

Efficiently Install, Monitor, and Optimize Production

Onshore Well Monitoring and Integrity

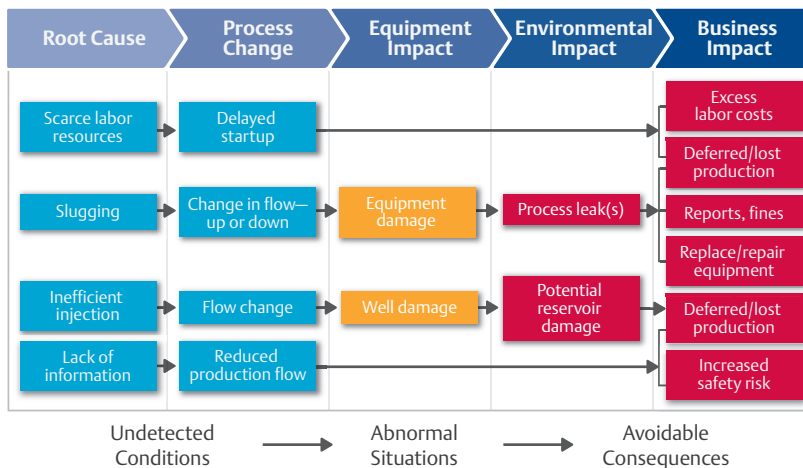


Need to protect well integrity and improve production?

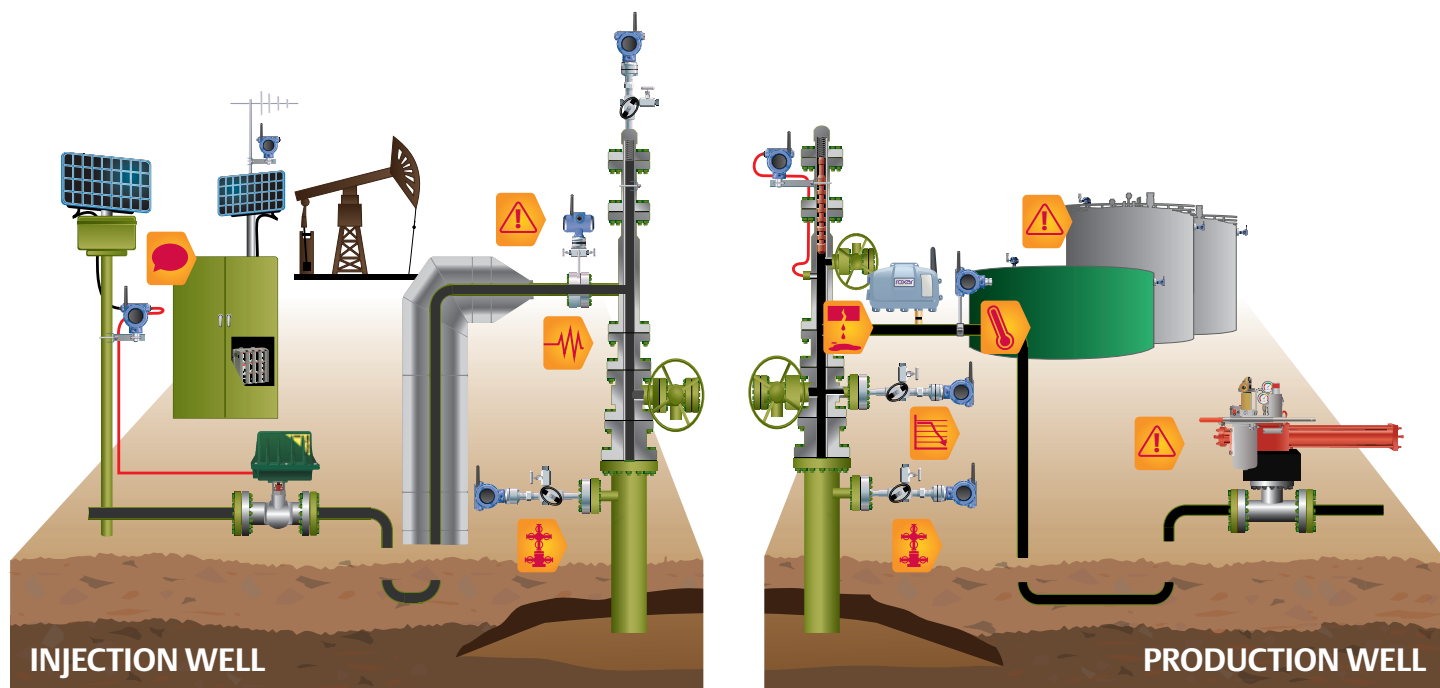
Whether bringing your first well online or managing a mature field, you face certain barriers common to all operators. With global production declining, how do you prioritize where to invest your time and resources? How do you get to first production quickly, easily, and economically? How do you balance safety, maintenance, and regulatory compliance without sending technicians into the field too often? When great distances separate wells and fields, how do you manage your staff – especially since the available pool of skilled personnel is shrinking? Ultimately, how can you keep your field profitable, while extending its life?

