# Calibration with the right tools simplifies procedures and saves time

## Monsanto - Soda Springs, Idaho

BEAMEX
CASE
STORY

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beamex
WORLD-CLASS CALIBRATION SOLUTIONS

Monsanto produces sustainable agriculture products and solutions for farmers throughout the globe. Seeds, crop protection, and biotechnology solutions encompass Monsanto's portfolio of products. By 2030, Monsanto aims to make agriculture more productive; develop beneficial partnerships and collaborations while reducing the amount of resources needed in agriculture by one-third. Monsanto's dedication to conservation and sustainability are just two reasons why they are extremely environmentally responsible and conscious of the impact their operations have on the environment. It is because of this continued effort to increase productivity and exceed regulations that CR Magazine choose to recognize Monsanto as one of the "100 Best Corporate Citizens" in 2013.

## Monsanto: Soda Springs, Idaho

In Soda Springs, Idaho, Monsanto's phosphate mining and processing facilities produce elemental phosphorus by removing phosphate ore from the ground and refining this material. Since the plant's establishment in 1953, it has operated continuously.

The primary purpose for extracting and refining phosphate ore is to make elemental phosphorus which is the fundamental ingredient in Roundup® herbicide. Elemental phosphorous is also used in other industries to make fire retardants, leavening agents, aviation fluids, carbonated beverages and a host of other products. This location continues to develop and add new instrumentation to accommodate the production. About 2 years ago, the plant made significant capital improvements and today, approximately one million tons per year of phosphate ore are mined.

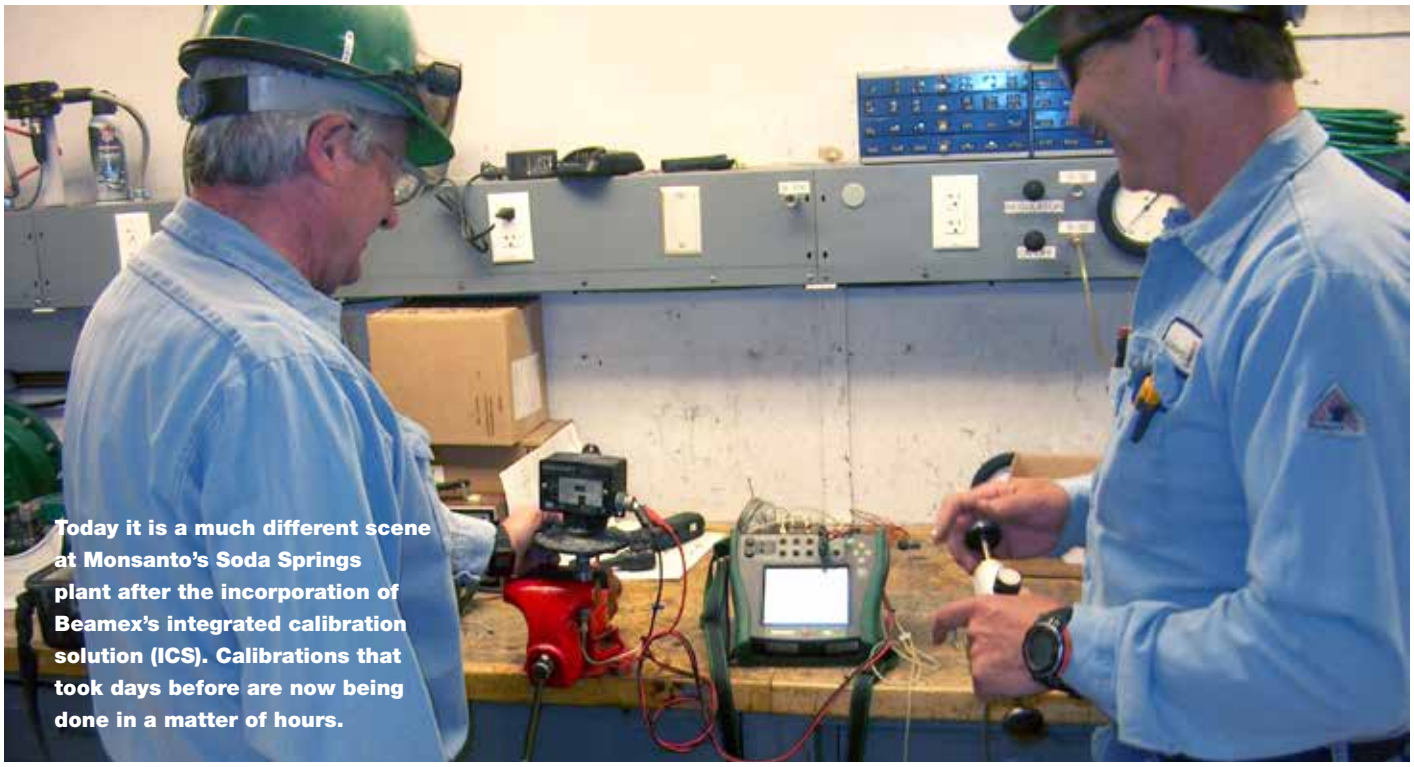
AFTER A FEW DAYS, TOM DISCOVERED THAT THE DEPARTMENT WAS ONLY USING BEAMEX BECAUSE OF THE USER FRIENDLINESS, OR EASE OF USE.

