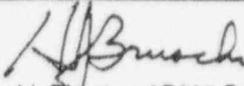


 <p>Westinghouse Electric Corporation Nuclear and Advanced Technology Division</p> <h1 style="margin: 10px 0;">AP600</h1> <p>Program Operating Procedure</p>	Subject AP600 ENGINEERING DATA BASE (EDB) ACCESS AND CONTROL
	Approved:  H. J. Bruschi, Director, AP600 Program

AUTHOR/COGNIZANT FUNCTION Contact AP600 Plant Data Base Administrator on questions concerning this procedure.

PURPOSE This procedure establishes the requirements and responsibilities for preparing and approving the movement of data into the AP600 Engineering Data Base.

SCOPE This procedure applies to the updating, accessing, and controlling of all data resident in the AP600 Engineering Data Base.

DEFINITIONS **Engineering Data Base**
 The AP600 Engineering Data Base (EDB) is a repository of AP600 design data that is accessible to parties involved with the engineering design of the plant. As an engineering task is completed that results in the production of design data, the data is moved into the AP600 EDB so that other parties can utilize this up-to-date information in the completion of their own design tasks. The AP600 EDB is a DB2 relational structure residing on an IBM 3090 mainframe.

Staging EDB
 The staging EDB is also a DB2 data base for which producers of design data can have update privileges. The Staging EDB is similar in structure to the AP600 EDB. However, data remains in the Staging EDB only temporarily. After the data is approved, the Data Administrator moves the data from the Staging EDB to the AP600 EDB using the Control Program.

Control Program
 The Control Program selects authorized transactions (loads, updates, etc.) from the Staging EDB and applies them to the AP600 EDB. The Control Program records the transactions in the Transaction Audit Data Base, updates the Audit Header Data Base, and produces an audit report.

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Audit Transaction Data Base

The Audit Transaction Data Base is also a DB2 structure and is updated by the Control Program whenever a transaction is made to the AP600 EDB. The Audit Transaction Data Base can be used to trace changes to the EDB to the specific sources in chronological order.

Audit Header Data Base

The Audit Header Data Base is also a DB2 structure that is updated by the Control Program. Each time the Control Program processes a batch of update transactions to the AP600 EDB, a header record is added to the Audit Header Data Base. The header record includes information such as the batch control number, data originator, data content description, table names affected, and the number of records involved. The complete list of Audit Header data is described on the AP600 EDB Data Submittal Request Form.

AP600 EDB Data Submittal Request Form

The AP600 EDB Data Submittal Request Form identifies the data to be moved into the EDB and identifies the approval of the data for such release.

Control Number

The control number is a unique numerical key for each potential batch of transactions against the EDB. The control number is how transactions are identified by the Data Administrator for moving data from the Staging EDB to the EDB. The control number is required to track transactions against the AP600 EDB.

Data Administrator

The Data Administrator is the person responsible for controlling the updating of information in the EDB.

PROCEDURE General

The EDB enhances the AP600 project in the following areas:

- 1) Users of AP600 design data have access to up-to-date design data in a timely fashion.
- 2) Users of AP600 design data can retrieve the data in machine readable format. Using any of the standard AP600 computer-based tools, the data is more easily manipulated and combined to produce the project deliverables of downstream design activities.

- 3) The EDB will yield a wealth of design data that will be used to support activities in the construction, startup, operation, and maintenance phases of plant life.

To achieve the goal of providing accurate data to the users and to maintain configuration control of the EDB, only approved data is placed into the EDB.

Users only have "read" access to the AP600 EDB. "Write" access to the EDB is limited to the AP600 Data Administrator (DA) through the control program, who is responsible for maintaining the EDB. Moreover, individual users and user groups may be limited to certain regions of the database and may have predefined "views" of the EDB to simplify access and enhance security.

Access to the IBM mainframe computer system on which the EDB resides is secured by RACF (Resource Access Control Facility) user IDs and passwords. Furthermore, the DB2 Catalog function is used to limit access to specific view(s) of the EDB or to specific tables and/or columns of data within specific tables based upon RACF User ID. The DB2 Catalog function also defines the READ, UPDATE, and DELETE privileges for each user ID.

There are a myriad of sources of AP600 design data. Typically, data is created using specialized PC, engineering work station, mini-computer, or mainframe-based applications when work segments are completed. The data is resident in either PC based files or mini-computer files.

Data resident in PC-based files is moved into the DB2-based EDB using PC/SQL-Link. A sample of the PC-based file formats supported by PC/SQL-Link includes dBASE III (.DBF), Lotus 1-2-3 (.WKS, .WK1, .WR1, and .WRK), R:BASE (.RBF and .RBS), Data Interchange Format (.DIF), Report Format (.RPT), and ASCII.

