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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
TEXAS UTILITIES ELECTRIC COMPANY, et al.	)	Docket Nos. 50-445 50-446
	)	
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	

APPLICANTS' RESPONSE CONCERNING
RECORDS RETRIEVAL

I. INTRODUCTION

On January 30, 1984, the Licensing Board in the captioned proceeding issued a Memorandum (Records Retrieval), LBP-84-8, in which the Board disclosed its thinking about the adequacy of the record regarding "the computerization of certain deficiency records for construction and the adequacy of the system for retrieving and utilizing these deficiency records." LBP-84-8 at 1. In order to be fully responsive to matters we perceive to be of concern to the Board, we are filing along with this Memorandum a report entitled "Records and Records Retrieval." The Report, which is supported by affidavits, provides evidence of how various types of records at Comanche Peak are used, and we ask that the Board receive it.

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This response addresses specifically several issues regarding records and records retrieval which apparently are of concern to the Board. It is based on the accompanying Report as well as on certain testimony already before the Board. For the convenience of the Board and other parties, we have appended to the Report a glossary of significant terms.

II. RESPONSES TO BOARD CONCERNS

A. Utilization of Punchlists at CPSES

In LBP-84-8 at 2-4, the Board referred to testimony by certain TUGCO and NRC witnesses and to an NRC Staff report of the final walkdown inspections of the fuel building. In doing so, it suggested the following questions concerning the use of punchlists at CPSES:

1. Does the use of punchlists attached to inspection reports constitute compliance with 10 C.F.R. 50, Appendix XVI?

2. Why are punchlists not trended?

3. Why is there no procedural control or historical record for punchlists?

Each of these questions is addressed below.

Criterion XVI. There are two types of punchlists in use at Comanche Peak, viz., inspection punchlists generally associated with a walkdown, and punchlists of

remaining work. The type to which the Licensing Board referred was an inspection punchlist; in particular, the Electrical Separation Deficiency Report.[1]

Use of the Electrical Separation Deficiency Report satisfies the requirement set forth in Criterion XVI that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and reported. Deficiency reports are only one way it is satisfied at CPSES. Other ways Criterion XVI is satisfied include the use of IRs and NCRs.[2]

Trending of Punchlists. Although the Electrical Separation Deficiency Report was used to identify items requiring correction as required by Appendix B, Criterion XV, Applicants did not trend this list. Applicant's approach to satisfying separation requirements was to perform both in-process and final inspections, with final inspections scheduled after areas or buildings were completed. This practice acknowledged the possibility that rework to assure correct separation at the end of construction could be required. Nevertheless this approach was considered to be more practical than

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1 See Section Sections E.2.c. and E.2.e. of "Records and Records Retrieval" ("Records Report").

2 See Sections E.2.b., and E.2.d. of Records Report.

attempting to maintain separation during bulk construction.[3] Under these circumstances formal trending to determine the cause of incorrect separation and to prescribe corrective actions to preclude repetition was unnecessary.[4]

The other type of punchlist used at Comanche Peak is not a quality related document. Rather, it is a list of outstanding work items required to complete the plant.[5] Therefore, Appendix B does not apply to these punchlists.

Procedural Control or Historical Record. To respond fully to the Licensing Board's inquiry regarding the lack of procedural controls or historical records for punchlists, it is again necessary to distinguish between the Electrical Separation Deficiency Report, which is procedurally controlled and for which a historical record exsits, and other punchlists. The punchlists to which the Staff referred in Inspection Report 50-445/83-23 were the Construction Punchlist, the Completions Punchlist and the Master Punchlist. There are administrative directives

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3 See, Hearing Transcript ("Tr.") at 7884-88.

4 In response to a request from NRC, Applicants have since begun formally to trend Electrical Separation Deficiency Reports. Tr. at 8539.

5 Records Report at E.2.e.

governing these punchlists. These punchlists are not quality related records and do not fall under the scope of Appendix B.[6]

B. TUGCO's Purpose in Installing a Computer System for IRs at CPSES

In LPB-84-4, the Board at 3 noted that TUGCO's purpose in installing a computer system for IRs did not appear in the record. That purpose is explained below.

First, TUGCO did not install a computer system for IRs. Rather, it began to use existing computer facilities for this purpose. The computer services and facilities described in Section D.1 of "Records and Records Retrieval" are used to support a variety of construction and operations activities at CPSES. TUGCO's purpose in using these services and facilities for open IRs was to establish a more efficient method of scheduling activities.[7] The computer index as it was set up and is being used today effectively enables open IRs to be tracked and their status determined in a timely manner. ASME IRs continue to be logged, tracked, and closed using a manual system.[8]

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6 Section E.2.e. of Records Report.

7 Affidavit of Ronald G. Tolson Regarding Computerization of Non-Conformances ("Tolson Affidavit"); October 11, 1982, at 2.

8 Section E.2.e. of Records Report.

C. Handling of Inspection Reports

In LBP-84-8 the Board at 3-4, referring to Staff testimony, raised several matters concerning the manner in which IRs are handled at Comanche Peak. Those questions are as follows:

(1) Are IRs properly dispositioned at CPSES?

(2) Why are hold tags not used for IRs?

(3) Why is TUGCO engineering approval of "use-as-is" for an IR item not stated in writing?

Dispositioning of IRs. IRs are used to record the results of field inspections performed by QC personnel. The results of these inspections are classified as either satisfactory ("sat") or unsatisfactory ("unsat"). A satisfactory (or closed) IR indicates that the subject of the inspection complies with all design and construction requirements. Such an IR completes the construction and inspection loop and documents work completion and acceptability.[9] It is retained in the Permanent Plant Records Vault and will be permanently stored in the Operations Vault.[10]

An unsatisfactory or open IR is used to document that the component or area being inspected at that point in time requires additional work to satisfy design and

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9 See Section E.2.b. of Records Report.

10 See Sections D.2.c and d. of Records Report.

construction requirements. There are several methods of closing an unsatisfactory IR. The required work can be completed or restored to design requirements following established procedures so that the status of the IR can be changed from unsatisfactory to satisfactory. Alternatively, Engineering can issue a CMC or DCA documenting its conclusion that an item reflected on an open IR can be used as is. Lastly, the QC inspector can issue an NCR for engineering evaluation and in so doing close the unsatisfactory IR.[11] This practice satisfies Criterion XV of Appendix B, which requires that measures be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation.

The Use of Hold Tags. It is common practice in the nuclear industry to affix hold tags to nonconforming items identified through the inspection process. Typically, the use of such tags is designed to provide a visible status indicator. The use of hold tags is useful in connection with materials failing to meet all applicable requirements in order to assure that they are not inadvertently used in construction.

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11 See Section E.2.b. of Records Report.

The use of hold tags, however, is not a regulatory requirement. ANSI N45.2 Section 15 (1971) states, as follows:

> [T]he inspection and test status of items shall be maintained through the use of status indicators such as physical location and tags, markings, shop travelers, stamps, or inspection records. The measures shall provide for assuring that only items that have passed the required inspections and tests are used, installed or operated.

IRs are used for field inspection of fabricated and/or installed materials. The QA program requires a records verification during which all applicable IRs are closed. Only after this verification is complete will the particular structure, system or component be "operated."[12] Therefore, IRs serve the same purpose as hold tags in that until they are closed, the subject of the IR cannot be operated.

Use-As-Is Approvals for IRs. There is apparently a misunderstanding as to the procedures followed concerning approvals by Engineering which permit an inspector to close an IR by using a component or area "as-is." When an unsatisfactory IR is written, craft may request an engineering review. If Engineering concludes that the component or area can be used "as-is," it will prepare and sign a CMC or DCA documenting this conclusion. The CMC or

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12 See Section E.2.b. of Records Report.

DCA acts as the documentation of Engineering's approval to use-as-is. Upon reinspection the IR will be changed from unsatisfactory to satisfactory because the as-built condition will conform to the as-designed condition. Through this process, Engineering documents all approvals to use as-is a component or area noted on an IR as unsatisfactory.[13]

D. Board's Site Visit and Effort at Records Retrieval

In LBP-84-8 at 1-3, the Licensing Board discussed its effort during a site visit to pull onto a computer screen an example of a nonconforming condition that had been detected in an inspection report. The Board then summarized its view of the record regarding use of the computer system at Comache Peak.

Site Visit. The actual work record at Comanche Peak consists of paper records which are not themselves on the computer system. To retrieve these records, various indices and filing methods are used.[14] In the case of NCRs, the index of open items has been computerized via the NCR Tracking Data Base and the index of closed items has been computerized using A.R.M.S.[15]

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13 See Section E.2.b. of Records Report.

14 Section D of Records Report.

15 Section E.2.d. of Records Report.

Because the Board's request when it visited the site made reference to both the computer and an NCR, the clerk apparently interpreted it as a request to demonstrate computer retrieval of the NCR index entry, not the retrieval of the actual NCR document.[16] The January 30 Memorandum indicates that the clerk's interpretation may have been inappropriate in that the Board apparently wanted the clerk to "pull onto the [computer] screen an unresolved nonconformance."[17] As discussed above, such documents are not in the computer system.

