29/77	Corrected document control deficiencies

STOP WORK NOTICES

Page 3

ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
Construction	07/21/77	Concreting of embedded anchor bolts in Unit 1 Containment	08/01/77	Established accountability of the anchor bolts
Engineering	07/28/77	On site issuance of field design changes	08/01/77	Established appropriate management controls
Construction	07/28/77	Safety Related Construction activities affected by all field design changes issued to date	08/01/77	Implemented procedural requirements
Construction	08/19/77	Installation of safety related piping	09/09/77	Resolved administrative concern
Construction	01/17/78	All welding associated with ASME activities	01/25/78	Flowmeters and welding machines were checked for specified output and the checks documented and traceable to each machine
Bahson Service Co.	04/18/78	All Fabrication or Installation of any Nuclear Safety Related Category 1 items or assemblies	05/10/78	Resolved surveillance findings
Construction	08/25/78	Welding of stainless steel materials	Case basis	Established program for closer monitoring of welders to assure procedural compliance
Construction	09/05/78	Safety Related Welding	09/19/78	Revised Welder Conformance Qualification Log and updated QA records to reflect welder qualification status

STOP WORK NOTICES

Page 4

ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
Construction/ Engineering	10/17/78	Origination, distribution and all work performed to all project CMC's	10/19/78	Revised procedures to adequately describe the method(s) used for the origination, distribution, and use of CMC's. Indoctrinated project personnel
Construction	10/23/78	Unauthorized repairs in Unit 1 main loop piping	11/16/78	Evaluated welds for acceptability. Investigated cause of unauthorized repairs and took appropriate management actions.
Construction	10/30/78	Manual welding activities associated with the Unit 1 main loop piping	11/30/78	Performed analysis of welding materials with satisfactory results
Construction	02/14/79	Welding - ASME on WPS 88023 - Question on procedure qualification	02/16/79	Requalified procedure
Construction	02/15/79	Welding - ASME on WPS 88021 - Through wall repairs	02/15/79	Corrected discrepancy
Construction	04/13/79	Welding - ASME on WPS 88023 - Question on procedure qualification documentation	04/16/79	Corrected documentation discrepancy
Construction	10/19/79	Housekeeping in safety- related buildings	10/22/79	Accomplished cleanup and established ongoing program

STOP WORK NOTICES

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ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
Construction	10/26/79	Installation of Sway Strut Assemblies	02/21/80	Design drawing to be included in traveler package indoctrinated in assembly, and provide inspection criteria
Construction	10/29/79	All Class 1E and associated Class 1E cable pulling activities	12/03/79	Cable pulling lubricant tested and determined to be acceptable
Construction	07/09/80	Fabrication and installation of Class V Pipe Supports	07/25/80	Established and implemented an acceptable program
Construction	07/25/80	Procurement, fabrication and installation of secondary restraints for essential lighting and lighting conduit	01/30/81	Established and implemented an acceptable program
Engineering	08/01/80	Design of small bore pipe supports	09/03/80	Established and implemented an acceptable program
Construction	01/20/81	Epoxy grouting of base plates	09/30/81	Acceptable grout selected
Engineering	01/30/81	Field design changes for pipe supports	02/02/81	Established and implemented appropriate procedural controls
MATSCO	01/15/82	Lack of responsiveness to QA Audit Deficiencies	05/04/82	Resolved deficiencies
UIF	03/03/82	Nuclear QA Program not implemented by supplier	None	Material scrapped and repurchased from alternate source

STOP WORK NOTICES

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ISSUED TO	ISSUED DATE	SUBJECT	START WORK APPROVAL DATE	DISPOSITION
PAPCO	07/19/82	Corrective Actions from Previous Audit Not Implemented	08/12/82	Resolved discrepancies
Chicago Bridge & Iron Co.	08/10/82	Lack of Compliance to Specification Requirements for Pipe Whip Restraints	08/11/82	Established positive corrective action
Quality Control/ Welding Eng.	11/23/82	Liquid Penetrant Examinations	02/09/83	Recalled all penetrant materials and issued approved penetrant
Bahnson Service Co.	03/08/83	Structural Welding; HVAC Supports	04/27/83	Upgraded inspection program and indoctrinated affected personnel
TUGCO Operations	04/15/83	Audit Deficiencies with Instrumentation and Control Activities	04/19/83	Established positive corrective action
Construction	08/19/83	DCC Satellite No. 300 had inadequate access control and No. 306 had drawings filed without the applicable design changes	08/24/83	Barriers installed on DCC Satellite No. 300 and drawings packaged with change documents