## Electrical and instrumentation department

Today, at the Soda Springs plant, a core electrical department maintains the plant's 1,000+ instruments. There are many types of devices found inside the plant, including those that measure pressure, temperature, flow, level and electronic readings. These instruments run on Foundation Fieldbus, DeviceNet and HART protocols, with HART comprising up the majority of the instruments.

Instruments are classified into three different categories. First, "freedom to operate instruments" are defined as the most critical instruments and ensure that Monsanto is operating in an environmentally conscious fashion. An environmental department supervises the documentation for this category. Second, "quality critical instruments" or QCI relate back to the IS09001 standards. Finally, the remaining devices are classified as "process control, general instrumentation."

There are nine staff members in the department, including several electrical and instrumentation (E&I) technicians. Tom Bassett, previously an E&I technician, is currently an Electrical Reliability Engineer. Tom now oversees the QCI program and assists when instruments require troubleshooting. Ed Shea, Laran Burdick, and Keven Nield, E&I technicians, have the primary responsibility for testing and calibrating the instrumentation.



**Today it is a much different scene at Monsanto's Soda Springs plant after the incorporation of Beamex's integrated calibration solution (ICS). Calibrations that took days before are now being done in a matter of hours.**

## Overcoming the conditions through automation

Outdoor conditions in Idaho can be intense, with winter temperatures averaging well below freezing. This weather has a profound effect on working conditions and instrument performance. Regular calibration is crucial to make sure the integrity of each instrument is not compromised.

Prior to implementing the current system, the technicians were using individual, separate and bulky calibrators. Each instrument measurement required the technician to bring the correlated calibrator out into the field. For example, to calibrate pressure, temperature and electrical instruments, three pieces of equipment were required; one to perform tests, one to calibrate the pressure instrument, and one for the temperature. Even more, if a HART instrument needed to be configured, a HART communicator would be required as well. Consequently, the technician may have had to haul out up to four pieces of equipment at one time or be forced to make multiple trips to the shop between calibrations. It was a big hassle to carry multiple instruments out into the field, especially in extreme weather conditions.

Not only was it challenging for the technicians to lug around all the equipment, but the post-calibration work was extremely time consuming. After the calibrations took place, the results had to be documented. This was done manually, by writing down the results using pen and paper, which took many man hours.

## Selecting the right solution

First, the department decided to go on the hunt for multifunction calibrators, and contacted several vendors. Each vendor loaned demo equipment for the department to test, with the agreement to use it for a few months. After a few days, Tom discovered that the department was only using Beamex because of the user friendliness, or ease of use. This situation prompted Monsanto to purchase equipment from Beamex.

Nowadays, it is a much different scene at Soda Springs. Since the team decided to invest in the multifunction Beamex MC5 multifunction calibrator and MC6 advanced field calibrator and communicator, they are able to carry one piece of equipment into the field to calibrate all of their devices. The MC6 with the HART communicator option allows the technicians to configure the HART instruments as well. Overall, they have decreased their need for equipment from up to four or five pieces, down to one.

The versatility of the MC6 has met all the requirements for the E&I department. Not only has it made the calibration work itself easier, but efficiency has increased tremendously. Prior to purchasing Beamex products, only 1-2 technicians were able to perform calibrations due to the difficulty of using the equipment. Now, the department can divide up the work between everyone because the equipment is so easy to use and operate. The intuitive nature of the Beamex calibrator allows even new hires to pick up and quickly begin calibrating devices.

The smarter equipment also offers much needed functionality. One of the most valuable aspects of the system is that if there is an instrument in the field that has not been set up yet, the technicians can take the calibrator out and plug right into the instrument, download the data and create a test.

## A big impact

After experiencing the major benefits of multifunction, documenting calibrators and an improved calibration process, the department chose to streamline their entire calibration program by utilizing Beamex CMX professional calibration management software to document and manage their instrument database. The software, combined with the multifunction calibrators form an integrated calibration solution (Beamex ICS). The change was immediate. Calibrations that would take all day are now performed and documented in a couple of hours.

The calibration software works in unison with the plant's enterprise resource planning system which generates work orders on pre-set intervals and routes them using the auto-generated order feature. The work-order is sent to the E&I technicians. The technicians then use their MC6 and MC5's in the field to perform the calibrations. All calibration data is stored separately in the CMX database. CMX is able to store calibration data, generate reports and organize detailed

# Monsanto - Soda Springs, Idaho

**DESCRIPTION**

- Beamex MC5 multifunctional documenting calibrators
- Beamex MC6 advanced field calibrator and communicator
- Beamex CMX professional calibration management software

**MAIN BENEFITS**

- User-friendly interfaces
- Time savings through increased efficiency
- Improved documentation
- Compliance with regulatory and audit requirements
- Extended calibration intervals

CASE STORY IN BRIEF

## THE CHANGE WAS HUGE! CALIBRATIONS THAT WOULD TAKE ALL DAY ARE NOW PERFORMED AND DOCUMENTED IN A COUPLE OF HOURS.

information required to produce calibration certificates to meet regulatory and internal audit requirements. Since the records are now stored electronically instead of being hand-written and filed, they are now able to easily access the instrument's information, view history and generate reports in the database. Furthermore, the crew was able to extend calibration intervals for some instrumentation based on a historical trend analysis.

The Beamex equipment is recalibrated on an annual basis by the Beamex laboratory to ensure the highest performance. The department also submits calibration certificates on the Beamex equipment from Beamex, which proves their calibrators are up to date and re-certified.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