In addition, because it was not clear whether the request was for a demonstration of the computer indexing capability of opened or closed NCRs, it is understandable that the Board was left with questions regarding the computer system.

To demonstrate the computer indexing capability of open NCRs, three criteria have to be satified:

1. An authorized password must be used by an individual trained to access the NCR Tracking Data Base.

2. A terminal connected to George II/III must be used.

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16 See Applicants' September 14, 1984, letter to the Board.

17 LBP-84-8 at 2.

3. The computer programs operating the NCR Tracking data base must be operational.[18]

Since the Permanent Plant Records Vault (which the Board visited) does not receive NCRs until after they are closed and has no responsibility for retrieval of open NCRs, no one on the PPRV staff has a password which can access the NCR Tracking data base. Likewise, both computer terminals located in the PPRV, although identical to those which access George II/III, cannot access George II/III since they are connected to the Operations Computer.[19] All of these criteria would have been met if the Board's tour had been directed to the appropriate NCR Coordinator rather than conducted at random.[20]

To demonstrate the computer indexing capability of closed NCRs, three criteria must be satisifed:

1. An authorized password must be used by an individual trained to access A.R.M.S.

2. A terminal connected to the Operations Computer must be used.

3. The computer programs operating A.R.M.S. must be operational.[21]

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18 Section E.2.d. of Records Report.

19 See Fig. D-1 of Records Report.

20 Backup printouts for the NCR Tracking Data Base are also available through the NCR Coordinator in the event that the appropriate computer programs are not operational.

21 Sections E.2.d. and E.4.a. of Applicants' Report.

At the time of the tour, the A.R.M.S. programs were not operational. Therefore, retrieval of closed NCRs was dependent on the backup system of going to the PPRV and pulling the paper record.[22]

State of the Record. The Licensing Board concluded in LBP-84-8 that Mr. Tolson's initial explanation regarding the computer system was incomplete. This observation does not appear to account for the fact that the example being used to discuss records flow (electrical conduit separation) was a poor example of normal records processing[23] and that this example was being addressed hypothetically, in any event.[24]

Moreover, the Board apparently has equated testimony regarding Criterion XV with testimony regarding Criterion XVI. The Board cites Mr. Treby's cross-examination as designed to elicit whether the use of punchlists attached to IRs satisfies Criterion XVI.[25] In fact, that cross-examination begins at Tr. 8534, where Mr. Treby asks Mr.

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22 See Section E.2.c. of Records Report.

23 Tr. 8548, 8550.

24 Tr. at 8537.

25 LBP-84-4 at 1-2 citing Tr. at 8537.

Tolson how punchlists are used to identify, evaluate and resolve non-conformances. This question suggested to Mr Tolson that Mr. Treby was addressing Criterion XV.[26]

E. Adequacy and Reliability of Manual Records at CPSES

In LPB-84-8, the Board at 3-5 referred to certain NRC Staff witness testimony and raised questions concerning the adequacy and reliability of manual records at CPSES. The Board apparently also did so based on an NRC Inspection Report. Neither of these bases raises questions regarding the adequacy and reliability of manually tracked records.

The Inspection Report to which the Board referred discusses a difficulty encountered with using the computer which occurred when site personnel attempted on an experimental basis to expedite their task using the A.R.M.S. output. After it became evident that this was not the most efficient way to complete their task, the task was completed manually. The NRC Inspection Report did not include any findings that there was a lack of success using the computer system.[27]

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26 Compare this discussion with Tr. at 8538-39 regarding the trending of punchlists.

27 See NRC Inspection Report 50-445/83-24 and 50-446/83-15 at 11-13.

In addition, Mr. Taylor's testimony cited by the Licensing Board on page 5 of LBP-84-4 concerned the error rates of inspectors actually performing an inspection, not the reliability of manual records. Similarly, his testimony cited at page 4 of LBP-84-8 does not bear on manual records under the purview of Appendix B. Mr. Taylor was addressing the accuracy of the construction punchlist obtainable from the computer system. As discussed earlier, this punchlist is not governed by Appendix B.[28]

F. Adequacy of CMC Records at CPSES

In LBP-84-8, the Board at 4, referring to certain testimony by Mr. Taylor, noted a concern regarding the adequacy of CMC records at CPSES. Mr. Taylor stated clearly in his testimony that while there may be a large number of CMCs, there was no loss of document accountability.[29] In any event, CMCs are properly tracked at Comanche Peak through two data bases, the "DCC:DB" and the "DCA:DB." Both of these data bases are described in Applicants' Records Report.[30]

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28 See Section E.2.e. of Records Report.

29 Tr. at 8959.

30 See Section E.4.b. of Records Report.

III. CONCLUSION

Applicants believe that these responses address fully matters identified by the Board in LBP-84-8. Accordingly, Applicants submit that the record regarding these concerns demonstrates that records and records retrieval are adequately maintained at Comanche Peak.

Respectfully submitted,

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TEXAS UTILIITES GENERATING COMPANY
COMANCHE PEAK STEAM ELECTRIC STATION

RECORDS AND RECORDS RETRIEVAL

June 29, 1984

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A. Introduction

Texas Utilities Generating Company (TUGCO) is responsible for engineering, design, procurement, construction and quality assurance activities and will operate the Comanche Peak Steam Electric Station (CPSES) (FSAR, Section 17.0). Gibbs & Hill (G&H) is the architect/engineer and Westinghouse Electric Corporation is the nuclear steam supply system supplier.

As shown in Figure A-1, TUGCO is functionally divided into "Engineering and Construction" and "Operations" components for the purpose of constructing and operating CPSES. TUGCO Engineering and Construction has assigned its Construction Management organization responsibility for plant construction. TUGCO Operations is responsible for plant operations following completion of construction a well as quality assurance for CPSES during construction. As required by 10 C.F.R. Part 50, Appendix B, Criterion I, quality assurance is organizationally independent of construction and has independence from cost and schedule.

An understanding of how construction work is carried out at Comanche Peak through the Construction Management organization (illustrated in Figure A-2) is essential to an understanding of document distribution and records retrieval. The Construction Management organization includes the following:

Figure A-1

TUGCO Functional Organization

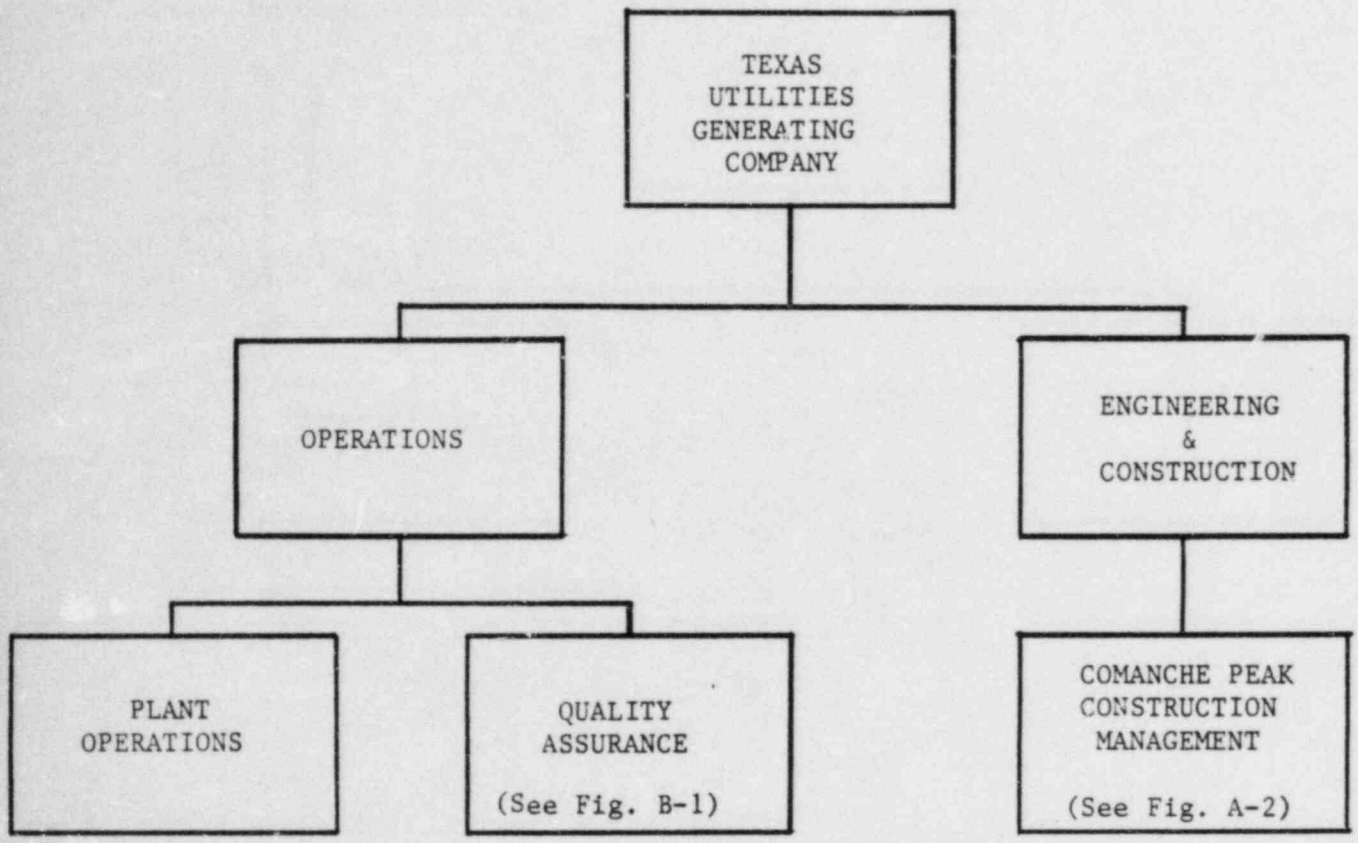
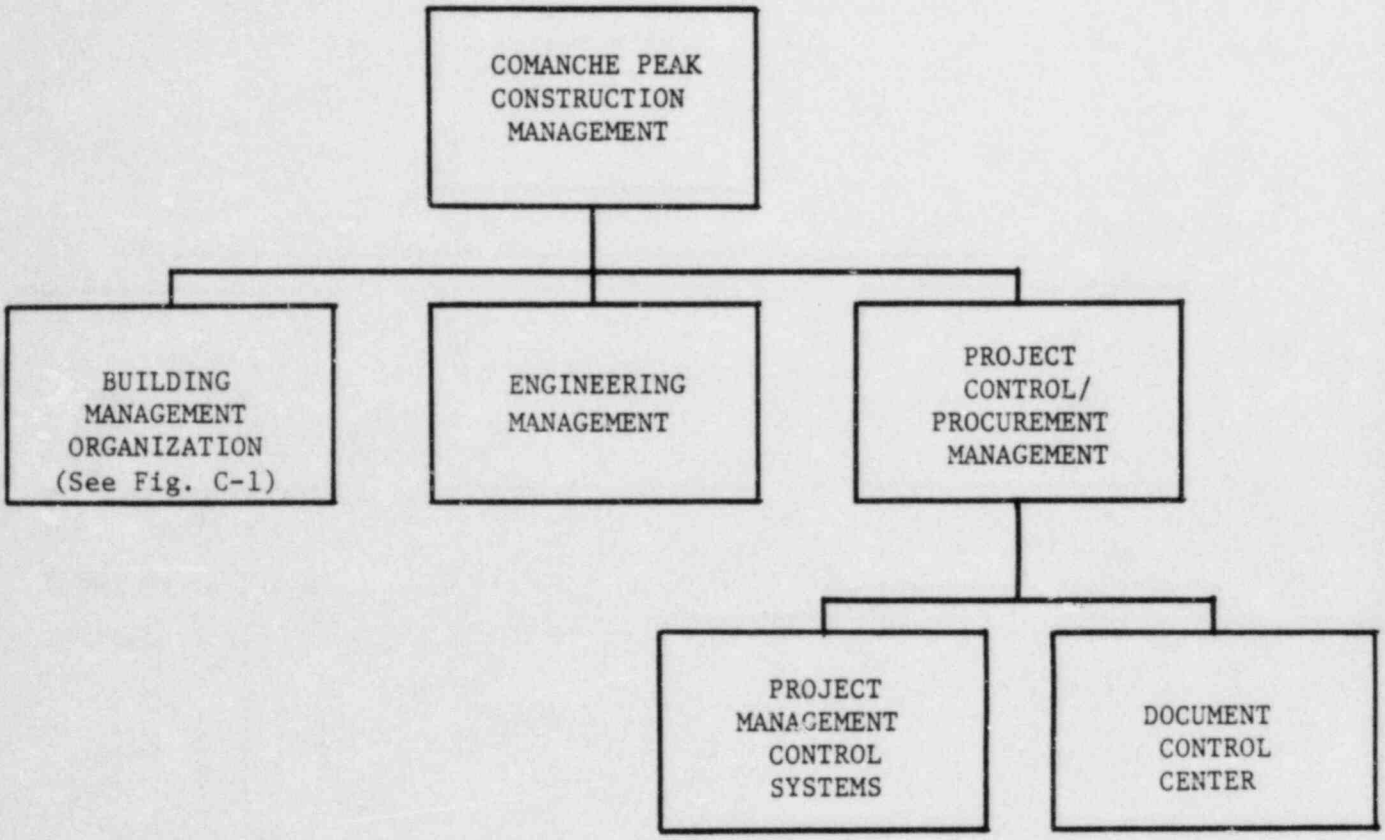


Figure A-2

CPSES Construction Management Functional Organization



- o Engineering Management -- a TUGCO organization responsible for managing engineering activities.

- o Building Management Organization -- a TUGCO project organization created to facilitate construction and completion of major areas of the plant such as the reactor and auxiliary buildings.

- o Project Control/Procurement Management -- responsible for, among other things, the Document Control Center (Construction) which receives, processes, distributes, and stores certain construction and design documents and the Project Management Control Systems which is responsible for operating computer systems which support construction activities on site.

TUGCO's Quality Assurance organization is discussed in Section B. TUGCO's Construction Management organization is discussed in Section C. Important computer and record related support services and facilities are described in Section D. These discussions provide the framework for the discussion in Section E of how work is documented and how this documentation is retained and retrieved. The scope of these discussions is congruent with inquiries suggested by the CPSES Atomic Safety and Licensing Board in its January 30, 1984, Board Memorandum (Records Retrieval), LBP-84-8 ("LBP-84-8").

B. Overview of Quality Assurance Organization

TUGCO's Quality Assurance organization is illustrated in Figure B-1. It is responsible for site construction quality assurance and control; vendor compliance; and quality assurance services, which include quality assurance audits, QA program review, and training. This organization has primary responsibility for providing quality assurance for CPSES (including the programs of the vendors and organizations participating in the design and construction of CPSES) as described in Chapter 17 of the FSAR.

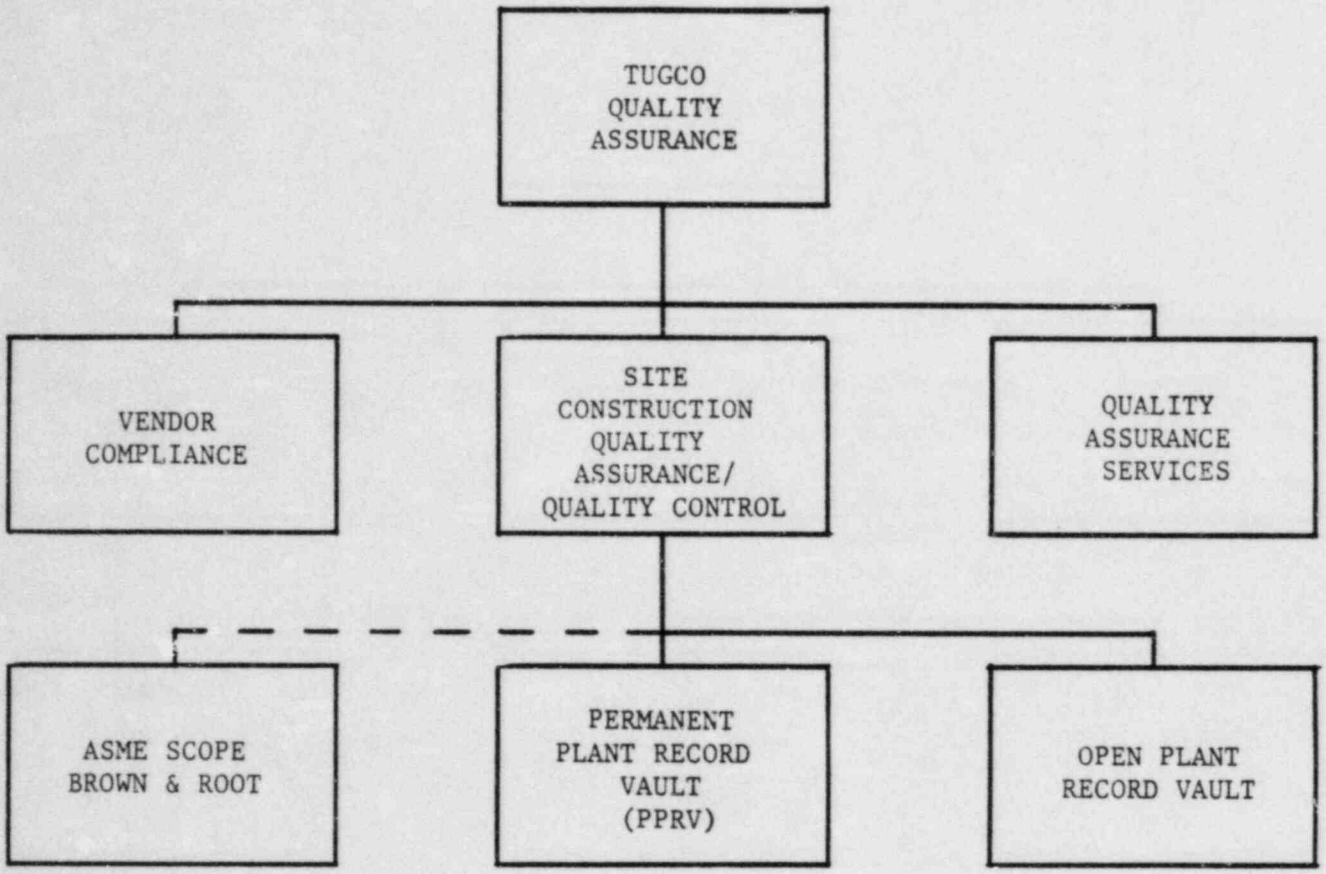
For purposes of responding to questions raised by the Board concerning document distribution and retrieval, only the site construction quality assurance/quality control, vendor compliance, and quality assurance services components of the quality assurance organization are relevant. These are the only components of the QA organization directly involved with records of the type discussed in LBP-84-8. Each of these components is discussed below.