You need to be certain your wells are performing at capacity, but good data is hard to come by. Installing integrated wellhead automation can be complex and time-consuming – but manual data collection is too expensive and potentially dangerous. To achieve optimal production, you juggle equipment, crews, schedules, data, processes, costs, and regulations – some of which are variable and inefficient. As a result, you're constantly one step behind.

Onshore Well Challenges



Common Threats to Onshore Well Performance



WELL INTEGRITY
An increase in either the annulus or bradenhead pressure can result in a well shut-in, increased workovers, or a potential **safety/environmental** incident.

HEALTH & SAFETY
Manual monitoring and repairs increase time in the field, resulting in elevated **personnel risk** and more exposure to site-related hazards.

COMMUNICATION
Lack of timely and reliable communication leads to **deferred/lost production** and increased costs.

ENVIRONMENTAL
Leaks caused by mechanical failures can have an environmental impact. Early detection of abnormal conditions, such as sand and erosion, can **help avoid leaks and their consequences**.

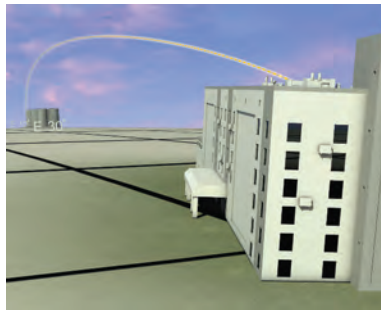
MAINTAINING SECONDARY RECOVERY
Non-monitoring of injection rates can lead to increased operating costs and, in certain cases, **decreased recovery efficiency and reduced production**.

CHANGING PRODUCTION
A change in the flow, pressure, or temperature can indicate a reduction in flow leading to **decreased production or wellbore damage**.



What if you could ensure maximum oil and gas recovery and extend asset lifecycles?

Optimize efficiency and yield by getting your wells up and running faster and easier, reducing operating and compliance costs, and gaining insight and control. Emerson offers complete, integrated automation solutions or components such as Smart Wireless technology, remote monitoring, easy-to-install devices, intuitive hardware and software, and expert training and services.



At the core of all our systems and devices is Human-Centered Design, an intuitive, role-based approach that streamlines installation and empowers your personnel to quickly and easily get up to speed with new technology. Remote intelligent operations such as the OpenEnterprise SCADA system connect the field with the back office in real time, reducing overhead, increasing data reliability, and shifting the burden off your field personnel to collect measurements manually. Predictive diagnostics and asset management monitoring tools, such as sand and erosion monitoring, and Smart Wireless solutions can end your maintenance headaches and prevent shut-in wells.

Try Emerson's automation solutions on an individual well or a pad—knowing you can seamlessly scale up to your entire field—and experience how quick and easy it is to maximize your production return.

Increasing Your Profit

Industry experts suggest that onshore wellhead production is not optimized and that wells are often shut in unnecessarily. Do you want to get that production back?

INPUT

Field Characteristics

a. Number of well sites	40
b. Gas production per well (mscfd)	5
c. Gas price (\$/1000 standard cubic feet)	\$2.90
d. Oil production per well (barrels/day)	100
e. Oil price (\$/barrel)	\$85
f. Number of maintenance people maintaining manual wells	1
g. Number of operators/pumpers maintaining manual wells	1
h. Annual cost per headcount	\$100,000

ANNUAL OPERATIONAL BENEFITS

Revenue from Production Increases

i. Increased gas production from automation (availability and optimal rates)	\$2,117
j. Increased gas production from operator spending time on optimization	\$1,059
k. Increased oil production from automation (availability and optimal rates)	\$1,241,000
l. Increased oil production from operator spending time on optimization	\$620,500

Cost Reduction

m. Manpower savings	\$20,000
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TOTAL ANNUAL PROFIT INCREASE

