Bridging the Gap Between GIS and ERP at Alagasco
Paper 1642
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In the pre-ESRI world at Alabama Gas Corporation, pipeline projects and map postings were primarily manual, time-consuming processes. Some computer applications were used, however not all departments in the project process had access to technology. Those that did had stand alone applications which met their internal needs only. The major phases of a pipeline project in the pre-ESRI world were:

- Design
- Prepare cost estimate
- Create AFE (authorization for expenditure) packet
- Route AFE for approval

Once approved and all applicable permits were obtained, the following activities occurred:

- Materials ordered/requisitioned
- Pipeline installation
- As-built drawings prepared
- Create Completion packet
- Place in inter-company mail for approval
- Accounting books asset
- Corporate engineering posts as-built to map
- Updated maps redistributed to operating divisions

The design phase involved a visit to the site of the proposed work. Many times, the property developer's plat had to be redrawn as only paper copies were available. In AutoCad, the pipeline was designed onto the development map, and any existing gas distribution facilities, were transferred manually from system maps to the design drawing. A bill of material was created manually. The output of this was simply a construction print.

There was some degree of automation in the generation of a cost estimate and AFE packet. A project cost estimating tool was developed in-house that eased the burden of creating the AFE packet. Information from the bill of material and general construction parameters were input into the application and the resulting output was the project description, budget information, account number assignment, cost justification, etc. These documents were compiled, attached to the design prints, and routed manually for approval. Depending on the magnitude of the job, as many as 30 signatures were required sequentially, and approval could take 4 to 6 weeks. Typically, the acquisition of materials and project construction were relatively efficient and were done in a timely manner. However, once the facility was placed in service, the project completion process was given low priority by field personnel mainly because of a heavy workload and limited resources. In order to proceed with the project completion, a marked up construction print (as-built), an updated bill of materials, and any pertinent construction notes were required of field personnel.

Once field personnel provided the necessary information, a Completion packet was created. The construction drawing was modified in CAD to accurately reflect the actual installation. The packet included the as-built drawings, updated materials lists, and pressure test data. Although manual data entry was required, the same in-house application use to create the AFE packet provided the Completion data in the required format.

There were two distinct problem areas in the Completion process. The first was getting as-built drawings and updated materials lists from field personnel. Again, these individuals had heavy workloads and emphasis was given to installing facilities and placing them in service. A second problem area was in the corporate engineering office. There was not adequate staff to post new facilities to system maps in a timely manner. The staff had been reduced in an effort to justify, at that time, an automated mapping system. These problems lead to out-of–date maps. The operating divisions made notations on their map copies regarding projects, however not all the detail was there.

Another problem was the delay in booking new facilities to fixed assets. This was dependent upon Accounting receiving the completion documentation. Because the initiation of the completion package was the responsibility of field personnel, many times a number of months elapsed before the asset could be booked.

To address these problems, two separate projects were performed at Alagasco. To handle the Enterprise Resource Planning needs, Alagasco installed SAP. For GIS and design management, Alagasco, using MESA Solutions as their systems integrator, implemented ArcFM and Designer. Working with Alagasco's data conversion vendor, MESA configured ArcFM and ArcMap to fit Alagasco's business needs, and populated the GIS with their converted CAD data. In addition, MESA customized the Designer product to handle Alagasco's AFE processing. The Designer implementation allows Alagasco's engineers to design an AFE graphically, to produce costing and material documentation to forward for approval, and then to submit the AFE material and labor information to the SAP system.

The implementation of ESRI and Miner & Miner's ArcFM and Designer is streamlining much of the project design and approval phases. The completion process, map updating, and booking of assets should be improved with this implementation as well. As Alagasco personnel use and learn the GIS applications, field applications will be explored to improve the productivity of field personnel in providing as-built construction drawings and updated materials lists.