NSF Annual Site Visit • Reporting Year 3

CASFER Center for Advancing Sustainable and Distributed Fertilizer Production

May 18–21, 2026 | McKenzie-Merket Alumni Center, Texas Tech University

Venue: McKenzie-Merket Alumni Center • 2521 17th St, Lubbock, TX 79409
Hotel: The Overton Hotel & Conference Center • 2322 Mac Davis Lane, Lubbock, TX

DAY 1 · Monday, May 18, 2026

TIME	SESSION / PRESENTER	ROOM
3:00–4:00PM	**Student/Postdoc Pitch Competition**	Main Presentation Room
5:00–7:30PM	**Innovation Showcase Reception**	Main Presentation Room

DAY 2 · Tuesday, May 19, 2026

TIME	SESSION / PRESENTER	ROOM
7:45–8:45AM	**Breakfast & Registration**	Dining Room
8:45–8:50AM	**Welcome & Introductions** *– Dr. Gerri Botte, CASFER Director* *– Dana Denick, NSF Program Manager*	Main Presentation Room
8:50–9:35AM	**CASFER Overview** *– Dr. Gerri Botte, CASFER Director, Texas Tech University*	Main Presentation Room
9:35–9:45AM	**Overview Q & A**	Main Presentation Room
9:45–10:35AM	**Thrust 1 — Process Optimization & Models for Economic Fertilizer Resilience** **Thrust 1**, *Thrust 1 Lead, Georgia Institute of Technology*	Main Presentation Room
10:35–10:50AM	**Thrust 1 Q & A**	Main Presentation Room
10:50–11:00AM	*BREAK*	
11:00–11:50AM	**Thrust 2 — Capture & Resource Recovery for Fertilizer Production** *– Hatzell + team, Thrust 2 Lead, Georgia Institute of Technology*	Main Presentation Room
11:50–12:05PM	**Thrust 2 Q & A**	Main Presentation Room
12:05–1:05PM	**Lunch**	Dining Room
1:05–1:55PM	**Thrust 3 — Modular Fertilizer Production & Delivery** *– Dr. Gerri Botte + team, Thrust 3 Lead, Texas Tech University*	Main Presentation Room
1:55–2:10PM	**Thrust 3 Q & A**	Main Presentation Room
2:10–2:50PM	**Testbeds** *– Alvarez-Pugliese, Managing Director, Texas Tech University*	Main Presentation Room
2:50–3:05PM	**Testbeds Q&A**	Main Presentation Room
3:05–3:15PM	*BREAK*	
3:15–4:00PM	**Deans Council & NSF Site Visit Team Meeting**	Breakout A
4:00–5:00PM	**NSF Site Visit Team — Executive Session**	Breakout A
5:00–6:00PM	**NSF Site Visit Team — Working Dinner**	Breakout A

CASFER Center for Advancing Sustainable and Distributed Fertilizer Production

NSF Annual Site Visit • Reporting Year 3

May 18–21, 2026 | McKenzie-Merket Alumni Center, Texas Tech University

DAY 3 · Wednesday, May 20, 2026

TIME	SESSION / PRESENTER	ROOM
8:00–9:00AM	**Breakfast — CASFER Team | Students/Postdocs & NSF Site Visit Team (Breakout A)**	Dining Room / Breakout A
9:00–9:50AM	**Engineering Workforce Development, Outreach & Engagement** *– Gracia, Sr. Director for Inclusive Workforce Dev. & Education, Texas Tech University*	Main Presentation Room
9:50–10:05AM	**Engineering Workforce Development Q & A**	Main Presentation Room
10:05–10:55AM	**Innovation Ecosystem & Sustainability Plan** *– Riojas, Director/Industrial Liaison Officer & Souter, Sr. Managing Director, ORC, Texas Tech University*	Main Presentation Room
10:55–11:10AM	**Innovation Ecosystem & Sustainability Plan Q & A**	Main Presentation Room
11:10–11:20AM	*BREAK*	
11:20–12:10PM	**IPAB, SAB & EDAB NSF Site Visit Team Meeting**	Breakout A
12:10–1:10PM	**NSF Site Visit Team Lunch & Meeting | Lunch for CASFER Team (Dining Room)**	Dining Room / Breakout A
1:10–2:20PM	**CASFER 2.0 (Year 6–10)**	Main Presentation Room
2:20–3:00PM	**CASFER 2.0 (Year 6–10) Q & A**	Main Presentation Room
3:00–3:30PM	*BREAK & Awards Ceremony*	Main Presentation Room
3:30–5:00PM	**NSF Site Visit Team & CASFER Leadership Team — Q & A Session (CLOSED SESSION)**	Main Presentation Room