\$1,884,676

ASSUMPTIONS

Revenue from Production Increases (Typical)

n. Increased gas production from automation (availability and productivity)	1.0%
o. Increased gas production from operator spending time on optimization	0.5%
p. Increased oil production from automation (availability and productivity)	1.0%
q. Increased oil production from operator spending time on optimization	0.5%

Cost Reduction (Typical)

r. Manpower savings	10.0%
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Value calculation notes

- Basis: 40 well field with mixed production (gas & oil)
- Production increases based on major oil company data
- mscfd – thousand standard cubic feet per day

Formula calculations

- $L = a + b + c + n + 365$
- $J = a + b + c + o + 365$
- $K = a + d + e + p + 365$

- $L = a + d + e + q + 365$
- $M = r + (f + g) \cdot h$
- Total Annual Profit Increase = $i + j + k + l + m$

Get Started Today at
EmersonProcess.com/OnshoreWellhead



Take the Tour

Take our virtual tour to experience how wellhead automation solutions can help you reduce or eliminate many of the costs and inefficiencies of production.



Request Information

Use our simple online form to select the options most important to you. An Emerson specialist will contact you shortly.



Scan this code or visit
EmersonProcess.com/OnshoreWellhead

Emerson's Onshore Wellhead Solutions

SCADA SYSTEM



OPENENTERPRISE

Powerful, robust SCADA solution scalable from a single well to an integrated field. Easy to operate, implement, and maintain. OpenEnterprise is a reliable and flexible SCADA system ideally suited for the complex telemetry requirements and intermittent communications from the field and the control room.



FIELD CONTROLLERS



CONTROLWAVE®

Total flexibility to creatively design a complete integrated measurement and control solution. Optimizes delivery of real-time and historical data to critical business systems for making better-informed decisions.

OR



ROC

Leveraging configurable applications, the ROC platform minimizes programming requirements for optimizing production. Flexible solutions to meet a broad range of application requirements.



NETWORK INTERFACE



IEC 62591 (WIRELESSHART®) INTERFACE

Make wireless device integration simple and easy without special wireless communication know-how. Commissioning becomes quick and easy utilizing the auto-sense capabilities that automatically find and integrate wireless devices with the field controller, making data and diagnostics ready to use.

OR



SMART WIRELESS GATEWAY

Connects IEC 62591 (WirelessHART®) self-organizing networks with host systems and data applications.

DEVICES



BETTIS™ EMERGENCY SHUTDOWN SYSTEM

PressureGuard™ Self-Contained Hydraulic Emergency Shutdown (ESD) Systems provide reliable valve shutdown capability when an external power source is either not available or not dependable.



FISHER® ELECTRIC ACTUATED VALVES

Eliminate maintenance and environmental issues with pneumatic equipment on injection and production wells by using a low power, highly reliable sliding stem electric actuator and a durable control valve, both designed specifically for oil and gas applications.



ROSEMOUNT® WIRELESS DP FLOWMETER

Achieve dependable, accurate and fast flow measurements for the life of the well. Long and extended-range options, and a wide selection of connection and preconfiguration options, help ensure timely installation at a variety of sites.



ROSEMOUNT WIRELESS PRESSURE TRANSMITTER

Detect fluctuations or changes in pressure to provide good insight into wellhead performance with flow line, annulus, and other important pressure measurements. Long and extended range options, preconfigurations, and a wide selection of connection options are available for faster installation.



ROSEMOUNT WIRELESS DISCRETE TRANSMITTER

Reliably detect a wellhead plunger arrival notification without needing to run wires out to the wellhead from the field controller. The discrete transmitter also enables making wired, non-powered switch types wireless such as pressure, flow, and level switches. Long and extended-range options.



ROSEMOUNT WIRELESS TEMPERATURE TRANSMITTER

Improve process efficiency and compensate for temperature changes in flow calculations for increased accuracy. Long and extended range antenna options, preconfigurations, and a wide selection of sensor options including surface mount for quick installation are available.



ROXAR CORRLOG AND SANDLOG WIRELESS TRANSMITTERS

Monitor sand production and erosion real-time in oil, gas, and multi-phase lines to prevent damage to the well and other above ground equipment. Simple and fast installation provided by integrated wireless solution powered by the smart power module.

OPTIONAL ASSET MANAGEMENT



AMS SUITE FOR MAINTENANCE

Allows maintenance personnel to diagnose equipment problems using predictive diagnostics. Real-time information provides an early warning about device issues before they cause problems. Personnel can respond quickly, make informed decisions, and troubleshoot each situation.

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