EXHIBIT 3

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 1

NUMBER	DATE	SUBJECT	DISPOSITION
--	02/04/75	Unit 1 Reactor Building Excavation	Fractured rock removed and replaced with dental concrete and grout.
--	07/24/75	Unit 1 Reactor Cavity Mat (Cold Joint)	Concrete removed; new joint prepared.
--	04/09/76	Unit 1 Containment Mase Mat Coring	Concrete integrity determined acceptable through coring and core holes filled with grout or mortar.
--	09/20/76	SSI Dam Filter "A" Material	Removed nonconforming Filter "A" material other than conforming portions of the dam. Reconstructed dam.
77-4	05/06/77	Weld Defects in Polar Crane Brackets	Rework all similar welds and perform random UT inspection on all other welds.
77-C	07/19/77	Westinghouse AR Relays	All affected contact cartridges replaced with approved relays and torque requirements place on holddown screens.
77-D	09/29/77	Westinghouse Operation of Safeguard Actuation Block/Reset Circuitry	Deficiency identified and corrected prior to receipt at CPSES.
77-B	08/23/77	Design Deficiency in Fuel Building Crane System	Place hold on drawings issued to contractor and redesign support structure to incorporate correct seismic loadings.
79-5	05/22/79	Pipe Wall Thickness May Not Meet ASME Code Stress Requirements	Determine wall thickness by documentation review and/or UT inspection. All Class 1 piping with less than minimum wall will be repaired. All other piping greater than .010" below minimum will be repaired.

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 2

NUMBER	DATE	SUBJECT	DISPOSITION
79-6	06/19/79	Electrical Cable Tray Hangers without Full Penetration Welds	After review of 404 cable tray hangers assigned to CB&I 210 are to be reworked per engineering direction.
79-8	11/07/79	Installation of Drilled in Expansion Anchors	Revise procedures to reflect correct installation requirements, identify affected supports, rework as required.
79-9	11/15/79	Installation and Inspection of Welded Conduit Supports	Develop typical engineering drawings and provide additional information on construction travelers. Develop inspection procedures and reinspect supports to provide documentation.
79-10	11/20/79	Class V Pipe Supports	Revise FSAR to delineate requirements for supports, revise specification to clarify quality requirements, develop and implement construction & inspection procedures, reinspect, and rework as necessary.
79-13	12/13/79	Concrete Honeycombs Unit 2 Steam Generator Compartments	Determine defective areas and repair.
80-02	02/22/80	Discs for SW Control Valves	Return to vendor for repair/rework.
80-03	02/29/80	Welded Connection of Control Boards	Review as-built weld configuration and rework as necessary.
80-05	07/02/80	2" Architectural Concrete in Floor Slabs	NCR-M-82-01667 issued against nonconforming bolts.
80-09	09/26/80	Diesel Generator Pipe Supports	Establish compliance to requirements by engineering evaluation. Inspection and rework is required.

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 3

NUMBER	DATE	SUBJECT	DISPOSITION
80-10	10/01/80	Hilti Kwik Bolt Installation	Indoctrinate personnel, rework affected supports, and initiate a sampling program of UT examination for Hilti-bolt installation.
81-A	02/17/81	Westinghouse Gate Valves	Modify valves as per Westinghouse Field Change Notices and perform stroking during startup testing.
81-B	03/24/81	Bahnson HVAC Anchor Bolts	Revise Bahnson Procedures to require information on anchor bolts and as-built drawings; reinspect previous installations and document as as-built drawings for post installation design verification. Rework as necessary.
81-03	03/30/81	HVAC Cooling System	Replace existing HVAC system with system meeting new design requirements.
81-06	06/04/81	Seismic Design Criteria for Instrumentation Supports	Evaluate engineering documentation and revise, if necessary, survey-completed installations and rework as required.
81-07	11/19/81	Orifice Plates (BIF) Outside ISA Standard RF3.2 Tolerances	Scrap existing orifice plates and procure new plates from a new supplier with an approved quality program.
82-A	01/22/82	Borg Warner Valves May Not Close Properly if Installed Between 22½° and 157½°	Rework/repair.
82-02	02/25/82	Papco HVAC Fire Damper	Dampers will be cleaned & lubricated, blade locks secure with additional fasteners, damaged closure springs replaced based on testing additional springs added, and large horizontal dampers replaced with multipanel dampers.