DAY 4 · Thursday, May 21, 2026

TIME	SESSION / PRESENTER	ROOM
9:00–5:00PM	**The Professional Edge: Mastering the Essentials of Leadership & Team Dynamics** *– Rawls College of Business, Texas Tech University*	Rawls College of Business, TTU *Room NW 210*

CASFER
Center for Advancing Sustainable and Distributed Fertilizer Production

NSF

CASFER Poster Presentations

Date: May 18, 2026

5:00 – 7:30 PM

	Authors	Title	Project Number and Task
1	Ehsan Abbasi, Christian Alvarez Pugliese, Gerardine G Botte	Multi-Step electrolysis for enhancing productivity of volatile fatty acids and nutrients recovery	FUP 07
2	Daniela Ferreira-Garcia, Evandi Rahman, Neidy Ocuane, Gerardine G. Botte	Electrochemical Upcycling of Wastewater Biosolids into Value-Added Carboxylic Acids: Electrode Pair Optimization for Product Formation	FUP 07, Task 7.2
3	Jedidian Adjei & Gerardine G. Botte	Semi-Empirical Modeling of Biosolids Electrolysis	FUP 07, Task 1.2
4	Evandi Rahman, Neidy Ocuane, Christian E. Alvarez-Pugliese, Gerardine G. Botte	Sustainable Methane Recovery from Digested Activated Sludge for On-site Energy Utilization	Associate Project
5	Jessica Ortega-Ramos, Daniela Ferreira-Garcia, Gerardine G. Botte	Microkinetic Study of Biosolid Waste Electrolysis Through Continuum-Scale Mathematical Modeling	FUP 07, Task 7.1
6	Sergio A. Arias, Evandi Rahman, Gerardine G. Botte	Metal-based Reactive Electrode for the Electrochemical Reduction of Perfluorooctanoic Acid	FUP 07, Task 3.2
7	Suhail Haque, Ariel L. Furst	Electrochemical PFOA degradation and plant growth with EWAS	FUP 07
8	Zenifar Haque, Gerardine G. Botte	Electrochemical PET Microplastic Degradation via NiOOH-Mediated Alkaline Hydrolysis Under Sludge Electrolysis Conditions	FUP 07, Task 3.2
9	Nikhil S. Chellam, Nianhan Tian, Meredith Wu, Alexander G. Nitsche, Haldrian Iriawan, Ariel L. Furst, Yang Shao-Horn	Electrolyte Composition Dictates Degradation Kinetics in Radical-Mediated Pharmaceutical Electrolysis	FUP 07, Task 4
10	Sergio A. Arango, Sonja Michaluk, Jose Solis, Gerardine G. Botte	Smart Reactor: Digital Twin Technology for Sludge Electrolysis Optimization for Sustainable Fertilizer Production	FUP 11, Task 1
11	Sonja Michaluk, Kaden Schreiber, Sergio Arango, Gerardine G. Botte	CASFER Data Management System and Machine Learning Applications	RRSP 17, Task 1
12	Kaden Schreiber, Fani Boukouvala	Hybrid Physics-Informed and Data-Driven Modeling of the Electrochemical Sludge Reactor	RRSP 17
13	Ujjwal Ghimire, Andrés Sánchez García, Jedidian Adjei, Anushka	Characterization of Persistent Organic Pollutants in CASFER Products	FUP 11, Task 2

