

## Case Study

### Gas Operator Selects Honeywell to Implement Well & Field Exception-Based Surveillance



“Honeywell’s Digital Suites for Oil and Gas helped us reduce time and effort in monitoring our gas fields and wells, and in automating workflows for greater efficiency.”

— Subsurface Data Manager

#### Background

Honeywell recently completed a pilot project for a leading clean energy company operating unconventional Coal Seam Gas fields and gas-fired power stations, with plans to deliver Liquefied Natural Gas (LNG) to the international market.

CSG’s value chain and operations can range from exploration to production, transportation and export, including use of produced gas for power generation. In this case, the operating company produced gas from a number of fields in the Asia-Pacific region.



Major gas field operation in the Asia-Pacific region.

Like other energy firms, this end user needed to tackle the uncertainty and inaccuracy that often impedes the process of bringing new fields on-stream. It required solutions for intelligent well and field surveillance, enabling the optimization of production operations, and maximizing field efficiency, recovery, and lowering operating costs.

Honeywell Process Solutions was selected to fulfill their operational data, process safety, production surveillance and operational performance requirements by implementing an Exception-Based Surveillance (EBS) solution. This proved to be a very worthwhile endeavor for the end user, which originally had no visualization, alerting or collaboration capability and moved from reactive to proactive operating modes for its well and field facilities. By sharing and distributing information between business and production operations processes only when needed, and providing predictive information in role-specific views, the operational efficiency has greatly improved.

#### Benefits

EBS helped eliminate the need to rely on manual, time-consuming activities spanning multiple disciplines. Before EBS, this meant accessing an increasing amount of data from various reservoir and well related operational/engineering applications and spreadsheets. EBS improved the Well, Reservoir and Facilities Management (WRFM) team’s operating practices by supporting traditionally time-consuming, complex and event-driven calculations and reporting to monitor well performance over short, medium and long periods of time.

The objective was to ensure Standard Operating Procedures (SOPs) were adhered to over the lifecycle of the well, and keep the reservoir and wells within the optimal operating envelope. If not, EBS initiates proactive notifications to the right people should the well actually (or be predicted to) deviate from acceptable SOP thresholds. EBS not only manages data federation, alarm and event recognition, alert generation and notification, but also automates operational processes and “follow-ups,” and helps to capture critical knowledge of decisions and interventions for review and serve as lessons learned.



**EBS paid for itself within the first months of operation due to its ability to predict and alert well pump failures and shut-ins, each potentially impacting circa \$200-300K USD in unplanned interventions, equipment damage and deferred production.**

Honeywell's Digital Suites for Oil and Gas supported the firm's EBS requirement for their well pilot program. They believe the predictive, event-driven, collaborative capabilities of the software will be particularly useful in operating safely, and improving the productivity of its people and equipment by handling the expected huge volume and frequency of operational data, by improved monitoring and assessment of the operating condition of its geographically expansive and remote fields. This takes the load off of key experts, and allows operation in safer, centralized environments, enabling the Well Response Team (WRT) to focus on more value-adding, expert diagnosis and operating decision points, collaboratively. Ultimately, early identification of well performance issues and faster restoration of optimal operation following shut-ins were expected. In addition, the ability to identify trends and issues from field production data to mitigate possible failures, is an important step in reducing lifting costs, improving run lives, increasing safety, and ultimately, offering a lower total cost of ownership.

EBS paid for itself within the first months of operation due to its ability to predict well pump failures and well shut-ins, each potentially impacting circa \$200-300K USD in unplanned interventions, equipment damage and deferred of production.

The firm is now preparing to expand usage of EBS from approximately 150 wells on a single field to a full field development (potential of 6,000+ wells across two basins). Not considering opportunity cost, it is projected this solution could save \$20M+ USD per annum to support the full field development.

### Performance through Digital Intelligence

The CSG industry is challenged to maximize recovery and return on its investment, while minimizing the operational and maintenance costs of artificial lifting equipment and field operations. Data acquisition and digital intelligence is critical in both optimizing assets and detecting early failure. Turning the right data into intelligence can be a monumental activity without the proper technology and processes in place. Potential poor quality data, large volumes of often high-frequency data streams, and a large variety of data from multiple sources, all must be accessed, correlated, contextualized, and analyzed for variations from normal operation to identify problems before they occur; as such, lean operations and automated processes are essential.

When combined with geographical and environmental challenges, limited well testing and a short supply of experts to meet the operational needs, the task of monitoring, diagnosing and identifying CSG optimization opportunities and operating to plan is a real challenge. As a result, irregular operation and unexpected shut-ins and production losses are common.