1. Construction Quality Assurance/Quality Control

TUGCO has overall responsibility for quality assurance/quality control activities during the construction phase at CPSES. This responsibility has been implemented through direct (Non-ASME) and indirect (ASME)

Figure B-1

TUGCO Quality Assurance Functional Organization



management of the quality assurance/quality control functions, as described in Chapter 17 of the FSAR. Functional responsibilities assigned to the TUGCO site construction quality assurance organization include direct management of completed quality assurance records (both Non-ASME and ASME). These records are stored in the Construction Permanent Plant Records Vault (see Section D). TUGCO Construction Quality Assurance also monitors the statusing and tracking of incomplete Non-ASME inspection records, which are temporarily stored in an area referred to as the Open Plant Records Vault or within the Building Management Organizations (see Section C).

2. Vendor Compliance

The vendor compliance group performs in-process and release inspections at the facilities of vendors providing safety-related components for CPSES. These vendor control activities are in addition to the quality control services required to be provided by the vendor (and as verified by the TUGCO audit function). As part of these inspection activities, TUGCO vendor compliance personnel verify that vendor documentation (required by the procurement specifications) is complete and available to accompany a vendor's product to the CPSES project site.

3. Quality Assurance Services

Quality assurance services is responsible for, among other things, auditing design and construction compliance activities. Design audits are performed both on site and at the offices of the Architect/Engineer or other contractors providing design services. It is also responsible for qualifying vendors, reviewing vendor quality assurance program manuals and performing vendor audits to verify conformance to applicable requirements. Each of these audit activities includes verification that required documentation is being maintained.

C. Overview of Organization for Constructing CPSES

Construction activity at CPSES (Unit 1) is being managed by up to four TUGCO Building Management Organizations (BMO) to facilitate completion of major portions of the plant.[1] The four BMOs are:

1. Reactor Building
2. Auxiliary Building
3. Safeguard and Diesel Generator Buildings
4. Electric Control Building and all other buildings and areas

A typical BMO structure is depicted on Figure C-1.

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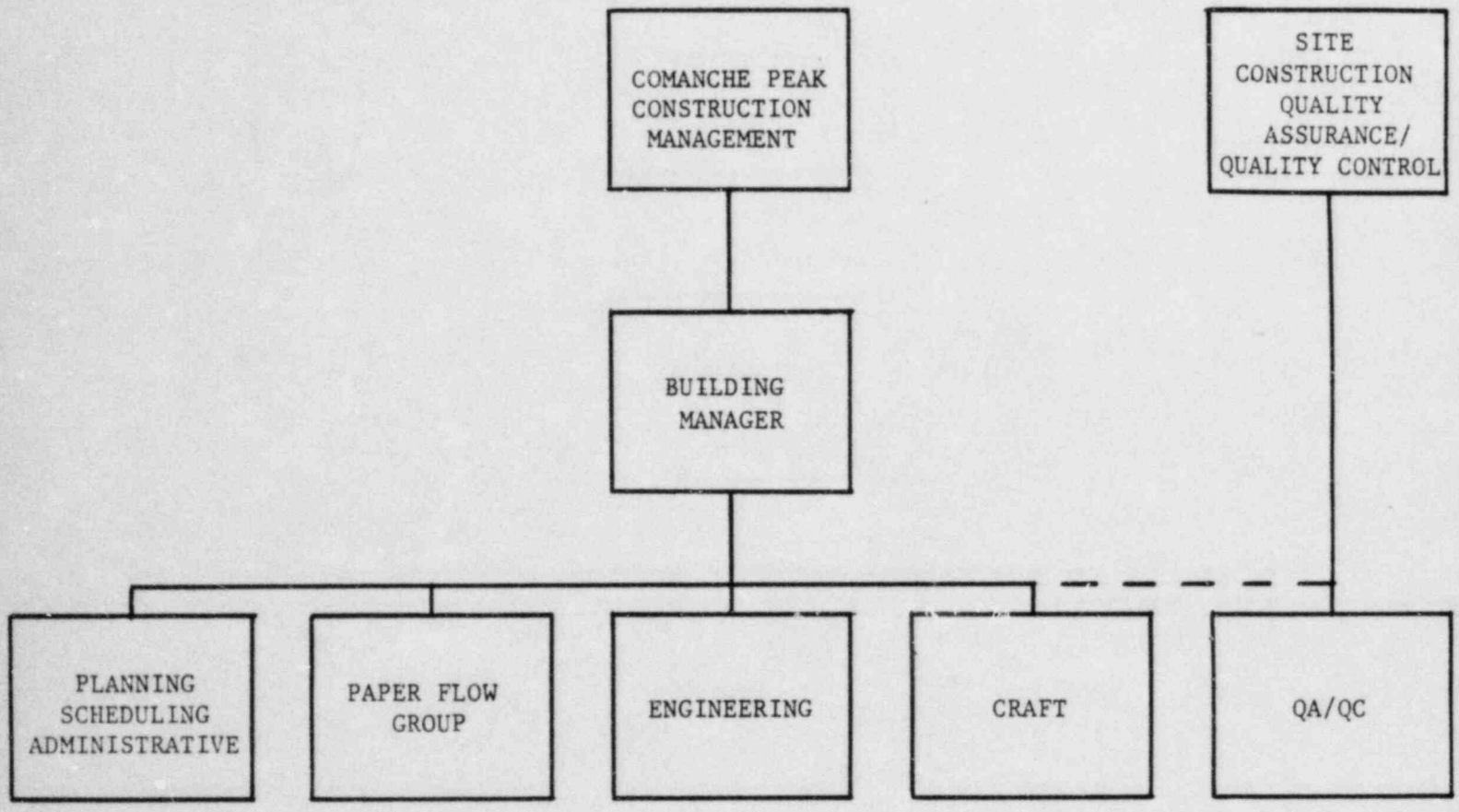
[1] Prior to creation of the BMOs, construction activity at CPSES was managed on a plant wide basis by the Area Management Organization. As work progressed and major plant structures neared completion, the BMOs replaced Area Management as construction or completions manager.

Figure C-1

Typical CPSES Building Management Organization



Each BMO is headed by a Building Manager. Reporting to the Manager are the following groups:

1. Planning/Scheduling/Administrative
2. Paper Flow
3. Engineering
4. Craft

The Planning/Scheduling/Administrative Group monitors construction progress and schedules work assignments as well as provides general administrative support. The Paper Flow Group (PFG) is responsible for preparing or obtaining, assembling, routing and tracking the documents required to perform work assignments in accordance with the established, approved project procedures. The Engineering Group provides the field engineering services needed for the completion of work assignments. The Craft Group performs the construction work needed to complete the various assignments.

TUGCO Quality Assurance has assigned certain of its representatives responsibility for the QA/QC work pertaining to each BMO. The Building QC organizations report to QA/QC Management and not to Construction Management.

D. Computer and Record Related Support Services and Facilities

The record of work completed at CPSES consists of paper records, some of which have been photographed and reduced to microfilm for convenient storage. Retrieval depends on filing methods and indices. Some of the indices are manual (e.g., manual logs). Others are computerized. This section discusses (1) the computer (data processing) services used to index these records and (2) the facilities where records are retained. The role of these computer and records retention facilities in terms of records flow, retention and retrieval is discussed in Section E.

