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ABSTRACT

This project is the design and implementation of a software data-link for the Hoechst Celanese Technology and Development Group. This software data-link provides a data exchange interface between a real-time database and a workstation platform. The software developed utilizes the company's Oil System, Inc. database system (PI), to satisfy the reporting requirements for the Technology and Development Group.
INTRODUCTION

In 1991, the Technical Computing and the Technology and Development Groups of Hoechst Celanese realized that the current data acquisition architecture was no longer acceptable. Large amounts of technical data were being stored on different systems by different user groups. In order to make all data available to all users, the decision was made to retire the old systems and implement a single system with a central database serving as a data acquisition host for the Technical Center.

The first steps towards accomplishing this goal were taken in 1992 when the different systems collecting the data (LDAC, CAMPAS, PPDAS, MICROVAX, and Event History) were identified, and a phase-out plan was drawn. Oil Systems, Inc. was chosen to provide the database system (PI), a data acquisition tool for the Technical Center. This new database system offered the flexibility of an open communication between the Honeywell Series 9000, the Honeywell TDC 3000, and CRISP process control machines, as well as the end users.
During the first six months of 1993 the retirement of the old systems was accomplished by creating the infrastructure to transfer the service that the older systems provided, to the new system. Communication was established using TCP/IP to communicate with the Series 9000 from the VAX, and data was imported to PI.

The purpose of this project, therefore, was to develop the interface between the PI database and work stations (PC's) by designing new menus and developing application programs to produce reports. This effort involved developing an information retrieval system. The end result of this project enhances the retrieval activities of the users at the Technical Center, while meeting the company goals of increasing efficiency of data retrieval, optimizing the availability of data to all users, and eliminating the expense of acquiring individual software packages to retrieve data.
The general approach to completing this project involved the following steps:

1. Developing an understanding of the current data acquisition system.
2. Researching and documenting the current reporting functions.
3. Obtaining user requirements from Technology and Development Group personnel.
4. Designing an interface that fulfills all user requirements.
6. Loading and testing the interface using live data, and making revisions as needed.

The following pages provide a general description of the different components of the interface.
In order to understand the current data acquisition system discussions were held with William Sargent, Sr. Development Engineer of the Technology and Development Group.

To obtain user requirements for the new interface, several meetings were held with one laboratory technician who was a daily user of the former by-hand collecting system (Appendix A). These meetings determined which data elements were needed in the new system. The meetings also revealed that reports with a more descriptive layout were desired.

The next step was to design the interface that would fulfill the user requirements. Screens were designed using Soft Code version 3.0 along with Turbo Pascal version 6.0.

As a next step, the development of reporting application was pursued. In order to accomplish the task, the Oil System, Inc. manuals' version 2.0 were read and studied to attain sufficient knowledge. The section about Report Writer contained in volume II was given a greater priority since it was the main source of the reporting application.

After the reports were developed and tested, the next step was to understand the communication channels available between the PPAH1 host, where
the Report Writer application resides, and the user's terminal. PPAH1 is the name given to the VAX 4400 and stands for Pilot Plant Area Host. An in depth reading of the *NETWARE LAN WorkPlace® for DOS*, second edition, and *VMS General User Using DCL Volume 3*, Version 5.0 by Digital Equipment Corporation was required in order to obtain the necessary knowledge to accomplish the task.

The initial system was tested extensively. Revisions to logic, screen displays, and reports were made.