ENERGY INSTITUTE
Colorado State University

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METEC$_{H_4}$
Methane Emissions Technology Evaluation Center

September 22, 2017 Update

Welcome to Fall at METEC. The summer months came and went in a flurry of activity at the METEC site. Despite a busy MONITOR testing schedule (both ad hoc and Round 1), the METEC team was also working on design and construction of Round 2 facilities and capacities. With so much going on, it's been extremely busy in the best possible way!

What's Inside:





MONITOR Round 1 Testing Nearing Completion. MONITOR teams are wrapping up Round 1 testing and using their results to improve on detection and quantification capabilities of their technologies in preparation for Round 2 testing. The METEC staff has thoroughly enjoyed working with teams through Round 1. We now know each team and technology better, and better understand the solution rationale for each MONITOR solution. It is exciting to watch the testing process and see how teams adapt and improve their performance.



Round 2 Construction on Track. Round 2 construction is on track for key capabilities to be ready by the end of September. We will conduct shake-down operations in October, to support testing in November 2017. The team is focusing on "Pads 4 & 5" – the larger O&G production pads, which are key to Round 2 testing. Equipment for other pads will be implemented over the fall, as it arrives from donor companies. Round 2 will provide additional testing configurations in addition to the larger wellpads, including a mock midstream compression facility and a subsurface pipeline testbed. For well pad emulators, the team is

also working on equipment to simulate wet gas releases and hot sources, such as exhaust stacks.

Pipeline test bed construction nears completion. Colorado School of Mines' Dr. Kate Smits, her graduate student Melissa Mitten and a cadre of CSM students worked long and hard hours at METEC with Dr. Clay Bell and Mike McGuire to get the pipeline test bed trenched, piped and instrumented with emission points and sensors. The test bed will provide realistic emission profiles for testing sensor solutions designed for underground leak detection. The test bed emissions will be controlled in the same precise manner as other emission points, and buried sensors will allow METEC to track dispersion from the emission points through the soil. Sensors will also provide information on water content.

Volatile organic compound (VOC) testing. METEC has designed and is building mobile gas mixing rigs to allow for the controlled release of VOCs as needed at each of the METEC gas release pads. This will allow site users to test their ability to detect and quantify several different gas combinations. Currently, the METEC anticipates being able to release controlled quantities of methane, ethane, propane, and butane in known mixture ratios. METEC also anticipates being able to release low levels of H_2S to simulate sites that handle sour gas.

Are you interested in VOC-specific testing? We would like to hear from you. Contact Clay or Kristine to find out more.

Equipment Donations. Industry Partners continue to provide generous support in the form of donations to equip the METEC site. Thanks to Anadarko for several well heads, separators and ECUs that are being incorporated on the site. Several other pieces of equipment are working through the donation process, and we will be excited to see them on site soon. There is still time to donate, as METEC is still looking for a few items to make the site a representative and realistic place to perform emissions testing and technology verification. Among these are:

- 1 berm stair set
- 3 meter runs – piping and related equipment
- 1 inlet separator from a small gathering station
- 1 engine/compressor skid in the 400-800 HP size range.
- 2 pigging launch/receivers

If you know of equipment being retired or scrapped and you think it might be useful for the site, please do not hesitate to contact us!

Non-MONITOR Testing. We have received requests from many non-MONITOR companies to test technologies at METEC. We have had interest from both developers and potential customers of detection technologies of every variety. We will be supporting this testing in specific testing windows where multiple companies will be on site testing their technologies simultaneously. This testing mode will allow for longer-duration testing using standardized scenarios similar to the R2 test protocol.

If you are interested in these testing windows, contact Kristine Bennett before 15 October for access to early test windows.

IAB face to face meeting scheduled. The METEC *Industry Advisory Board* will meet on Wednesday, 1 November following the 21st Century Energy Transition Symposium. The meeting will be held at the METEC site and is planned to take about a half day. We will discuss the plan for Round 2 testing, and progress on the site. Industry Partner input is always appreciated!

Upcoming Events

21st Century Energy Transition Symposium. 30 – 31 October 2017. Colorado State University, Fort Collins CO. Find more information at: http://energytransition.colostate.edu/symposium-2017/.

25th Anniversary of the Engines Lab at the Powerhouse. Thursday, 2 November 2017. Join us at the Powerhouse (430 N. College Ave, Fort Collins, CO) to celebrate the anniversary at an open house 2 – 4:30 pm!

ARPA-E Workshop. Tuesday, 28 November 2017. Sustainability, Energy & Environmental Complex, Boulder, CO. Find more information at: http://www.coloradocollaboratory.org/events/

GTI CH4 Connections Meeting. 12 – 13 December 2017. Fort Collins, CO. Find more information at: http://www.gastechnology.org/CH4/Pages/default.aspx

METEC Key Staffing and Responsibilities.

Dan Zimmerle – Director and PI for METEC
Kristine Bennett – Project coordination & communication
Clay Bell – Overall design and construction oversight
Mike McGuire – Field site manager
Tim Vaughn – Measurement systems oversight

The METEC team is also supported by several undergraduate students helping to outfit the test site.

Site Scheduling. METEC is accepting requests to schedule testing at the site including MONITOR performers and non-MONITOR clients. MONITOR testing will currently take priority. METEC is working on strategies to provide opportunities for longer-term testing at the site and the possibility of allowing multiple user groups to use the site simultaneously. Stay tuned for updates! Contact us for pricing, and available use times. Prior to accessing the site, all users must have a CDA and Site Access Agreement in place.

Contact Us. The METEC team would love to hear from you, and we are happy to answer questions. We can best be reached via email until we can set up an interactive website to schedule your testing at the METEC field site.

Email: METEC@colostate.edu

Website:
http://www.energy.colostate.edu/p/metec-program