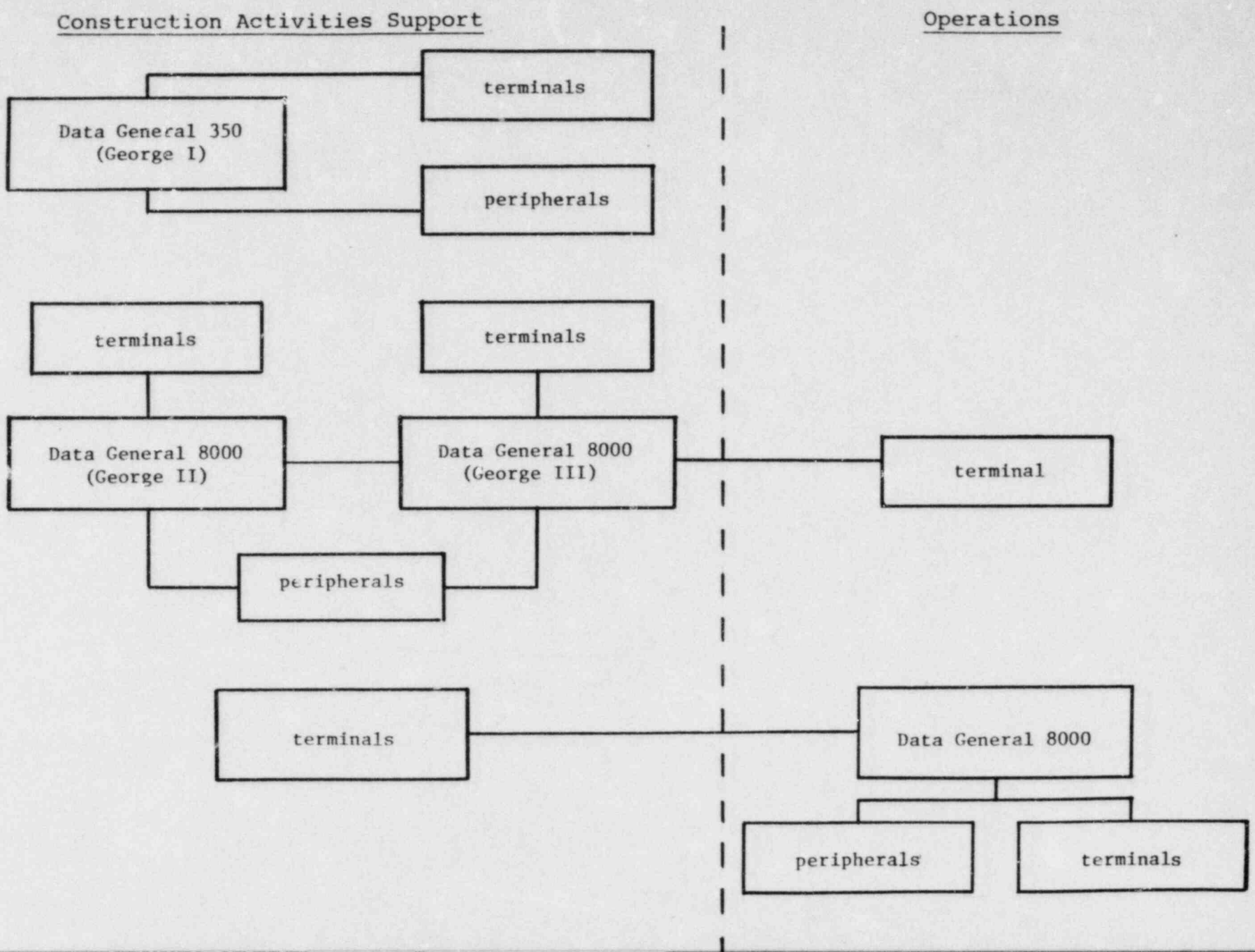
1. On-Site Computer Services

a. Data Processing Facilities

At CPSES certain data processing facilities are used to support construction. Others are used to support operations. The facilities are illustrated in Figure D-1. The computers supporting construction activities are operated by TUGCO's Project Management Control Systems (PMCS) organization. The computer which supports operations (including its maintenance activities) is operated by TUGCO Operations and is located in a different building from that housing construction computers. Terminals which access these computers are located at various work areas around the site, but they can access

Figure D-1

CPSES Computer Equipment Configuration



only that computer to which they are connected. All terminals illustrated in Figure D-1 connected to the computers (both construction support and operations support) are identical. Terminals connected to the construction computers, however, cannot access the operations computer and vice versa.

The construction computers consist of a Data General 350 (George I) and twin Data General 8000's (George II and George III) with associated terminals, tape drives, and disc storage as shown. George I (accessed only by PMCS) is used primarily for program development and keypunching. It is also used by PMCS keypunchers to type data to be processed on other on-site computers when this is requested. In this circumstance, the tape prepared on George I is physically transferred to George II or III or to the operations computer (see below). George II and George III are used to maintain and process administrative, engineering, financial, procurement, construction and quality assurance data associated with construction. The data processing load is distributed between these computers each of which is capable of operating any of the programs. High speed printers, disc storage and tape drives (i.e., peripherals) are shared. Terminals located around the site are used both for data entry and retrieval.

The operations computer, formerly a Data General 330 and now a Data General 8000 with associated peripherals serves the needs of the operations staff. It processes maintenance, scheduler, personnel, financial, and other data associated with operations. It also processes certain computerized quality assurance data in the Automated Records Management System (A.R.M.S.)[2]

b. Computer Data Integrity

The integrity of the computer systems used at CPSES is assured by computer security measures which prevent unauthorized changes to programs and data. Physical security is provided by locating computer hardware (with the exception of terminals and designated printers) in secure facilities that are protected to reduce the risk of damage by fire, heat, humidity, and dust. Access to these facilities is restricted to a small number of data processing operators. Terminals and designated printers are located in office areas which are subject to the physical controls provided for each area.

Access to the construction computers (George II and III) is controlled by PMCS. PMCS uses CSCRIPT, a security program, to limit access to the various data bases in accordance with instructions and procedures of the organization responsible for each data base. It

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[2] A.R.M.S. is discussed below in connection with Site Construction Quality Assurance.

provides numerous levels of security. CSCRIPT can limit access by a given user (password) to specific data bases or portions thereof, to certain rights for handling data (e.g., read only, update only), to specific portions of computer records or to combinations of these limitations. The same CSCRIPT controls can also be applied to specific terminals. When a password is used to access George II and/or III, it is compared to the profile (access limitations) programmed into CSCRIPT for this password. An exact match is required before processing can proceed.

Administrative policies provide additional security. PMCS policies require that only the organization responsible for a particular data base (i.e., the data base "owner") can authorize the PMCS administrator to change programs or CSCRIPT security profiles. They also require the owner to establish a list of people authorized to request printouts. Authorized individuals must sign for requested printouts. The deletion of a password from CSCRIPT effectively denies access to those no longer authorized.

To assure maintenance of computer data bases and programs in the event of a computer system failure, duplicate safeguard copies are made regularly and stored on magnetic tapes. Access to these duplicates is restricted to PMCS.

c. Computer Data Base Validation

Validation that information has been entered into a data base accurately is the responsibility of the originating organization. Validation is accomplished in a number of ways, including the following:

1. Checks for Keying Errors

Programs are designed to check for certain types of keying errors. When the operator is advised of a keying error the system will not allow the operator to continue until the error is corrected.

2. 100% Match of Manual Log and Computer Data Base

Manual logs have been, and in some instances continue to be, kept to index records at CPSES. When a manual log is converted to a computerized data base, a one-to-one comparison is made of each element of the manual log and the computer data base.

3. Activity Report to Record Comparison

Activity reports (printouts of changes made to a computer data base during a specified period) are compared to the actual documents to validate the accuracy of changes made to the data base, i.e., to assure that the computer data base matches the record.

4. Electronically Linked Computer Data Bases

Certain related data bases (e.g., the "DCC:DB" and "DCA:DB" data bases discussed in Section E.4.b. of this Report) are electronically linked so that a change in one is automatically flagged in the other.

5. Records Monitoring Group

The construction management organization includes a records monitoring group which spot-checks computer index information against items in controlled records packages in various records centers discussed below.

2. Record Centers

There are four record centers at CPSES which maintain the paper and microfilm records pertaining to construction and operation of CSPES. These four record centers, the Document Control Center - Construction, the Balance of Plant Vault, the Permanent Plant Record Vault, and the Operations Vault, are discussed below.

a. Document Control Center - Construction

The Document Control Center - Construction is responsible for controlling instructions, procedures and drawings required for plant construction. The DCC

(hereinafter referred to as "DCC-Construction"), is part of the Project Control Procurement Management organization (see Figure A-2).[3]

The types of documents maintained by DCC-Construction include the following:

1. Drawings in microfilm aperture card form;

2. Specifications;

3. Construction procedures and instructions;

4. Vendor equipment instruction manuals;

5. Design Change Authorizations (DCAs);[4]

6. Component Modification Cards (CMCs).[5]

In August, 1983, five DCC-Construction satellite control centers were established to support more efficiently design, construction and inspection activities. These satellite centers are primarily discipline-oriented. Each separate center is devoted, with some overlap, to a different discipline, i.e., civil,

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[3] The DCC-Construction should not be confused with the Document Control Center, commonly referred to as the Operations Vault, which is a part of TUGCO Operations. See FSAR, Section 17.2 and Section D.2.d. of this Report for a discussion of the function of the Operations Vault.