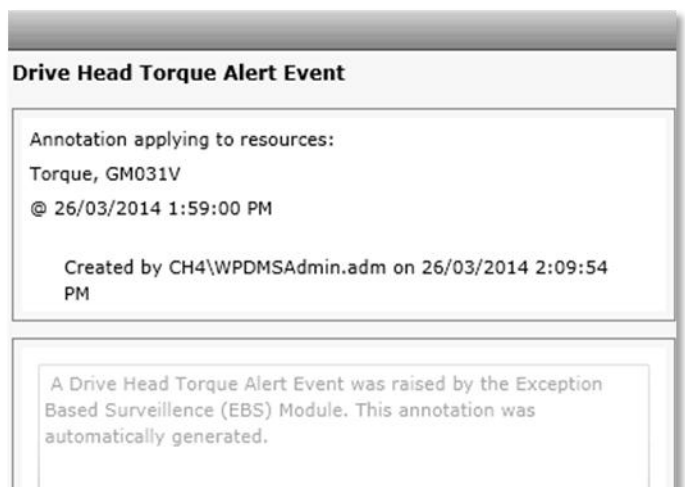
Today, production processes at sites must be optimized while the safety, reliability and efficiency of people and assets are carefully maintained. It's important for operators to spend less time gathering and reviewing data, and more time ensuring they meet their operational objectives to focus on improving performance. Producers who overcome the data challenge and turn the right data into digital intelligence will gain a competitive advantage.

### Solution

Digital Suites for Oil and Gas was selected for the end user's EBS program because of its best-in-class technology, coupled with Honeywell's extensive experience in the upstream oil and gas industry and proven ability to deliver and support effective solutions.

Digital Suites for Oil and Gas, as implemented by the Asia-Pacific operating company, included:

**Operational Data:** Laying foundations to overcome data challenges to effectively connect to CSG production operations is critical. The provision of an effective data access service supports consistent access to all data types, and provides long-term storage of historical information. As part of the Operational Data suite, the Uniformance® Process History Database (PHD) solution provides a flexible, high-availability environment for data access across CSG fields and wells.



Example of an alert created in Honeywell's EBS Solution.

**Process Safety:** Honeywell's solution supports CSG operators on increasing process reliability at a lower cost while ensuring safe operations. Reporting and interpreting of alarms and alerts is central to this suite. It also is critical for the company's operations to act upon abnormal situations in an effective and timely manner to inventorize and prioritize process- and safety-critical incidents. Alarms and WRT-initiated alerts will increasingly influence or initiate operational interventions and maintenance

activities as the company's field developments expand. As part of Honeywell's Process Safety suite, DynAMo® will increasingly support this function.

**Production Surveillance:** Leveraging the value of digital field technologies, this suite delivers disparate reservoir and well data to WRT desktops in a common enterprise view of field and well operations. This enables the WRT to most effectively monitor its wells and fields, and respond earlier to emerging issues to ensure producing assets operate optimally.

For EBS, this suite specifically services data cleansing, event-based pattern analysis, and identification of key concerns such as well mode determination. A single, prioritized view shows how wells are performing compared to expectations, while visual models predict what each well is capable of producing. As part of the Production Surveillance suite, Well Performance Monitor supports this function for EBS.

**Operational Performance:** Honeywell's solution enables improved anticipation of opportunities and risks on CSG fields operations. By optimizing enterprise-wide federated data management, this suite presents data as information in context to the challenge to the WRT EBS user, and enables design and execution of cross-functional workflows for EBS notification, intervention and decision support – reviewed within collaborative workspaces. Additionally, it captures expert knowledge in the context of the EBS challenge and improves operational understanding. The design of the suite is underpinned by a focus on human factors.

This helps the WRT make agile operating decisions to drive continuous improvement in the firm's Integrated Operation's performance. As part of Honeywell's Operational Performance suite, Intuition® Executive supports this function for EBS.



#### For More Information

To learn more about Honeywell's Digital Suites for Oil and Gas, visit our website <http://hwll.co/dsog> or contact your Honeywell account manager.

#### Honeywell Process Solutions

Honeywell  
1250 West Sam Houston Parkway South  
Houston, TX 77042

Honeywell House, Arlington Business Park  
Bracknell, Berkshire, England RG12 1EB

Shanghai City Centre, 100 Zunyi Road  
Shanghai, China 200051

[www.honeywellprocess.com](http://www.honeywellprocess.com)

DynAMo®, Intuition® and Uniformance® are registered trademarks of Honeywell International, Inc.