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 4

NUMBER	DATE	SUBJECT	DISPOSITION
82-06	07/12/82	Linear Indications Diesel Generator	The existing auxiliary skids will be scrapped. The replacement structures will be fabricated at the jobsite. Completion should be no later than September 1984.
82-07	08/12/82	Governor Drive Coupling, Diesel Generator (Part 21 Report of 6/23/82)	Existing drive element to be replaced with new element or more suitable material (neoprene).
82-09	08/18/82	Solid State Protection System Undetectable Failure (Westinghouse 10 CFR 21)	Modify test procedure.
82-15	12/01/82	DeLaval Piston Skirt Castings (10 CFR 21 Report of 10/28/82)	Piston skirt castings will be replaced with castings provided by the supplier. Replacements should be received no later than May 1984.
83-01	01/20/83	Fractured Tack Weld in Check Valve	Valves redesigned to change tack weld to fillet weld. Disassemble valves supplied prior to design change. Inspect valves supplied after design change to ensure correct weld.
83-02	01/25/83	Westinghouse Gate Valves	Modify valves in accordance with manufacturer's recommendations.
83-07	03/10/83	New Fuel Storage Racks	Approved anchor design issued and racks reworked.
83-08	03/24/83	Valves Without Proper Weld Documentation	Scrap existing brackets and replace.
83-09	04/20/83	DS-416 Reactor Trip Switchgear	Replace.

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 5

NUMBER	DATE	SUBJECT	DISPOSITION
83-10	05/06/83	Letdown Heat Exchangers	The mounting configuration will be reworked in accordance with the supplier's recommendation. The rework will be completed no later than September 1, 1983.
83-11	05/24/83	CCW System Class V Piping (10 CFR 21 Report of 5/23/83)	Controls added to existing level transmitters and nonsafety-related components upgraded.
83-15	06/14/83	Cable Tray Bolting Support Material	Mild steel bolting material is acceptable for regular cable tray support clamps. Heavy duty cable tray supports clamp material and torque will be verified by site QC.
83-17	07/11/83	Piping Configuration & Relief Valve Settings Spent Fuel Pool Cooling	System modifications will consist primarily of pressure relief valve rework and/or piping reroutes to overt excessive back-pressure.
83-18	07/29/83	Reactor Containment Building Cooling System	The capacity of the cooling system will be increased by reduction of the chilled water temperature and the installation of additional chilled water cooling coils.
83-20	10/20/83	Broken Tack Weld in Westinghouse Supplied 480V Switchgear	Brackets with defective or suspect welds will be replaced.
83-21	11/29/83	Calibration Techniques	To correct the temperature deviation, a revised setpoint (1829 PSIG) will be incorporated into the CPSES I&C Equipment List for pressurizer pressure safety injection. In addition, TUGCO (Operations) I&C will change the bistable setpoints for transmitters PB-455D, PB-456D, PB-457D and PB-458D to correspond to the revised SI actuation setpoint.

REPORTABLE SIGNIFICANT DEFICIENCIES

Page 6

NUMBER	DATE	SUBJECT	DISPOSITION
			<p>Regarding the electrical leakage path, the supplier has advised the issue does not warrant immediate corrective action. The transmitters will be replaced or reworked per the manufacturer's recommendations.</p> <p>These modifications will be completed no later than June 1, 1984.</p>
83-22	12/20/83	FSAR Requirements for Control Room Ventilation	<p>Corrective actions will consist of: relocation of chlorine sensors and modifications to provide adequate calibration; reversing power supplies for two chlorine detectors; providing seismic supports for detector power supplies; and, realigning detectors with proper trains for respective control room inlet dampers.</p> <p>Engineering will be completed no later than March 30, 1984. Construction activities should be completed no later than 30 days prior to fuel load.</p>
84-02	01/13/83	Linear Indications in Diesel Generator Welds (Push Rods)	<p>The defective push rods will be removed and scrapped. Replacements have been requisitioned for installation before operation of Unit 1.</p>
84-04	01/16/84	Insulation Degradation on Westinghouse (General Electric) Transformers	<p>The transformers will be returned to the supplier (Westinghouse) for repair by the manufacturer. Repair will consist of: replacing the insulation with material more resistant to abrasion; treating the insulation with hard bonding material; incorporating improved mechanical wedging for the center leg; and hi-pot production tests at 4000V (vs. 2500V) for assurance of dielectric integrity.</p>

REPORTABLE SIGNIFICANT DEFICIENCIES

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NUMBER	DATE	SUBJECT	DISPOSITION
			Reinstallation of the transformers will be completed no later than 30 days prior to fuel load.
84-07	01/24/84	Deficient Lug Crimping	Corrective action consisted of an inspection for proper terminal and connector pin crimping in all class IE equipment provided by the vendor. Deficiencies were documented and reworked.
84-08	03/09/84	Curtain Fire Damper	Corrective action will consist of combining fire areas and reworking individual fire dampers as necessary so that they meet tested configurations.
84-12	06/04/84	Impact of High Energy Line Break Temperatures on Qualified Equipment Outside Containment	Westinghouse owners group developed a program to address this issue on a generic basis. The program is summarized in Westinghouse letter OG-133
84-17	07/17/84	Flooding Concerns	Corrective action consists of isolating the affected drains to preclude flooding that may have been caused by sump overflow.
84-28	09/13/84	Rosemount Transmitters - Leakage	Affected transmitters reworked by manufacturers to seal leak path.
84-29	09/13/84	Safe Shutdown Capability for Fire	Essential cables and components will be afforded protection by the installation of one-hour fire barrier material and fire detection and suppression capabilities.
84-31	10/12/84	Non-seismic gypsum wall in the control room area is not an acceptable interaction with safety-related components.	Wall is being replaced with one of seismic design.