[4] See Glossary for a description of the purpose of DCAs.

[5] See Glossary for a description of the purpose of CMCs.

electrical, instrumentation and control, mechanical and pipe support. The satellites contain only copies of documents distributed to them by DCC-Construction to support the disciplines they service.

b. Balance of Plant Vault

The Balance of Plant (BOP)[6] Vault receives, indexes and stores documents generated during the construction of CPSES pertaining to non-safety related components. This group is part of the construction organization.

c. Permanent Plant Record Vault

The Permanent Plant Record Vault (PPRV) is a TUGCO Quality Assurance facility which serves as the prime repository for documents generated during plant construction that reflect the actual conditions of completed construction or manufacturing activities for safety related structures, systems or components. Such records are referred to as verification records and are stored in the PPRV. The PPRV is the prime data collection point for the Automated Records Management System (A.R.M.S.)[7] and is also the checkpoint for the

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6 Balance of Plant (BOP) as used by TUGCO in this context refers to non-safety related systems and components throughout the plant which do not require QA/QC inspection.

7 A.R.M.S. is discussed in Section E.4.a. of this Report.

accountability of records prior to plant operation. PPRV records will eventually be turned over to the Operations Vault.

d. Operations Vault

The Operations Vault is in a permanent structure located on the southern side of the CPSES site. The Operations Vault is also known as the TUGCO Operations Document Control Center and is referred to as such in the FSAR. The Operations Vault is independent of the DCC-Construction and its satellites which support construction activities. The Operations Vault will be the ultimate repository of records during the operational lifetime of the plant (except permanent plant drawings which will be retained by the cognizant engineering organization). TUGCO currently is in the process of transferring records generated during the manufacturing and construction phases to the Operations Vault.

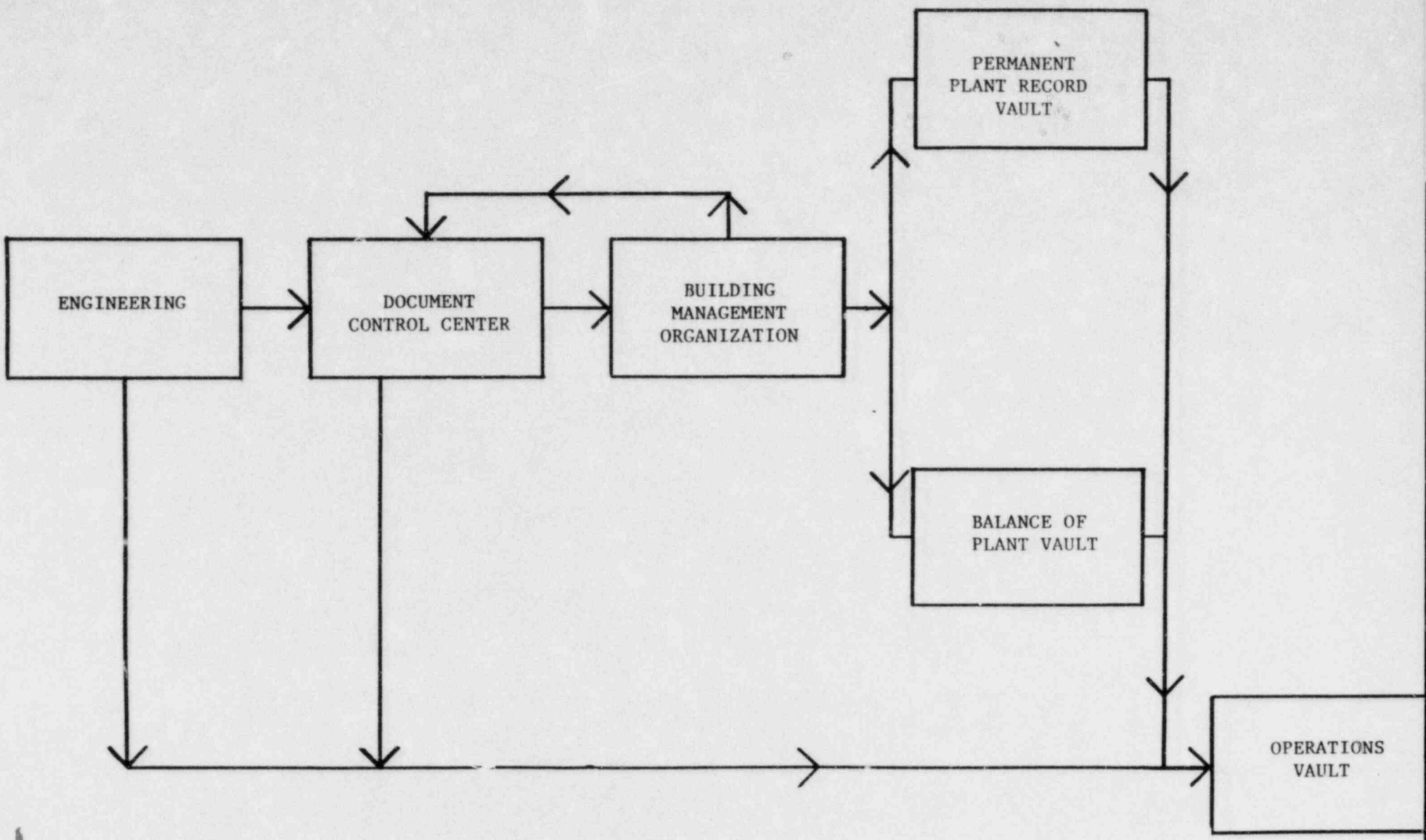
E. Records Flow Process

1. Introduction

An overview of the records flow process at CPSES is shown in Figure E-1. Design is initiated in engineering. The resulting design documents (e.g., drawings) are transmitted to the Document Control Center-Construction for distribution. Copies are distributed to the appropriate DCC satellite which acts as the control point.

Figure E-1

CPSES Work and Records Flow Process



The various organizations which are responsible for activities supporting plant construction gather the documents required to complete the work. Upon completion of the work activity, records are distributed to various records centers and control points.

2. Records Flow During Construction

a. Introduction

Drawings, specifications, procedures and design change information required for construction are developed by TUGCO's architect engineer, field engineers and/or equipment vendors. This information is transmitted to DCC-Construction which is responsible for the control and eventual distribution of this information to those responsible for construction and inspection.

Upon receipt of documents by DCC-Construction. information such as document number, title, revision, etc., is entered into appropriate indices. After the indexing information is entered, the documents are prepared for filing. Specifications, procedures and instructions, correspondence, Design Change Authorizations (DCA), and Component Modification Cards (CMC) are filed numerically. Drawings are microfilmed and their aperture cards are filed by drawing number. Revisions to drawings are processed and filed in the same manner.

The DCC satellite centers do not have any of the original documents stored in DCC-Construction. Copies of main DCC documents are made and distributed to the satellite centers to support the work they service. The satellites maintain logs of each document or document package issued for construction thus providing a means to update the documents in the event subsequent design changes are required.

Comanche Peak's Construction Management organization is responsible for construction planning and scheduling. Consistent with scheduled milestones, specific construction work is accomplished through the use of work packages or work processing documents. The affected craft obtains from the satellites or paper flow groups, as appropriate, design documents required to carry out specific work. Control of the design documents is maintained through the satellites.

QA/QC obtains required design documents, performs the required inspections, and completes the necessary inspection documentation. Inspection documentation, including inspection reports and non-conformance reports, is discussed below.

b. Inspection Reports

An Inspection Report ("IR") is used to record field inspections performed by field QA/QC personnel. It is a checklist of inspection attributes and has an area for recording any deviations identified during an inspection. It is completed to document the results of an inspection, regardless of whether the inspection identified any discrepancies. The status of IRs has been and is monitored from the time they are assigned an IR number to the time they are closed and transferred to the PPRV for storage. Prior to the establishment of the Building Management Organizations, each non-ASME QC discipline was responsible for tracking and closing the inspection reports within its scope of work.[8]

In late 1983, steps were taken to centralize the open IR monitoring function so that the on-going tracking of IRs would be integrated with project scheduling and

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8 IRs are used by ASME QC in connection with the inspection of pipe supports, threading, and closure of non-conformance reports (NCRs). In these cases the IR would be part of a package which itself is tracked. With respect to a pipe support, the hanger IR is part of the hanger package. Similarly, an IR documenting the inspection of threading would be part of the spool package. Lastly, IRs used for NCR closure are part of the NCR package. A missing IR in either a hanger or spool package would be detected by document review and would cause an NCR to be generated. An IR used for NCR closure documents that closure, and without it, the NCR is not closed. In addition, IRs are used to report unsatisfactory in-process inspections. These IRs are tracked manually and are evaluated for trends adverse to quality.

would more efficiently utilize resources. In the process of doing so, manual logs that had been maintained by each non-ASME QC discipline were audited. IR documents referenced in each log were accounted for, and their status (open or closed) was confirmed. The manual logs were then closed, and all information on open IRs was entered into the Open IR Tracking Data Base. Thus the validity of the data in this computer data base was confirmed. About the same time, the BMOs were established. The "Open Plant Record Vault" (OPRV)[9] was assigned responsibility to maintain QA accountability independent of the BMOs for open IRs.

