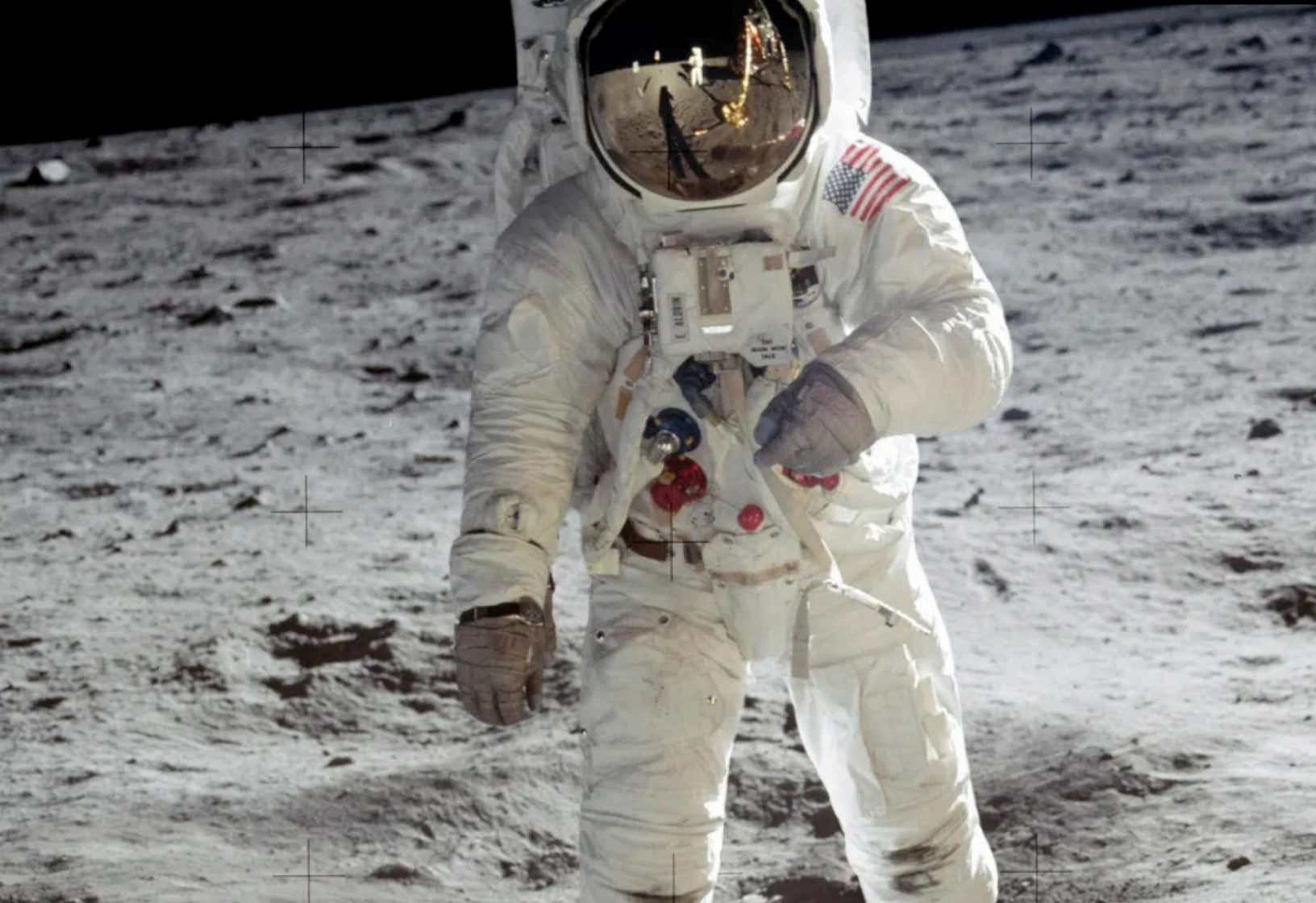




# Newsletter

May 2024



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**By: Thomas Kalb, Director**

Follow us on



[midstreamcenter@lamar.edu](mailto:midstreamcenter@lamar.edu)

# Our Mission

The Midstream Center continues to fulfill its mission to build its value proposition and become a trusted partner with the midstream industry by developing industry and partner relationships and educating tomorrow's leaders through:

- Practical research driven by industry needs
- Enhancement of faculty knowledge and understanding of the midstream industry and related issues
- Education of students about the midstream industry, its opportunities, and course of study relevance to the industry
- CMMS Information Clearing House, which offers industry a portal to search and access most published midstream-centric academic papers
- Webinars, industry and campus events designed to bring industry, faculty, and students together