	Pandey, Kayleigh Millerick, Ozhan Gecgel, Christian Alvarez-Pugliese Gerardine G. Botte, and Balaji Rao		
14	Montana Montez, Jedidian Adjei, Ozhan Gecgel, Gerardine G. Botte, and Kayleigh Millerick	Characterizing Nutrient and Microbial Fate in Electrolyzed Biosolids for Fertilizer Production	FUP 11, Task 11.2
15	Faith Alonge, and Lindsey Slaughter.	The Impacts of Biosolids in Greenhouse Solanum Lycopersicum Growth Across Variable Substrates.	FUP 11, Task 6
16	Sandesh Bhatta, Jedidian Adjei, Ozhan Gecgel, Christian Alvarez-Pugliese, Kayleigh Millerick, Balaji Anandha Rao, Gerardine G. Botte, Katie Lewis, Odemari Stephen Mbuya, Matthew G. Siebecker, and Lindsey C. Slaughter	Organic Nutrient Sources Alter Carbon and Nitrogen Transformation and Greenhouse Gas Fluxes in Contrasting Soils	FUP 11, Task 5
17	Sanskruti Dighe, Jaden Bobo, Lindsey Slaughter, Kayleigh Millerick	Biological Potential for Carbon and Nitrogen Losses in Amended Soils	FUP 11
18	Adeiza Adonuja, Ahmed Mohamed B., Tarek Abichou, Odemari Mbuya,Katherine Milla, Amita Jain, Christian Alvarez-Pugliese Gerardine G. Botte, Matthew G. Siebecker, Lindsey C. Slaughter and Rao Balaji	Evaluating nutrient release dynamics of EGROW and conventional fertilizer	FUP 01
19	Faith Alonge, Daniel Fasoye, Jessica Alexandra Ortega-Ramos, Gerardine G. Botte, and Lindsey Slaughter.	Soil Carbon Potential of Electrochemically Treated Biosolids	FUP 07, Task 5
20	Anusha Govindu, Faith Alonge, Sanskruti Dighe, Jaden Bobo,	Soil Microbial Functional Gene Responses to Novel Waste-Derived Fertilizers in Horticultural Systems	FUP 11, Task 11.6

	Lindsey Slaughter, Kayleigh Millerick		
21	Adeiza Adonuja, Ahmed Mohamed B., Tarek Abichou, Odemari Mbuya,Katherine Milla, Amita Jain, Christian Alvarez-Pugliese Gerardine G. Botte, Matthew G. Siebecker, Lindsey C. Slaughter and Rao Balaji	Assessment of Nutrient Retention in EGROW-Amended Soil	FUP 01
22	Adeiza Adonuja, Ahmed Mohamed B., Tarek Abichou, Odemari Mbuya,Katherine Milla, Amita Jain, Christian Alvarez-Pugliese Gerardine G. Botte, Matthew G. Siebecker, Lindsey C. Slaughter and Rao Balaji	Synergistic Effects of Microalgae and EGROW Co-Application on Nutrient Leaching Reduction and Soil Nutrient Retention	FUP 01
23	Kwamena Enninful, Vindya Sabbineni, Jacobo Sanchez and Hayde Laza	Optimization of E-GROW Application for Enhancing Plant Productivity	FUP 13, Task 13.7
24	s Fasoye, Juan Carlos Munoz, Behnaz Jafari , Gerardine G. Botte	Engineer hybrid gas adsorbents with enhanced ammonia selectivity and capacity surface functionalization	FUP 06, Task 5
25	Juan C. Munoz-Senmache, Dylan M. Moreno, Behnaz Jafari, Neidy Ocuane, Andres Sanchez-Garcia, Yein Yoon, Balaji Rao, Zachary Smith, Gerardine G. Botte	Ammonium Recovery from Wastewater Effluents Using Hybrid Adsorbents	FUP 06, Task 3
26	Dylan M. Moreno, Jose Rosario, Juan C. Munoz-Senmache, Behnaz Jafari, Andres Sanchez-Garcia, Balaji Rao, Gerardine G. Botte	Ammonium Recovery from Waste Effluents Using Na-Chabazite Natural Zeolite: Evaluating Competing Ions	FUP 06, Task 3
27	Luangelis Bertel, Rodrigo A. Hernandez,	Magnetically Enhanced Ammonium Recovery and Delivery Using Novel	FUP 06, Task 26

