BreitBurn Standardizes Oil and Gas Field Data Capture and Production Methodology

Avocet Volumes Manager software automates surveillance and regulatory reporting for conventional and unconventional assets

**CHALLENGE**
Transform home-grown, local field production administration systems into uniform, centralized data capture and storage to better coordinate with headquarters for efficient decision making.

**SOLUTION**
Implement Avocet® Volumes Manager (AVM) software; customize to meet production data management system (PDMS) requirements; leverage out-of-the-box quality control measures, a complete reporting system, an interface with other applications and databases, and monthly production allocations.

**RESULTS**
Standardized field data capture process; improved data quality validation processes; managed field data in compliance with Sarbanes-Oxley (SOX) requirements; enabled electronic submissions to regulatory agencies.

The solution represents the next generation in production data management—automating data processing calculations and quality control, and providing audit trail mechanisms and workflows to support SOX requirements.

Create production data harmony across assets
BreitBurn has crude oil and natural gas reserve assets in California, Florida, Indiana, Kentucky, Michigan, and Wyoming. Production data was previously managed locally using different systems, and it was difficult to access information from headquarters or other offices. The difficulty in accessing data delayed critical operational decisions, during which time conditions might change. Some fields already had automated data collection for wells, but the data was not being loaded into the field systems. As BreitBurn planned to expand its number of fields and wells, production data management processes needed to be optimized.

Certain constraints had to be remediated, including manual data entry and nonstandard Excel® spreadsheets for reporting and analysis—with varying methods for allocating monthly production. Changes were necessary to not only fully automate and standardize procedures and reporting, but also to comply with SOX rules for data management, security, and the production allocation process.

An integrated network diagram showing AVM production allocations capability.
CASE STUDY: Production software streamlines data management

BreitBurn and Schlumberger Information Solutions (SIS) collaborated on the installation and configuration of AVM software at several asset locations: Los Angeles basin and Orcutt field in the Santa Maria basin in California, Wind River and Big Horn basins in central Wyoming, and Sunniland trend in Florida.

The primary objective was for all the fields to use consistent data collection methods while still allowing the assets to specify parameters, such as data capture frequency (daily, weekly, monthly, or sporadic). The new software automated capture of the following production data types:

- products used in field operations
- well, meter, and other equipment readings
- preliminary shipment and sales
- tank inventories
- well tests
- forecasts
- equipment downtime
- screen comments
- meter calibration
- oil analysis
- handling of hot oil, load oil, and power fluid treatment
- chemical and electricity usage
- integration with SCADA systems for automatic data capture of cyclic injection steam activities.

Customized loaders were developed to migrate production data into the new system from BreitBurn’s legacy system and various Excel spreadsheets. An interface was established so users could also link to a third-party production analysis application. The monthly production allocations process was shifted to an AVM function for consistency with existing allocation workflows. A robust data validation process

Field data capture screens in AVM software, including filtered well status and historical and graphical views.
prevented erroneous data from entering the new system, avoiding the difficulties of correcting data at the volume allocations stage. A data validation wizard made it easy to set up warnings and not allow data processing to continue until errors were fixed. These validations are applied to manually captured data, as well as to SCADA-acquired data. If an item is missed by validation, it can be spotted in graphical or tabular views of the data-entry screen.

Steps were taken to maintain data synchronization, backup, and security:

1. configuration of field databases and replication from/to the master database at headquarters
2. configuration of security roles and user accounts with integration of Active Directory®.

The project delivered a complete reporting system, consisting of monthly production reports for state regulatory agencies; daily production reports using built-in AVM Grid Reports and Microsoft® SQL Server Reporting Services; reports and charts for well tests, well and field production, and injection history (including moving averages); and ad hoc reporting and charting capabilities.

Finally, operators and production accountants in all locations were trained on the new software to ensure understanding and productivity.

Support growing operations
BreitBurn now uses AVM software as a flexible PDMS that supports its business needs. The automated system minimized manual intervention and the number of validation points, significantly improving field data capture through standardized processes and procedures. The management of production and related operations data was optimized from collection and storage through the reporting of monthly production numbers to regulatory state agencies.

The solution represents the next generation in production data management—automating data processing calculations and quality control, and providing audit trail mechanisms and workflows to support SOX requirements. To date, 100 users have been trained, and the data for more than 2,000 active wells, 700 facilities and equipment items, 35 pumper routes, and historical data since 1900 have been uploaded. With this scalable platform, BreitBurn can adapt the system as operations expand.

Schlumberger Information Solutions
Schlumberger Information Solutions (SIS) is an operating unit of Schlumberger that provides software, information management, IT, and related services. SIS collaborates closely with oil and gas companies to solve today’s tough reservoir challenges with an open business approach and comprehensive solution deployment. Through our technologies and services, oil and gas companies empower their people to improve business performance by reducing exploration and development risk and optimizing operational efficiencies.

E-mail sisinfo@slb.com or contact your local Schlumberger representative to learn more.
CASE STUDY: Production software streamlines data management