Manage project data more effectively

The geological and geophysical (G&G) community of Chevron North America E&P Company, Gulf of Mexico works with huge amounts of well data that is stored in approximately 100 project databases, ranging in size from 200 to 17,000 wells. This highly active region presents major challenges for the data managers and IT professionals who are responsible for maintaining data integrity and synchronicity across the computer systems of all project stakeholders.

Although project and master data from Chevron, Texaco, and Unocal was consolidated after the companies merged, the Gulf of Mexico Data Management group desired further streamlining to alleviate the many resource- and time-intensive tasks being performed manually. The painstaking job of tracking down and then correcting data issues, such as missing wells and wellbores, was creating a growing resource allocation problem. It was also becoming more difficult to keep information in sync with the steady stream of new well data entering the master database from various vendors and government agencies, in addition to the data being loaded by G&G community members into their project databases. Some process improvements were developed in-house using the existing software, but a great deal of effort continued to be spent on nonstandardized procedures that yielded only incomplete results.

Chevron Improves Gulf of Mexico Well Data Quality Through Advanced Automation Techniques

Case study: InnerLogix software suite helps data managers and interpreters achieve superior data accuracy with less intervention

Challenge
Ensure master databases and project datastores have the same well information; proactively find and fix data issues; increase productivity with fewer resources.

Solution
Use InnerLogix® data quality management (DQM) software:

- QCLogix—apply user-defined data assessment rules to an area of interest
- QCAnalyst—display data issues in graphs, GIS maps, and reports
- QCSync—auto locate/correct/synchronize data
- DataLogix—manually analyze, compare, and correct data.

Results
Streamlined and automated DQM processes; improved data accuracy, monitoring of interpreters’ data activity, and overall quality of data.

QCPro report summarizing data quality metrics (%) over time for Chevron data cleanup projects.
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“The checks and balances of these integrated QC tools are really great. We have been able to quickly resolve validity issues and have seen a significant increase in the accuracy and reliability of our data. Even the interpreters are amazed!”

Michael Underwood
IT Data Analyst
Chevron NA E&P Company

To meet Chevron’s quality and productivity expectations, the Data Management group decided to look for newer QC technologies to complement the software already in place. These would preferably be from the same vendor and able to deliver organizational gains in time efficiency and data accuracy while minimizing any impact on resources. A major goal was to be more proactive in finding errors, correcting them, and keeping project data in sync with the most up-to-date well data in the master database—rather than waiting until a data request was received.

**Implement automated software**

Schlumberger Information Solutions (SIS) recommended the new, cutting-edge QCPro bundled software package with QCSync and QCLogix capabilities to supplement existing InnerLogix applications and help achieve full DQM automation. Upon implementation, these tools provided the extensive functionality that Chevron NA required in the Gulf of Mexico region, enabling its data analysts to

- define their own “pass” rules, based on four standard measurement categories: completeness, consistency, validity, and uniqueness
- rely on the software to automatically find errors, correct them according to predefined rules, and update projects with high-quality well data
- quickly view all failures in various formats (maps, reports, graphs, etc.)
- run assessment and correction jobs on a regular basis
- easily verify location-specific data online (zoom in on an exact area and compare master data against project data)
- remotely monitor interpreters’ activity (modifying, adding, or deleting data)
- perform fewer manual tasks (i.e., when reviewing “failed” data at the back end of the automated correction process).

**Improved efficiency and freed resources**

Chevron is now able to perform automated QC analysis of data with improved reliability and near real-time synchronicity, which has led to higher-quality data in both the master database and in multiple project datastores.

The impact on resources has been positive, freeing personnel to focus on reviewing data at the back end when something is missing or in need of human intervention to ensure completeness and accuracy. The manual correction process has been simplified by automating some of these tasks, which has also allowed reallocation of Chevron resources to other areas where their expertise is needed.

In addition to standardization of data across the user community, the most significant gain was the high level of accuracy resulting from the implementation upgrades, which has increased the interpreters’ confidence in the data they receive after it has been analyzed and corrected by QCLogix and QCSync software.
QCAnalyst map showing significantly improved overall data quality (greater than 90%) after issues were corrected.

QCAnalyst graph showing number of failures (issues) identified by Chevron-defined rules for wellbore data completeness.

QCAnalyst map showing that initial overall project data quality was less than 75% before rule-based analysis and cleanup were performed.

QCAnalyst map showing significantly improved overall data quality (greater than 90%) after issues were corrected.
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E-mail sisinfo@slb.com or contact your local Schlumberger representative to learn more.