Unsatisfactory (or open) inspection reports document incomplete or non-conforming construction activities. In those instances where the quality control inspector and the craft determine that the work can be brought into compliance by additional effort that does not require engineering evaluation and disposition, the work is completed, reinspected, and the inspection report is closed.

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[9] The "Open Plant Record Vault" is not, in fact, a vault that stores completed QA records. Rather, it is an organization concerned with monitoring open IRs and NCRs within the non-ASME QA scope until their completion and transmittal to the PPRV. The OPRV is located in the main construction administration building.

Where an open inspection report requires engineering evaluation and disposition, such evaluation is documented on an NCR, a DCA, or a CMC. These documents provide a record of identifying, documenting, resolving and closing out the unsatisfactory condition reflected on the IR.

As work activities are completed (following inspections), documents related to each activity are distributed to the appropriate records center. Design documents are returned to DCC-Construction. Inspection reports, other safety-related quality assurance records (e.g., ASME N-5 data reports, weld data cards) and construction records are sent to the Permanent Plant Records Vault for indexing and filing. Records verification is being completed to assure that IRs are closed.

c. Electrical Separation Deficiency Report

In certain areas of plant construction, "deficiency reports" (or "punchlists") were used in addition to IRs and NCRs. These lists were used to facilitate comunication between QC and Craft. A deficiency report was used during the walkdown of Unit 1, during which physical separation of electrical cables was checked. The walkdown teams consisted of electrical discipline representatives from engineering, construction

and QA/QC. When a separation deficiency was detected, it was noted on the Electrical Separation Deficiency Report. Craft later performed necessary corrective action after which the work was then reinspected. When QC determined that an area was complete and acceptable, an IR was prepared listing all raceways inspected, and the relevant portion of the deficiency report(s) were attached to the IR. The IR was then processed as discussed in the preceeding section. Both the IR and the attached deficiency report(s) constitute the record of completed work. There are procedural controls governing this list, and a historical record of it exists.

d. Non-conformance Reports

An NCR is used to document nonconforming conditions where the use of another document is not specifically prescribed by inspection instructions.

The TUGCO NCR Coordinator reporting to TUGCO Quality Assurance is responsible for monitoring unresolved (i.e., "open") NCRs related to non-ASME scope activities. The office of the non-ASME NCR Coordinator is currently located in the main construction administration building. The Brown & Root NCR Coordinator reporting to B&R Quality Assurance is responsible for monitoring open NCRs related

to ASME scope. That office is located on the North Island (near the main construction gate) away from the administration building.

To find an open NCR, it is necessary to go to the office (ASME or non-ASME) monitoring the NCR.[10] The format of the NCR number will indicate whether the item falls within ASME or non-ASME scope and, therefore, will indicate which office monitors the NCR. At each step in the disposition of an NCR, a copy is sent to the appropriate office so that the status of the NCR is updated and to assure that its files reflect the current status of the NCR. If the number of the NCR is not known, it is necessary to check both offices.

Both NCR offices use a numerical filing scheme for open NCRs. Therefore, if the NCR number is known, direct retrieval of the record from their file is the most efficient method to obtain the NCR. In most cases, the NCR number is known from references to it on other records (e.g. inspection reports) or indices (e.g., status reports).

If the NCR number is not known, a variety of sources are available to identify the number. Within the ASME scope, NCR numbers are manually logged at the time

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10 Closed NCRs are sent to the PPRV and may be retrieved by using the Automated Records Management System Data Base (A.R.M.S.) discussed in Section E.4.a., below.

the non-conforming condition is identified and the NCR is issued. For each NCR, the log includes an NCR number, description, trend category, location information, and status for each step in the disposition process. Similar information is also logged for non-ASME NCRs at the time the NCR is created.

The NCR logs have been automated using the Non-conformance Report Tracking Data Base. The programs for the NCR Tracking Data Base are processed on George II/III. Access is restricted, via CSCRIPT, to QA/QC staff working with the NCR Coordinator and to keypunch staff working in the computer center. The primary output from the computer system is a periodic status report of open NCRs. The NCR Coordinator validates the accuracy of this report by comparing it to the items on file and distributes the report to all parties who have responsibility for closing items which are on the list. The list is used as the primary mechanism for identifying numbers of open NCRs for subsequent retrieval from the files. The keypunching staff has no need for this report since they are not involved in retrieval, only data entry.[11]

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[11] The only occasion when an NCR will be open and not appear on the status report is when it has been opened since publication of the report. Should this be the case, it is possible to ascertain the status of the NCR by looking in the appropriate NCR log book.

It is possible to access the NCR Tracking Data Base on the computer terminal. To do so the following conditions must be met:

1. a terminal connected to George II/III must be used.
2. an authorized password must be used by a trained individual.
3. the computer programs must be operational.

Having determined the correct NCR number from one of the above sources, retrieval of the paper record is possible by going directly to the record files.

e. Master Data Base

The Master Data Base (MDB) was developed early in the project as a log to identify remaining construction work activities which could affect plant completion. The MDB programs are currently processed on the George II/III computers. The log includes information identifying work items, the affected system or plant area, the initiator of the work item, the organization responsible for completion of the work and the status of the item (i.e., open or closed).

The MDB is used by management to:

1. authorize the commencement of work;
2. track the status of work in progress;[12]

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12 The MDB is not intended to be a comprehensive list of NCRs, as that function is handled by the NCR Tracking Data Base discussed earlier. It should be noted,

(footnote continued)

3. acknowledge the completion of work; and

4. plan future work.

The primary output of MDB are printouts of selected portions of the data base in the most efficient order required to facilitate work flow. For example, open work items which affect a given system can be sorted and printed by the responsible department to assure that required work is completed prior to the scheduled test system date. The various printouts of outstanding work items are commonly referred to as "punchlists" (e.g. Construction Punchlist, Completions Punchlist and the Master Punchlist) and should be distinguished from the Electrical Separation Deficiency Report, described above. These punchlists are status documents and, although controlled by administrative procedures, are not QA documents.

As items are acknowledged to be complete as evidenced by the completion of required documentation, the status on the MDB is changed to "closed." Closed items will not appear on punchlists, although a historical report could be generated which would include only closed items.

(footnote continued from previous page)
however, that if the disposition of an NCR involves an open work item, that work item will be included in MDB, along with a reference to that NCR.

3. Records Retention

TUGCO complies with the requirements of ANSI N.45.2.9-1974 (Draft 11) and the ASME Code, Section III (1974) for collecting, storing and maintaining quality assurance records for CPSES. These records include the following:

1. design
2. procurement
3. installation and construction
4. preoperational and startup test
5. operation phase and activity records

Some of these records are to be maintained for the life of the plant; others are considered non-permanent with minimum specified retention periods, depending on the record type.

4. Records Retrieval

As noted in Section D, indices (including manual logs and indices generated from various computer data bases), are used to facilitate retrieval of documents and records from record centers at CPSES. The more important of these indices and lists are discussed below.

a. Automated Records Management System (A.R.M.S.) Data Base

The Automated Records Management System (A.R.M.S.) data base, a computer index of verification records, is used to facilitate retrieval of completed

records. A verification record is any document that is retained as proof that permanent plant structures, systems, components and work functions are manufactured, installed, inspected or accomplished in compliance with design and construction requirements.

TUGCO Operations is responsible for A.R.M.S. The programs used by A.R.M.S. are processed on the Operations Computer. For QA verification records generated during plant construction, receipt by the PPRV triggers the process of A.R.M.S. indexing. First, a filing location is assigned to the record. A coding step is performed to index lengthy records by consolidating the A.R.M.S. indexing information onto a single page coding sheet. For reasons of proximity to PPRV, A.R.M.S. index data is keypunched from the coding sheets or directly from QA records into the George I computer. Once a day, the key-punched data is collected on computer tape and delivered to TUGCO Operations and added to A.R.M.S. Periodically an activity report is generated of changes made to A.R.M.S. during the previous key punching cycle. The activity report is compared item by item to the QA records to assure the accuracy of A.R.M.S. Differences detected at this point are corrected and appear on subsequent activity reports until A.R.M.S. and the QA records match.