4/15

MEMORANDUM FOR: R. H. Wessman, TRT Staff Member

FROM: D. M. Hunnicutt, Chief, Reactor Project Section B, Region IV

SUBJECT: INSPECTION ACTIONS REQUIRED TO MEET THE ADEQUATE COMPLETION OF PLANT CONSTRUCTION AND READINESS OF THE APPLICANT TO RECEIVE AN OL FOR CPSES, UNIT 1

In response to your telephone conversation of April 3, 1985, (R. Wessman to D. M. Hunnicutt) a compilation of inspection actions has been prepared.

These inspection actions are those required to meet the adequate completion of CPSES, Unit 1, plant construction and readiness of the applicant to receive an OL. These actions are the responsibility of Region IV.

The total number of outstanding actions items is 138. These action items may be grouped as follows:

- SER verification:	22 actions
- Routine construction inspections, preoperational test program and operational readiness inspections and startup test program:	77 actions
- Operating license:	4 actions
- Open items inspections (Bulletins, unresolved items, violations 10 CFR Part 50.55(e) items, inspector follow-up items and 10 CFR Part 21 items:	32 actions
- Special Review Team (SRT) items	3 actions
- CAT follow-up:	<u>0 actions</u>
TOTAL	138 actions

All of the above inspection items require resolution prior to OL issuance. Many require applicant actions prior to inspection or relate to hearing issues. Many of these tests will be observed by the NRC and test results will be evaluated, as appropriate. Systems involved include safeguards systems, reactor protective system, service water system, component cooling water system, and related systems.

Some additional resources may be required to complete the routine inspection program and resolve the many open items. It is expected that this area could

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R. H. Wessman

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require approximately 10 man-months. Considering the existing Region IV resources available, approximately 4 man-months of additional resources may be required. The possible date for issuance of the OL is unknown; therefore, man-power resources can not be estimated with any degree of accuracy.

Should you require additional information or wish to discuss the attached information, please call (H. S. Phillips, 817/897-2201 or D. M. Hunnicutt, FTS 728-8137 or 817/897-2201).

D. M. Hunnicutt, Chief
Reactor Project Section B

Open Item, Concerning Bulletins

<u>Track No.</u>	<u>Description</u>
79-14	Seismic Analysis for AS Built Safety Related Piping <i>L. John Finnegan</i>
79-28	NAMCO Switch (EA-180) Possible Failure at Elevated Temperatures <i>Popperwell & Peter Stevens</i>
80-18	Centrifugal Charging Pumps Flow Adequacy After High Energy Line Break on Secondary Side <i>3. Claude MacLellan</i>
80-20	Failure at Westinghouse (Type W-2) Spring Return to Neutral Control Switches <i>4. Stevens or Popperwell (prev. assigned)</i>
81-02	Failure of Gate Valves to Close Against Differential Pressure <i>5. MacLellan</i>
83-05	Hayward Tyler Pumps <i>6. MacLellan</i> <i>Fred MacLellan</i>

Jean Gross ^{est} 125

SOME QUESTION REMAINS

76-05

80-18

~~80-22~~

~~83-07~~

1-5

B/G

A. PROJECT HISTORY

1. Chronological Project Milestones

The application for construction permits for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2 were docketed on July 20, 1973.

Ground breaking occurred on October 8, 1974, and an LMA was granted to the applicant on October 17, 1974. The construction permits (Nos. CPPR-126 and CPPR-127) were issued on December 19, 1974.

There has been no change in principle contractors. Unit 1 has completed preoperational testing. Precore hot functional testing began on February 20, 1983, and was completed on June 10, 1983. The thermal expansion testing was started in November 1984 and completed during the first week of January 1985. The applicant's present projected fuel load date is the first quarter of 1985.

Texas Utilities Electric Company (TUEC) was granted a license to receive and store fuel (SNM-1912) on April 26, 1983, and began receiving fuel on May 4, 1983. The final fuel shipment was received onsite January 17, 1984.

2. Principle Contractors

Gibbs & Hill, Inc. (G&H) is the architect-engineer, and Brown & Root, Inc. is the constructor. Construction management is being performed by Texas Utilities Services, Inc., a wholly owned subsidiary of the owner, Texas Utilities. The nuclear steam supply system vendor is Westinghouse Electric Corporation.