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## Open Minds

CMMS seeks perspectives not common to midstream technology discussions in the hope of discovering novel approaches to solving operating issues. It requires patience and an open mind and it seems that it is the season for such things. Dr. Phil Cole, Chairman of LU's Physics Department, and Dr. Perumalreddy Chandrasekaran, Associate Professor of Inorganic Chemistry at LU brought their energetic open minds and expertise to CMMS and we were able to involve them in our midstream world. Both Dr. Cole and Dr. Chandrasekaran brought their unique perspectives to finding natural gas leaks in pipelines. Naturally, the physicist delivered a prospective mathematical solution and the chemist brought nickel dithiolene to the party.

**Professor Cole** – *"My goal is to find where the leaks are in buried pipelines. I can identify the egress points of methane using infrared optical imaging, but the methane will flow from that corrosion point (leak) to the point of egress to the surface, which could well be 100 meters away. Where is that hole? And I figure active monitoring of the longitudinal wave spectrum will give us the tool to find it. Run a Hankel Transform on the acoustical data. Extract the primary power coefficients. Determine if there is something amiss from regular fluid dynamics of methane flow in pipes. If you get a funny value for one of the coefficients, you should investigate. There might be corrosion or a leak. This is akin conceptually to a Fast Fourier Transform in signal processing."*

**Professor Chandrasekaran** – *"Pipelines are prone to leaks. Traditional methods of leak detection are adequate yet cannot detect the leak location quickly before the leak becomes a costly hazardous problem. Our research goal is to develop a fast and precise method for leak detection by developing nickel dithiolene based near-IR tracers to be introduced into the pipelines at ppm level. Nickel dithiolene has strong absorption at near-IR region, and the leak could be detected along the pipeline using drones mounted with near-IR sensors. Interestingly, since leaking natural gas will now appear blue in the visible spectrum, a person wandering by could just see the leak too and a better volume rate estimate would also be possible."*

People have talked about localized methane leak detection for years and, while a myriad of technologies appear to do it, they generally require infrared devices to see the leaking methane and they are all terrible at estimating the leak volume rate. These two guys walk in the room talking about Hankel Transforms and nickel dithiolene because they are not burdened by the incrementalist groupthink that inhibits most innovation. We are benefitting from two scientists who had the opportunity to think about something novel by blending their open minds and expertise with a problem they don't usually face. We need more of this opportunism.



# 2024 CMMS–MASF Scholarships Awarded to two LU Students



Lamar University's Center for Midstream Management and Science (CMMS) and the Midstream America Scholarship Fund (MASF) are pleased to announce Lamar University's 2024 Midstream America Scholarship Fund recipients. Scholarships of \$2,000, funded by MASF, were awarded by CMMS to two exceptional S.T.E.M. students, one each from LU's College of Engineering and College of Arts & Sciences. The winning students were selected by their colleges based on their outstanding academic and extracurricular achievements. The recipients of the scholarships are:



**Hannah Thrash**  
BSc Forensic Chemistry  
BA Music

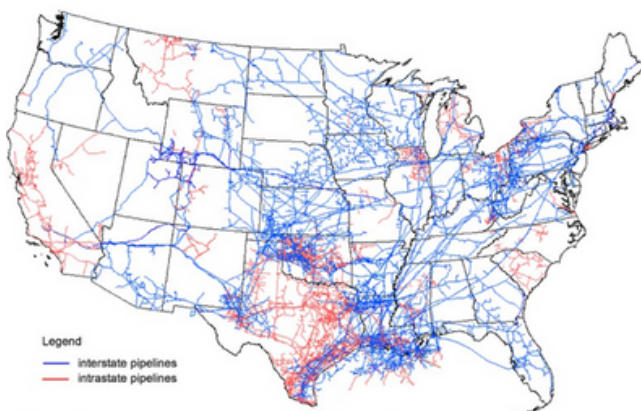


**Abraham Asabi**  
BSc Chemical Engineering

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## CMMS Essay #1 Challenging Conventional Wisdom

Map of U.S. interstate and intrastate natural gas pipelines



Source: U.S. Energy Information Administration, About U.S. Natural Gas Pipelines

This essay is the first of a planned series to be published by CMMS to explore the issues and conventional wisdom impacting the midstream industry in the U.S. Read Essay #1 at:

[\*\*Challenging Conventional Wisdom Essay\*\*](#)