Access to A.R.M.S. is restricted to one terminal in the PPRV, one terminal in the TUGCO QA offices in Dallas, terminals in the Operations Vault, and terminals in PMCS. In addition, printouts are provided to authorized QA/QC individuals. Use of any of these sources will direct the requestor to the filing location of the records selected. Retrieval is completed by going to the appropriate file location and pulling the record.

b. DCA and DCC Data Bases

There are two computer data bases used for control and distribution of documents received by DCC-Construction: "DCC:DB" and "DCA:DB."

The DCC:DB is a computer data base that is used to store information pertinent to drawings, specifications, procedures, and other materials. It is used by DCC to control, distribute and assure the accountability and traceability of these records. The data base includes information such as document number, revision number and the distribution list. This data base is controlled by DCC-Construction so that changes to the data base cannot be made without authorization by DCC-Construction management. Access to this data base is

controlled by a CSCRIPT[13] password so that unauthorized persons cannot access the data base to change the information it contains.

The DCA:DB is a data base for the control and distribution of design change information (DCAs/CMCs). This data base is a shared system between engineering and DCC-Construction with engineering having the authority and responsibility to make changes to the data base. The DCA:DB is electronically linked to DCC:DB so that when engineering information is entered into the DCA:DB, DCC-Construction is alerted to the fact that a change has been made to a design document. When the actual design change document is received by DCC-Construction, it enters additional information into DCA:DB such as a document number and date. At this point the design package can be released to the craft for construction. This system was set up to assure that the latest design information and any changes are made available to the craft performing the construction work. Access to the data base is controlled by the CSCRIPT password system described earlier.

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13 See discussion of CSCRIPT in Section D.1.b. of this Report.

GLOSSARY OF TERMS

1. Accept (Use-As-Is) -- A disposition permitted for a non-conforming item when it can be established that the item is satisfactory for its intended use.

2. Activity Report -- Printouts of changes made to a computer data base during a specified time period.

3. Aperture Card -- a piece of 35 mm microfilm mounted on a card used to store large records such as drawings and their revisions.

4. A.R.M.S. - Automated Records Management System -- A computer index used to facilitate retrieval of completed documents.

5. BMO - Building Management Organization -- A group chartered with the responsibility of completing construction work within a specific area of the plant.

6. BOP - Balance of Plant -- Non-safety related systems and components throughout the plant which do not require QA/QC inspection.

7. BOP Vault -- A facility which receives and stores documents generated during the construction of CPSES that pertain to non-safety related components.

8. CMC - Component Modification Card -- A document that authorizes changes to a specific component or system. A CMC is generally used to authorize drawing changes.

9. Corrective Action -- A measure taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

10. CSCRIPT -- A computer program used to administer security functions on the Geroge II/III computers.

11. DCC - Document Control Center-Construction -- A facility which controls instructions, procedures and drawings required for construction.

12. DCA:DB - Design Change Authorization Data Base -- A computer data base that is used to assure accountability and traceability of DCA's and CMC's.

13. DCC:DB - Document Control Center Data Base -- A computer data base that is used to assure accountability and traceability of controlled copies of instructions, procedures and drawings required for construction.

14. Deviation -- Departure from a previously approved method, sequence or standard.

15. DCA - Design Change Authorization -- A document that authorizes changes to design documents. A DCA is generally used to authorize specification changes.

16. Disposition -- A decision made by an authorized person of the action to be taken to resolve a non-conforming condition. This action can be either: accepted (use-as-is), rework, repair or scrap.

17. Electrical Separation Deficiency List -- A list (now called Electrical Separation Deficiency Report) of electrical cables or raceways which do not meet required specifications for physical spacing.

18. "George" -- A slang term used to refer to various onsite computer equipment.

19. Inspection -- A quality control activity in which the conformance of materials, supplies, components, parts, appurtenances, systems, processes or structures to predetermined quality requirements is determined by examination, observation or measurement.

20. IR - Inspection Report -- A document used to record field inspections performed by quality control personnel.

21. Logs -- A manual or computer generated listing of information in a logical sequence to facilitate access to and retrieval of records and documents.

22. MDB - Master Data Base -- A computerized list of work activities which are outstanding.

23. N-5 Data Report -- A record utilized by the installer of piping systems to certify that the installation of the system is acceptable and in accordance with the ASME Code.

24. Non-Conformance -- A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable.

25. NCR - Non-Conformance Report -- One means of documenting a nonconformance.

26. N-5 Program -- A program developed by Brown & Root (as the holder of the ASME Code Certificate of Authorization) to describe the methods of conducting and documenting piping system installation in accordance with the ASME Code.

27. Open Items -- Those activities or items of work that need to be completed.

28. Operations Vault -- A facility within TUGCO Operations which will be the ultimate repository of records during the operational lifetime of the plant.

29. OPRV - Open Plant Record Vault -- A group responsible for the accountability of in-process inspection reports.

30. "Owner" of Computer Data Base -- The group which has the authority for controlling access and maintaining a computer data base.

31. PFG - Paper Flow Group -- A group responsible for preparing, obtaining, assembling, routing and tracking documents required by a BMO to perform construction work activities.

32. PPRV - Permanent Plant Record Vault -- A facility which serves as the prime repository of completed QA verification records during construction.

33. Punchlist -- A generic term for any list of open items.

34. QA Record -- A document that furnishes evidence of the quality of items and/or activities affecting quality. A document is considered to be a record when it has been completed and closed.

35. "Sat" -- A slang term used to identify an inspection checkpoint or report that has been completed satisfactorily.

36. Satellite -- A subdivision of DCC-Construction which provides DCC services in areas convenient to construction workers.

37. Tracking -- Monitoring the status of an item.

38. Trending -- The evaluation of deviations or non-conformances by source and frequency as one basis for determining the need for corrective action to preclude repetition.

39. "Unsat" -- A slang term used to identify an inspection checkpoint or report indicating that construction of an item is incomplete or unsatisfactory.

40. Verification -- The act of assuring that an activity or condition has been implemented in conformance with the specified requirements.

41. Walkdown -- A tour of an area of the plant done for a variety of reasons, including inspections and construction progress reports.

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of TEXAS UTILITIES ELECTRIC COMPANY, et al. (Comanche Peak Steam Electric Station, Units 1 and 2)	)	Docket Nos. 50-445 and 50-446 (Application for Operating Licenses)

AFFIDAVIT OF LINDA M. RICHMAN
REGARDING RECORDS AND RECORDS RETRIEVAL REPORT

My name is Linda M. Richman. I am employed by Westinghouse Electric Corporation as the Manager of Records and Research Services, Nuclear Services Integration Division headquartered in Pittsburgh, PA. I received a Bachelor's Degree in Mathematics from Clarion State University, Clarion, PA in 1975 and a Master's Degree in Library Science with emphasis on computers and information science from the University of Illinois, Urbana, IL in 1976.

I joined Westinghouse in August, 1977 and have been involved with information and records retrieval systems within the nuclear industry since that time. These activities included professional experience and managerial responsibility for nuclear records within the Westinghouse scope of supply for over 20 power plants. Since October, 1983 I have served as a consultant and supervised a staff working on records related activities at the Comanche Peak Steam Electric Station.

As part of this activity I participated in the preparation of the attached report dated June 29, 1984 and entitled "Records and Records Retrieval". That report is true and correct to the best of my knowledge, information and belief.

Linda M. Richman

Linda M. Richman

Subscribed and sworn to before me this 29th day of June, 1984

Lorraine M. Pipilica

Notary Public

LORRAINE M. PIPILICA, NOTARY PUBLIC
OAKDALE BORO, ALLEGHENY COUNTY
MY COMMISSION EXPIRES DEC 14, 1987
Member, Pennsylvania Association of Notaries

TELECOPIED FACSIMILE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket Nos. 50-445 and
TEXAS UTILITIES ELECTRIC	)	50-446
COMPANY, et al.	)	
	)	(Application for
(Comanche Peak Steam Electric	)	Operating Licenses)
Station, Units 1 and 2)	)	

AFFIDAVIT OF RONALD G. TOLSON
REGARDING RECORDS AND RECORDS RETRIEVAL REPORT

I, Ronald G. Tolson, being first duly sworn, do depose and state as follows: I am employed by TUGCO at the Comanche Peak Steam Electric Station. I have previously testified in this proceeding regarding the QA program at Comanche Peak. A statement of my educational and professional qualifications was received into evidence as Applicant's Exhibit 20. As part of my responsibilities as a TUGCO employee I participated in the preparation of the attached report dated June 29, 1984 and entitled "Records and Records Retrieval." That report is true and correct to the best of my knowledge, information and belief.

Ronald G. Tolson

County of Somervell
State of Texas

Subscribed and sworn to before me this 29 day of June, 1984

Notary Public

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
TEXAS UTILITIES ELECTRIC COMPANY, et al.	)	Docket Nos. 50-445 and 50-446
	)	
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	(Application for Operating Licenses)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "Applicants' Responses Concerning Records Retrieval" and Applicants' Report entitled "Records and Records Retrieval" in the above-captioned matter were served upon the following persons by deposit in the United States mail, first class, postage prepaid, this 29th day of June, 1984:

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