B. QUALITY ASSURANCE ORGANIZATION STRUCTURE

The applicant's present QA organization is shown in Exhibit 1. The present structure has not appreciably changed from that shown in the FSAR. The applicant has recently completed review of the QA program pursuant to 10 CFR 50.55(c). No changes in the QA program were identified.

C. SALP REVIEW

Four SALP reviews have been conducted to evaluate TUEC's performance. The SALP periods were:

- o August 1, 1979-July 31, 1980 (Report 50-445/80-25 and 50-446/80-25)

- o July 1, 1980-June 30, 1981 (Report 50-445/81-20 and 50-446/81-20)
- o October 1, 1981-September 30, 1982 (Report 50-445/82-24 and 50-446/82-12)
- o October 1, 1982-October 31, 1983 (Report 50-445/83-49 and 50-446/83-23)

1. During the period of August 1, 1979, through July 31, 1980, the applicant was evaluated in the following functional areas:

Functional Area	Increase	No Change	Decrease
Quality Assurance,			
Management and Training		X	Substructure &
Foundations		complete	
Concrete		X	
Liner (Containment & Others)			complete
Safety-Related Structures		X	
Piping & Hangers (Reactor			
Coolant & Others)		X	
Safety-Related Components			
Vessel, Internals & HVAC)		X	
Electrical Equipment		I	
Electrical (Tray & Wire)		X	
Instrumentation		I	
Fire Protection		X	
Preservice Inspection		I	
Reporting		X	

The board determined that an increase in inspection activities was not warranted as a result of the assessment.

2. During the period of July 1, 1980, through June 30, 1981, the applicant was evaluated in the following functional areas:

Functional Areas	Category
Soils and Foundations	NA
Containment and Other Safety-Related Structures	NA
Piping Systems and Supports	1
Safety-Related Components	1
Support Systems	2
Electrical Power Supply and Distribution	1
Instrumentation and Control Systems	1
Licensing Activities	2

The board concluded that although the overall applicant performance was Category 1, the inspection level of the construction activities should not be changed due to recent programmatic changes which effectively reduce construction inspections.

3. During the period of October 1, 1981, through September 30, 1982, the applicant was evaluated in the following functional areas:

Functional Area	Performance Category -----1982-----
A. Plant Operations - Preoperational Testing	3
B. Construction Activities - Soils and Foundation	Not evaluated
Containment & Other Safety-Related Structures	2
Piping Systems and Supports (includes welding, NDE, and preservice inspection)	2
Safety-Related Components (includes vessel, internals, pumps, etc.)	1
Support Systems (includes HVAC, radwaste, fire protection)	Not evaluated
Electrical Power Supply and Distribution	1
Instrument and Control Systems	1
Vendor Procurement Cycle Controls	3
Licensing Activities	1

The board found that the applicant's management controls were strong and effective with exception of the areas of vendor controls and preoperational testing.

4. During the period October 1, 1982-October 31, 1983, the applicant was evaluated in the following functional areas:

Functional Area	Performance Category 10/1/82 to 10/31/83
Preoperational Testing	2
Emergency Preparedness	2
Radiological Controls	
Radiation Protection	2
Confirmatory Measurements	1
Radwaste Systems, Effluent Treatment, Releases, and Monitoring	2
Transportation, Solid Radwaste	1
Environmental Surveillance	1
Security and Safeguards	2
Soils and Foundation	N/E
Containment and Other Safety-related Structures	2
Piping Systems and Supports (includes welding, NDE, and preservice inspection)	2
Safety-related Components (includes vessel, internals, pumps, valves, etc.)	2
Support systems (includes HVAC, radwaste, fire protection, fuel storage, etc.)	3
Electrical Power Supply and Distribution	2
Instrumentation and Controls	1
Training	2
Design and Design Change Controls	2
Quality Assurance - Preoperational	2
Testing Quality Assurance - Construction	2
Vendor Procurement Controls and Involvement Management Controls	2
Involvement	2
Licensing Activities	2

Note: The notation N/E indicates that the functional area was not evaluated.

The total NRC inspection effort during this SALP evaluation period consisted of 76 inspections reported in 46 NRC inspection reports involving a total of 6,498 hours onsite by NRC inspectors and subcontractors.

The board concluded that the level of applicant involvement and degree of control over site activities was acceptable.

5. The current SALP assessment is for the period November 1, 1983, through December 31, 1984.

D. ESCALATED ENFORCEMENT HISTORY

1. Immediate Action Letter

An Immediate Action Letter was issued on September 7, 1979, confirming a licensee decision not to place concrete in the wall to close transition area of the Unit 2 containment building until such time as a proper engineering evaluation could be made of the omission and subsequent addition in another location of a group of reinforcing steel shear ties.