VAX-resident data files are moved into DB2 using the Interlink subsystem. A major source of plant design data that is resident in VAX/VMS files is from 3DM. 3DM is the computer-aided plant design system that is used to generate intelligent Piping and Instrument Diagrams (P&IDs) and a three dimensional computer model of the AP600 plant. There is a network of VAXes used to create the 3DM model files at several design locations (i.e., Westinghouse, Bechtel, Burns & Roe, Avondale, Southern Electric and MK-Ferguson).

3DM model files are sent to the Westinghouse VAX, where extraction routines are used to extract design data from the model files. Special purpose programs manipulate the design data and prepare EDB update transactions, which are moved to the IBM mainframe using the Interlink subsystem. Interlink includes hardware channel-attached to the IBM mainframe and IBM-resident software. The Interlink subsystem is connected to the VAX using DECNet/Ethernet. With Interlink, the IBM mainframe appears to be simply another DECNet node, and VMS files which are EDB update transactions are moved or copied to the IBM mainframe using simple DECNet/VMS commands.

All data movement into the AP600 EDB is performed via the Staging EDB in a controlled and documented manner, and only after the data content is approved.

RESPONSIBILITY

ACTION

Engineer

1. Identify data to be updated (new or revised data) to the Data Administrator. The engineer may complete the top portion (above the dashed line) of an AP600 EDB Data Submittal Request and submit the form to the Data Administrator. Engineer must specify the location of (or deliver) the data and specify the format. If the data is part of an official AP600 project document, the document number and revision must be identified.

Data
Administrator

2. Capture the data identified by the Engineer and import it using one of the special purpose programs which assign lot control numbers, write the lot control number with each record, and move the data into the Staging EDB for each batch of transactions. These special purpose programs also generate the AP600 EDB Data Submittal Request Forms, including the information specified in step 1, EDB table name(s), number of records, number of files, and the lot control number. The purpose of the lot control number is to uniquely identify a transaction to the EDB. The special purpose programs also print reports listing the data to be uploaded to the EDB for review and approval.

Engineer

3. Approves the accuracy of the data to be entered into the EDB by signing the AP600 Engineering Data Base Data Submittal Request Form after reviewing the data content provided.

Data
Administrator

4. Review the approved AP600 EDB Data Submittal Request and its accompanying material to verify proper approval. Invoke the Control Program to update the AP600 EDB. This includes specifying the batch of transactions by the lot control number and identifying data from the AP600 EDB Submittal Form to the Control Program. Verify that the proper data is added to the AP600 EDB, the Audit Header Data Base, and the Audit Transaction Data Base.

File the AP600 EDB Data Submittal Request, the hardcopy equivalent of the data, and the audit report produced by the Control Program in the paper file.

FORMS/EXHIBITS

AP600 EDB Data Submittal Form, Form 58209, Exhibit 26

REFERENCES

WCAP-12601, AP600 Program Operating Procedures

AP-3.2, Design Configuration Change Control for AP600
Program, Phase 2

AP-3.3, Document Release and Control for AP600 Program,
Phase 2

APPENDIX

- A. Trademark Notice/Definitions

APPENDIX A

TRADEMARK NOTICE/DEFINITIONS

3DM	3DM is a three dimensional computer modeling system provided by Bechtel Software Inc. 3DM is used on the AP600 project for plant design, including intelligent Piping and Instrument Diagrams and a three dimensional computer model of the plant.
DB2	DB2 is a relational data base management system provided by International Business Machines Corporation. The AP600 EDB is a DB2 implementation.
dBASE III	dBASE III is a PC-based data management system provided by Ashton-Tate. Many engineering activities use dBASE III to manage data.
DECNet	DECNet is a trademark of Digital Equipment Corporation, denoting a communications architecture. For the AP600 project, DECNet is used to link PCs to VAXes for the 3DM application and to connect the VAX network to the IBM mainframe via the Interlink subsystem.
Interlink	Interlink is a hardware/software subsystem of Interlink Computer Sciences, Inc. that enables VAX/VMS files to be transferred to the IBM mainframe.
1-2-3	1-2-3 is a spreadsheet application program owned by Lotus Development Corporation.
PC/SQL-link	PC/SQL-link is a cooperative processing software system provided by Micro Decisionware, Inc. PC-SQL Link includes IBM mainframe software and PC-based software to enable AP600 project data to be moved bi-directionally between the AP600 EDB on the mainframe and PC-based files on individual PC workstations.
RACF	RACF (Resource Access Control Facility) is an International Business Machines Corporation (IBM) software product that is used to protect access to IBM mainframe resources, including application programs and DB2 tables (which comprise the AP600 EDB).
R:BASE	R:BASE is a product of MicroRim Corporation.
VAX	VAX is a trade name of Digital Equipment Corporation, used in the context of this document to designate a family of mini-computer systems running the VMS operating system used for AP600 engineering applications, primarily 3DM.
VMS	VMS is a trade name of Digital Equipment Corporation, specifying the operating system used in VAX systems for the AP600 project.