



ENERGY INSTITUTE

Colorado State University



Colorado State University

METEC_{H4}

Methane Emissions Technology Evaluation Center

January 12, 2018 Update

Happy New Year! METEC is gearing up for a productive 2018! We have big plans and a lot going on already. We hope you will join us for a tour, testing, or training soon. As always, we love to talk about the site and value input, comments and suggestions from our energy community.

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MONITOR Testing. MONITOR teams have completed their Round 1 testing and are preparing for their next challenge at METEC. Next up: Round 2. Round 2 will bring additional challenges that are increasingly representative of field sites. Performers will experience intermittent emissions, more realistic emission points and multiple leaks occurring simultaneously.

Check out our new video: <https://energy.colostate.edu/areas-of-expertise/methane/metec-at-colorado-state-university/>.

Site Updates. METEC is Round 2-ready! Pads 4 & 5 – the larger O&G production pads – are now equipped with their full suite of separators, combustors, well head and tanks. Emission points are plumbed and ready to go.



Pad 4



Pad 5

Mike and Clay used new methods to position and integrate leak points to emulate field leaks on these pads so that leaks will be more realistically located than in Round 1.

METEC is also working on a mock midstream compression facility. The compressor skid and dehydrator are on location and we are outfitting emission points. METEC also received the donation of a new forced-air flare that will be used to represent hot exhaust on the pad. This work should be complete by late spring.



Mock Midstream Compressor Facility

The Pipeline Test Bed construction is complete. Melissa Mitton and Kate Smits from the Colorado School of Mines completed the mock pipeline and have placed all sensors. The test bed is fully functional at this point, and can provide realistic emission profiles



Melissa Describing the Underground Test Bed

for work on pipeline leaks and leak detection. Emissions testing over next weeks will better characterize the gas migration patterns in the test bed for different underground gas leak scenarios.

The first mobile gas mixing rig is now complete. The portable rig will provide controlled releases of ethane, propane and butane, plus one additional gas if needed. Releases will be added to normal natural gas emissions (primarily methane and ethane) to simulate a wide range of “wet gas” emissions. The rig can be moved between several connection points on site to provide flexible release locations.



Gas mixing rig

IAB Face to Face Meeting. METEC hosted a meeting if its



Clay describing emission point disguise to the IAB

Industry Advisory Board in November to provide an update, receive comments and suggestions and answer questions. The IAB provided useful input for

planning the R2 testing, and suggested additional functions and features to make the site more realistic and useful to potential clients. Many of these suggestions will be included in the ongoing METEC design and structure.

CH4 Connections Attendees Tour METEC. The CH4 Connections conference was cohosted by Colorado State University and the Gas Technology Institute in Fort Collins this year. After the conference, over 70 attendees braved



Jim Rutherford describing PSI Heath's technologies

the cold weather to visit the METEC site. During the tour, demonstrations were provided by PSI-Heath, CU

LongPath, and mAIRsure. The tour was well-received, and provided attendees with a better understanding of the site and its capacity and potential.



Sean Coburn and Ted Weaver with LongPath describing their technology



Steve Elms describing mAIRsure technology



Tour guide, Clay

Equipment Donations. Since the last newsletter, METEC has been extremely fortunate to receive generous donations from several industry and commercial partners. METEC now has an additional four vertical separators from Southwestern Energy, a complete compressor skid from DCP Midstream, a vertical separator and dehydrator from Williams, and a new and functional flare from D.B.I. Thanks so much to these and previous donors for their generosity!

There is still time to donate! METEC is looking for a few items to add realism to the site:

- 5 berm stair sets
- 3 meter runs – piping and related equipment
- 1 engine/compressor skid in the 400-800 HP size range.
- Suction and discharge header piping and valves from a small compressor station.
- 2 pigging launch/receivers in the 4-12” diameter size range.

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!

METEC Now Officially Exists!

Yes ... we're now on Google Earth. Unfortunately, we're not showing up yet on maps ... 40.595477°, -105.139045°

Upcoming Events and Opportunities

ARPA-E Energy Innovation Summit. 13 – 15 March 2018. Washington, D.C. More information at: <http://www.arpae-summit.com/>

ARPA-E “OPEN 2018.” On December 13 ARPA-E’s “OPEN 2018” funding solicitation came out. It expects to award up to **\$100 million in funding** to potentially transformational early-stage energy projects. The Colorado Energy Research Collaboratory (Collaboratory) will help connect potential teams, aggregate information that is sent in and disperse information for the purposes of teaming. <http://www.coloradocollaboratory.org/arpa-e-open-2018-solicitation/>.

The Collaboratory hosted a free Workshop on November 28 to discuss how to write a successful ARPA-E proposal. Over 170 people participated. That information can be found here: <http://www.coloradocollaboratory.org/watch-arpa-e-workshop-sessions/>.



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. We are 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! Please contact us for pricing, and available use times. Prior to testing, 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: <https://energy.colostate.edu/areas-of-expertise/methane/metec-at-colorado-state-university/>