2. Civil Penalty

A civil penalty (EA-83-64) for \$40,000 was proposed against the applicant for alleged violation of 10 CFR 50, Appendix B, Criterion I. This was based on the Secretary of Labor Final Decision and Order in Atchison vs. Brown & Root, Inc., 82-ERA-9; June 10, 1983.

A civil penalty (EA-83-132) for \$40,000 was proposed against the applicant for alleged violation of 10 CFR 50, Appendix B, Criterion I. This civil penalty proposal was based on an investigation initiated as a result of allegations made to NRC Office of Investigation by paint QC inspectors employed by Texas Utilities Generating Company (TUGCO). The findings of the investigation were discussed with TUGCO management during an Enforcement Conference held in the Region IV office on December 12, 1983.

E. INDEPENDENT DESIGN HISTORY

The applicant has contracted with Cygna Corporation to review the Comanche Peak design. The review is being done in four phases.

Phase I is complete and in review. The review consisted of a design analysis and interface control evaluation of the spent fuel cooling system.

Phase II is also complete and in review. It consisted of a technical review of the residual heat removal system.

Phase III is in progress and is a result of the December 28, 1983, ruling of the ASLB. This review consists of a pipe and pipe support review of

the main steam and component cooling water system. It also consists of a review of Quality Assurance and corrective action measures.

Phase IV is underway and completion depends on the ASLB findings of Phase III. It consists of an Independent Design Verification Program (IDVP) regarding the component cooling water system.

F. NRC INDEPENDENT MEASUREMENTS INSPECTION

The NRC performed an independent measurements inspection at the Comanche Peak site April 25-May 6, 1983. The report on the results of the examination are contained in NRC Inspection Report 445/83-15 and 446/83-09. Two violations were identified during this inspection.

G. BENEFIT CORRESPONDENCE

TUEC has established procedures providing specific instructions to the nuclear project support group personnel who are responsible for coordination and review of IE Circulars, Bulletins, and generic letters. In each case, a TUEC-appointed coordinator is given responsibility for assigning the cognizant responsible person to review and track all actions and provide documentation. When required, the coordinator shall draft a response to the NRC which will be reviewed by the plant manager - nuclear, licensing engineering supervisor - nuclear, and project support manager - nuclear. The response shall be signed by the vice president - nuclear operations and shall include an affidavit. A permanent record of actions taken is maintained. The applicant's response to NRC has been satisfactory.

H. LICENSEE AND CONTRACTOR INITIATED STOP WORK ACTION

There have been a total of 47 stop work orders issued by the applicant and his contractors since 1975. See Exhibit 2 for a summary of the stop work orders.

I. CONSTRUCTION DEFICIENCY REPORTS (10 CFR 50.55(e))

The applicant has reported 45 significant construction deficiencies. See Exhibit 3 for a summary of these reports.

J. PART 21 NOTIFICATIONS

Of the 17 Part 21 reports received by NRC, 5 resulted from 10 CFR 50.55(e) items and are being tracked by the applicant. They are included in Exhibit 3 of this report. A followup inspection was conducted by the Resident Reactor Inspector to determine the status of the remaining 12 Part 21 reports. All of the reports were closed except for the following:

1. Brown-Boveri Electric, Inc. report of June 16, 1981, regarding overcurrent relay drop-out problems. This item is being tracked on an applicant nonconformance report (NCR).
2. E&H report of July 31, 1981, regarding tornado venting, tracked by several engineering documents.
3. Transamerica Delaval, Incorporated (TDI) reports of October 28, 1982, September 21, 1983, and March 20, 1984, regarding problems with the emergency diesel generators (EDGs). The generic implications of the TDI problems has resulted in NRC concern regarding the reliability of the EDGs. An owners group detailed a comprehensive teardown and inspection plan. The teardown and inspection of the Unit 1 EDGs has been completed. The results of the evaluation have been completed by the owners group. (The final acceptance by the applicant of the testing has not been completed at this time.)

OK AS IS.
Final acceptance by the applicant has been completed by the applicant.

K. NRC INSPECTION ACTIVITIES

1. Construction Inspection

The routine MC 2512 inspection program is approximately 97% complete for Unit 1 and Common; however, an augmented program has been implemented to correspond to applicant final completion inspection. This augmented program linked to the activities of completion and will be ongoing until final construction and inspection completion.