# Field Trips

## Golden Pass LNG Facility Tour

CMMS brought LU faculty and students to the Golden Pass LNG facility near Sabine Pass, Texas where we were treated by Golden Pass facility leadership and personnel to a presentation followed by a wide ranging and very informative Q&A session and tour. Situated on the Gulf Coast near Sabine Pass, Texas, Golden Pass LNG is undergoing a historic transformation from its original purpose as an LNG import and regasification facility to a natural gas liquefaction and export facility that began in 2019 when owners made the final investment decision. This facility is expected to commence natural gas liquefaction and LNG exports in the first half of 2025. We are planning to take up management's offer of a tour next year after facility start up. This tour was extremely informative and impressive.



## Honeywell Hosts LU Faculty and Students



Honeywell hosted CMMS and LU faculty and students at their Houston office for presentations on advanced process solutions technologies. Chris Jones, Global Director, LNG, Pipelines & Terminals, led his colleagues in this highly educational and interesting event comprised of specific presentations and expansive Q&A sessions. It was an impressive event and hopefully the beginning of long and fruitful friendship.



## Howard Energy Partners Facility Tour

CMMS brought LU faculty and students to the Howard Energy Partners (HEP) Port Arthur Terminal, which recently went through a significant expansion to support Diamond Green Diesel's new 247 million gallons/year renewable diesel production facility located at Valero's Port Arthur refinery. The expansion includes a second deep-water dock with additional capacity for third-party shippers. HEP also commissioned new facilities to handle Refinery Grade Propylene and Polymer Grade Propylene, including rail trans-loading spots, pressurized



storage, and associated pipelines and pumps to connect the terminal to one of the world's leading chemical companies. The HEP facility now consists of nearly 2 million barrels of storage, 16 miles of rail track with unit train and manifest service from two railroads, two deep-water docks capable of loading Panamax-class vessels, and pipeline connectivity to local refiners and industrial plants. In addition to the tour, the group was invited to sit in on the morning operations call among HEP professionals. It was truly a memorable and informative event.



## New Board Member

Chris Jones is Global Director of LNG, Pipelines & Terminals for Honeywell Process Solutions. He has been with Honeywell for 26 years. In his early days with Honeywell, Chris worked as an operator in chemical plants then as an engineer where he gained experience in various roles, including process engineering, production superintendent, and operations manager. More recently, Chris has lent his expertise in marketing, business development, estimating, and sales leadership. In his current role, Chris has a team of technical consultants and business leaders across the world that focus on the LNG & Midstream industries to bring industry domain knowledge to their

automation projects. Chris holds an MBA from Lamar University and a BSc in Chemical Engineering from McNeese State University.



**Chris Jones**  
Global Director  
LNG, Pipelines & Terminals  
Honeywell Process Solutions  
Houston, Texas

# Midstream Essay Contest

## 2024 Winners Named

Lamar University's Center for Midstream Management and Science (CMMS) and Howard Energy Partners (HEP) are pleased to announce the winners of the second annual CMMS Midstream Essay Contest. The essay assignment was Aging Infrastructure in the Midstream Industry, and it was open to all undergraduate and graduate students at all 34 4-year, public universities in Texas. The essay competition generally sought the perspective of students engaged in degree programs in the colleges of Business, Engineering, and Arts & Sciences, but all students in all disciplines were encouraged to submit an essay. Topics were wide open, including but not limited to, corporate finance and structure, capital markets, engineering, operations regulation, ESG, and human capital.



**Drake Wells**  
BSc Petroleum Engineering  
Texas A&M University at  
College Station

First Place – "Securing the Lifelines of Energy: Enhancing Safety in America's Aging Midstream Oil and Gas Infrastructure"



**Lindsay Ross**  
MBA – Environment  
Management  
University of Houston at  
Clearlake

Second Place – "Aging Infrastructure: An Opportunity to Reestablish Public Trust and Secure Support for the Midstream Industry"



**J. Sam Norwood**  
BSc Petroleum Engineering  
Texas A&M University at  
College Station

Third Place – "PHMSA's Mega Rule: How New Regulations Can be Hard on Some, but Great for Midstream Overall!"