	Duy M. Phan, Behnaz Jafari, Archer Montgomery, Gerardine Botte, Jennifer Gomez-Pastora	Desorption Processes and Zeolite Materials	
28	Isaac A. Ramírez Marrero, Anish Sukumar, and Fikile Brushett	Theoretical Modeling of Process Intensification System for Ammonia Recovery and Delivery	FUP 06, Task 2
29	Haeyeon Choi, Joseph Scott	Process Modeling and Cost Estimation	FUP 15, Task 13.1
30	Mohammed Tahmid, Amanda Cruz, Marta Hatzell	VFA Recovery Using Reverse Osmosis and Adsorption	RRSP 15
31	Hyuck Choi, Terril Vallikalam, Owen Ackley, Julie N. Renner, Marta C. Hatzell	Controlled Recovery of Ions for Sustainable Precipitation (CRISP)	RRSP 03
32	Faith Alonge, Terril Vallikalam, Hyuck Joo Choi, Mohammed Tahmid, Sai Tarun Ganapavarapu, Hatzell Marta, Julie Renner, Matthew Siebecker, and Lindsey Slaughter.	Assessing the Efficiency of Wastewater-Derived Struvite in Enhancing Soil Phosphorus Dynamics Using Soil Incubation Assays.	RRSP 03, Task 6
33	Muskan Sonker, Behnaz Jafari, Gerardine Botte, Sankar Nair	Graphene oxide nanofiltration membranes for efficient separation and dewatering in fertilizer production streams	RRSP 16
34	Sai Tarun Ganapavarapu, Joseph Scott	Process Modeling, System Optimization and Business Case Development	FUP 13, Task 13.6
35	Qammer Zaib, Sai Tarun Ganapavarapu, Joseph Scott, and Gerardine G. Botte	Prospective Life Cycle Assessment (LCA) of E-GROW (Organo-Mineral Fertilizer) Production Scenarios from Digested Sludge	FUP 13, Task 13.5
36	Qammer Zaib, Gerardine G. Botte	CASFER 2.0: Life Cycle Assessment (LCA) of Advanced Hybrid Electrochemical System to Produce E-GROW	FUP 14, Task 13.5
37	Olatunde D. Akanbi, Vibha S. Mandayam, Erika I. Barcelos, Roger H. French	Optimal Hub Site Selection for Nutrient Recovery Operations	RRSP 08, Task 1
38	Sukhad Mutatkar, Behnaz Jafari, Salma Khan, Juan Carlos Munoz-Senmache, Gerardine G. Botte	Optimizing Nitrogen Recovery from Waste Streams via Joule Heating-Assisted Ion Exchange	REU

39	Jessica Lara	Effect of Stirring Time for Phosphate Recovery from Sludge Supernatant	RET
40	Julie Clements	Differential Pulse Voltammetry for Sensing PFOA in alkaline solutions	RET
41	Amanda Broome, Matthew Salazar	Comparing the Impact of Novel Liquid Nitrogen Fertilizers on Soil Properties In Texas and Florida Soils	RET
42	Cari Stanley	Effect of Ca/P Ratio for Recovery of Phosphate from Electrolyzed Sludge	REU
43	Francisco Perez Castro	Electrochemical Sensing of Perfluorinated Compounds: Mixture of PFOA & PFOS	START
44	Skylar Crumley, Daniela Ferreira-Garcia, Gerardine G. Botte	Comparative Evaluation of Electrochemically Generated and Commercial Synthetic Fertilizers on the Growth of Tagetes patula and Solanum lycopersicum	START
45	Felipe de Farias	Platinum Electrode for Green Hydrogen Production via Electrocatalytic Conversion of Ion-Rich Agricultural Fertilizer Runoff	Young Scholar Associated Project
46	Jakob Hoch, Micah Ziegler, Marta Hatzell	Understanding Scaling Relationships for Modular, Distributed Fertilizer Production	Associate Project
47	Alejandro Gutierrez-Carballo, Gerardine G. Botte	Machine Learning-Guided Electrochemical Platform for Catalyst Synthesis and Testing	Associate Project
48	Anish Sukumar, Fikile R. Brushett	Towards the selective electrowinning of iron from waste streams	Associate Project
49	Cooper Tezak, Kaylee Tian, Sungjin Jeon, Chao-chi Kuo, Ariel Furst	Electrochemical Regeneration of Biomimetic Enzyme Cofactors for Chiral Agrochemical Production	Associate Project
50	Yeray Asensio, Kylie Akiyama, Sunanda Dey, Songy Yeon, Ariel Furst	The microbial electrochemical spark: Development of MPN-wired electroactive biofilms as a versatile platform for next-generation circular biorefineries	Associate Project
51	Chao-Chi Kuo, Chin-Yun Lee, Ariel Furst	Ni-Based Hydroxide Materials for Ammonia Production from Waste	Associate Project
52	Yaguang Zhu	Design and visualize nanoscale interfaces for sustainability	Infrastructure
53	Wei Liao, Christian Alvarez Pugliese, Gerri Botte	Establishing CASFER-MSU Joint Testbed Facility	Infrastructure
54	William A. Tarpeh	Regenerable Ammonium- and Phosphate-Selective Metal-Polymer Adsorbents	Infrastructure