2. Construction Appraisal Team

- a. The Construction Appraisal Team (CAT) performed an inspection of CPSES on January 24-February 4, 1983. Four enforcement findings were identified regarding procedures for equipment installation, maintenance of items stored outdoors, drawing control, and control of ventilation system fabrication. Details of the inspection are contained in NRC Inspection Report 445/83-18; 446/83-12. The enforcement findings were transmitted to the applicant on May 31, 1983.
- b. On June 27-September 16, 1983, a followup inspection to CAT inspection was performed by the Region IV staff. No new violations or deviations were identified. Details of this inspection are contained in NRC Inspection Report 445/83-28; 446/83-14.

3. Special Inspection

- a. Special inspections to evaluate the applicant's turnover/access control process were conducted in four areas. The areas and results are discussed below.

- (1) The inspection of the fuel building was conducted on May 23 - June 10, 1983. Two violations were identified concerning conduit, cable tray, and pipe supports and piping sway strut jam nuts. The details of the inspection are contained in NRC Inspection Report 445/83-23.
- (2) The inspection of the cable spread room was conducted on March 13 - April 11, 1984. The areas examined included electrical raceway and raceway supports, cable routing, cable terminations, electrical separations, HVAC, and fire protection/detection. No violations were identified. The details of the inspection are contained in NRC Inspection Report 445/84-10.
- (3) The inspection of the containment building was conducted on May 14 - June 20, 1984. Areas examined during the inspection included piping and pipe supports, containment penetrations, HVAC ducts and supports, electrical raceways and supports, safety-related equipment, "as-built" program, QC inspector and welder qualifications, and followup on one unresolved item from the special inspection of the fuel building.

Two violations were identified concerning proper inspection of cable tray hangers and design document control. The details of the inspection are contained in NRC Inspection Report 445/84-16.

- (4) The inspection of the safeguards/auxiliary buildings was conducted on July 16-September 7, 1984. The areas examined included piping and pipe supports, HVAC ducts and supports, electrical raceways and supports, installation of prime motors (electric motors and steam turbine) and pumps, and "as built" program. Portions of four safety-related systems were examined during the inspection. These included the Auxiliary Feedwater System, Containment Spray System, Component Cooling Water System, and Chemical and Volume Control System. In addition, electrical separation was examined throughout the buildings.

Two violations were identified concerning QC inspection of electrical separation and proper inspection of cable tray hangers. The details of the inspection are contained in NRC Inspection Report 445/84-26.

- b. On July 9, 1984, the NRC Technical Review Team (TRT) began intensive onsite efforts to complete a portion of the reviews necessary for the staff to reach a decision regarding the licensing of CPSES Unit 1. The onsite effort covered a number of areas, including allegations of improper construction practices at the facility. On September 18, 1984, the NRC met with TUEC representatives to present a number of technical issues in the electrical/instrumentation, civil/structural, and test program areas having potential safety implications. On November 29, 1984, the NRC provided a second set of technical issues for TUEC response. On January 8, 1985, the NRC provided a third set of technical issues for TUEC response.

4. Preoperational Testing and Operational Preparedness ~~(MC 2513 is closed)~~

MC 2513 is directed toward inspection of activities involved in preoperational testing and operational preparedness. These inspection activities are summarized as follows:

	3. Complete
Preoperational Test Procedure Review	100
Preoperational Test Witnessing	28/100
Preoperational Test Results Evaluation	28/100
Operation Staffing	20/90
Quality Assurance	100
Operating Staff Training	100
Technical Specification Review (Final Draft)	100
Operational Procedure Review (including Surveillance Procedures)	28/100
Radiation Protection	75
Radwaste Environmental Monitoring	75
Emergency Planning	28/100
Security	75

*#.as of April 10, 1985, only some three
open. They are
70329 Preoperational Test Results
Evaluation Verification (licensur
36301 Operational Staff Inspection
42451 Maintenance Inspection
The open inspection items will be
transferred to MC 2514 Violations, Monitoring
and tracked using the appropriate
follow up procedures.*

5. Startup Testing

Inspection activities established in MC 2514 define the inspection program for the startup testing phase. Since this program generally starts with fuel loading, the program, except for procedure review, has not begun. The program includes:

- QA/QC Technical Specification Review (complete for Final Draft)
- Startup Procedure Review (Required to be started prior to OL)
 - Initial Fuel Load (Required to be complete prior to OL)
 - Precritical Checks

Power Ascension Testing
Initial Criticality/Low Power Testing
Data Review

Those required for OL issuance are 75% complete

6. TMI Open Items

Most of the TMI lessons-learned issues were specifically addressed during the FSAR review and appear in "The Safety Evaluation Report," NUREG-0737 and its supplements. These items are being tracked and verified during preoperational testing inspection activities (MC 2513). The individual items will be inspected and closed out in accordance with the temporary instruction.