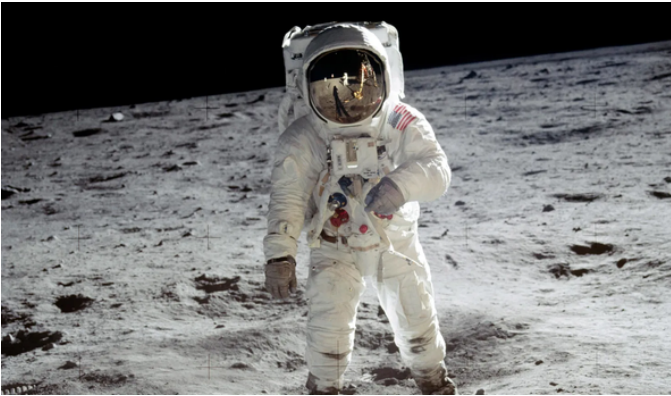
## CMMS Sponsors Midstream Geohazards Scoping Study

CMMS has funded LU's Dr. Venki Uddameri, Dr. Xing Wu, and Dr. Y-J Kim to complete a short (6-month) scoping study to develop a road map toward building a research agenda for national-scale mapping of geohazard risks on pipeline infrastructure. This project is a follow-up to a geohazard study addressing uplift and subsidence in SETX funded by CMMS in FY2023 and is meant to provide the foundation of a much larger, multi-year project targeted to begin in FY2025 that would create a regularly updated national database on geohazard data that could be provided to the public via a subscription service in an easily downloadable format for inclusion in proprietary geohazard databases.

The ultimate objective would be to enhance pipeline operators' ability to identify areas of greater geohazard risk along their pipeline rights-of-way. The name of this scoping study is "A Comprehensive Assessment of Data Availability for Estimating the Risks of Geohazards on Nation's Mid-Stream Infrastructure."



# CMMS Essay #2 – Real Impact of Energy Transition on Midstream



This essay is the second of a planned series to be published by CMMS to explore the issues and conventional wisdom impacting the midstream industry in the U.S. Read Essay #2 at:

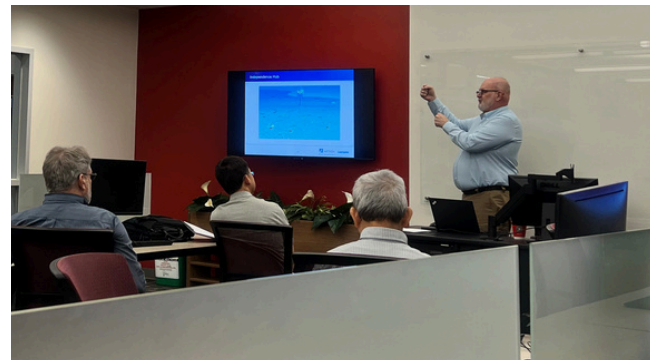
[Real Impact of Energy Transition on Midstream](#)

## Dirk Day 3.0



This "hard spot" issue is in the early stages of efforts to understand it and it is certain that there will be significant funding and expertise required to understand and solve it. Dirk, who is involved with industry in assessing this newly identified problem, has agreed to advise and work with a LU team to be one of the first movers of research on the "hard spot" phenomena.

CMMS hosted Dirk van Oostendorp in his third annual visit to the LU campus to give his highly regarded presentation on opportunities/careers in the midstream industry to faculty and students and to meet with faculty/student research teams working on midstream-centric projects funded by CMMS. This year, he not only discussed ongoing research projects to provide critical industry insight to the teams to enhance focus and prospect of gaining industry support but also met with a CMMS ad hoc faculty team to kick-off a discussion to develop a multi-discipline research project focusing on the discovery of "hard spots" in older pipelines that have caused multiple catastrophic failures in natural gas pipelines over the last two years.





## Webinars

### Top 10 Midstream Issues Webinar

CMMS hosted a webinar addressing Top Issues Facing the Midstream Industry with panelists Ajey Chandra (CEO, Baker and O'Brien), Chris Jones (Global Director – LNG, Pipelines & Terminals, Honeywell Process Solutions), and Juan Cardona (Senior Manager – System Planning & Asset Optimization). The webinar was well received and remains available at [HERE](#)



Ajey Chandra



Chris Jones



Juan Cardona



### Upcoming Webinar – Political Environment’s Impact on Midstream Planning

CMMS is set to host a webinar addressing Political Environment’s Impact on Midstream Planning with panelists Dan Noack (VP, Emerging Energy, Plains All American Pipeline, LP), Juan Cardona (Senior Manager – System Planning & Asset Optimization, Summit Midstream) and Mitch Smolik (Vice President, Engineering, Howard Energy Partners). The webinar will be June 12, 2024 from 10:00 am – 11:00 am.



Dan Noack



Juan Cardona



Mitch Smolik

[Register HERE](#)