7. Allegations

There are a number of allegations made regarding Conanche Peak which are being pursued by the staff. The more significant of these allegations involve issues that arose before the ASLB. These allegations are generally divided into the following areas:

- = Intimidation of QC Construction Inspectors o Practice Involving Drilling through Rebar
- = Falsification of QC Records and Poor QA Practices
- = Worker Firing and Co-Worker Discouragement
- = Improper Documentation
- = Construction Practices with QA/QC Deficiencies
- = Improper Welding of Socket Connections
- = QA/QC Documentation of Penetrations
- = Independence of CYGNA

8. SSR Confirmatory Items (To be verified by Region IV)

SSR Section	Description of Item
5.3.1.2/5.3.1.3	Fracture-toughness 5.3.2/5.3.3 properties of Unit 2 Reactor vessel materials (SSER #1 5.3.1.2, 5.3.1.3, 5.3.2, and 5.3.3) (Discussed in SSER #6)

- 2.1.4 Handling of heavy loads in conformance with the guidelines of NUREG-0612 (SSER) #1 9.1.4 (Complete except for *Control of heavy loads - Phase II)

- 2.1.4.1 Recommendation 6L-3: Verification by test of the capability of the turbine-driven AFM pump to operate for 2 hours without AC power

Done during ICP-PT-37-01

- 2.1.4.2 Containment isolation dependability

- 2.2.6 Periodic leak testing of pressure isolation valves

- 2.5 Documentation of applicant's commitments on fire protection

9. Outstanding items including enforcement and unresolved items will be provided in a subsequent report.

L. CONSTRUCTION STATUS

Most active systems are sufficiently complete to conduct preoperational tests. Pipe support design and installation remain as major pacing effort at this time. Also, there is a considerable effort in the area of attaining separation in the electrical area.

There is a considerable effort directed to engineering design review of site changes. In conjunction with this effort, site QA is verifying that the changes have been inspected and that proper documentation is available.

Handwritten signature and "NO" with a checkmark

M. PREOPERATIONAL TEST RESULTS

The applicant's startup group has determined that the plant will be ready for fuel load when the following systems have been prerequisite/preoperational tested. Not all systems are required to be preoperational tested per NRC Regulatory Guide 1.68, Revision 2. The percent complete refers to the conduct and results approval only.

System	Description	Preoperational % Complete
01	125 V DC Class 1E Power Systems	90 100
02	6.9 KV/480v Class 1E AC Distribution Systems	90 100
03	Startup Power Systems	100
04	Service Water System	100
06	Fire Protection/Detection Systems	90 100
07	Control Room - HVAC System	90 100
08	Battery Rooms - HVAC System	90 100
11	Component Cooling Water System	100
12	Communication System	90 100
22	Sampling System	100
24	Primary Plant Ventilation System	90 100
29	Diesel Generator and Auxiliaries System	90 100
31	Safety Chill Water System	100
32	Auxiliary Building - HVAC	100
34	Main Steam System	90 100
36	Safeguards Building - HVAC System	100
37	Auxiliary Feedwater System	100
39	Diesel Generator - HVAC System	100
40	Fuel Handling and Vessel Servicing Systems	100
41	Liquid Waste Processing System	100
42	Fuel Building - HVAC System	100
44	Steam Generator Blowdown System	100
45	Containment Ventilation System	100
46	Containment Hydrogen Purge System	100
47	Fuel Pool Cooling and Cleanup System	100
48	Containment Spray System	100
49	Chemical and Volume Control System	100
55	Reactor Coolant System	100
56	Boron Recycle System	100

57	Safety Injection System	99 100
58	Residual Heat Removal System	100
60	Solid Waste Processing System	100
61	Gaseous Waste Processing System	100
64	Reactor Protection System	99 100
65	Containment Atmosphere Monitoring System	100
66	Nuclear Instrumentation System	100
67	Hydrogen Recombiner System	100
68	Rod Control System	100
70	Radiation Monitoring System	100
73	Protection and Surveillance Package (N-16)	100
74	Movable Incore and Flux Mapping System	100
75	Structural Integrity and Leak Rate Testing	100
78	ERF Computer (SFDS) System	100
80	Seismic Monitoring System	100
81	Cranes and Hoists	100
82	Meteorological Monitoring System	100
91	Loose Parts Monitoring System	100

† 90% indicates the physical testing is complete with the remaining 10% allowed for review and acceptance of test results.

The preoperational test program is approximately 95% complete (factoring in retesting).

N. CONCLUSION

Prediction of the fuel load date by Region IV, based solely on physical work and testing to be done and the past progress rate would not yield a realistic date because other activities such as the ASLB, TRT, and corrective actions are more controlling. When schedules for these activities are available, readiness for fuel load can be predicted.

The Testing Phase of the preop.
Testing Program is complete. See
Paragraph K.4
for the remaining
open 2513 items modules