

**BOARD OF REGISTRATION FOR
ARCHITECTS, ENGINEERS, AND LAND SURVEYORS**

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**CONTINUING EDUCATION REPORT FOR
ARCHITECTS, ENGINEERS, LAND SURVEYORS, & LANDSCAPE
ARCHITECTS**

CBPL

Biennial Renewal Period Ending December 31, 2019

Registrant Name Cindy J. Titus Registration # AELC12171

24 PDHs required for renewal.

Up to 12 PDHs may be carried forward to the next biennial renewal period.

PART 1 – CE CREDIT SUMMARY (list activity description in Part 2)

CE Credit Summary:

Description of CE Activity	PDHs Units
A. Successful completion of college courses.	1 semester hour - 45 PDHs 1 quarter hour – 30 PDHs
B. Successful completion of acceptable courses which are awarded Continuing Education Units (CEU)**	10 PDHs per CEU
C. Successful completion of short courses, tutorials, correspondence courses, web-based courses, and televised or videotaped courses.	1 PDH per hour of attendance
D. Presenting or attending seminars, in-house workshops or professional or technical presentations made at meetings, conventions or conferences.	1 PDH per hour of attendance
E. Initial instruction of the subject matter when teaching professional development courses, seminars, or professional or technical presentations. (Does not apply to full-time faculty.)	2 PDHs per hour of instruction
F. Published papers, articles, or books.	10 PDHs per biennial registration period. Amount of credit depends on amount of time and effort required for the paper, article, or book.
G. Participation in professional and technical societies.	Up to 8 PDHs per year as an officer or participating committee member per professional or technical society based on one PDH for each two hours of service or participation. Credits are earned at the end of each full year of service or participation.

*** A Continuing Education Unit (CEU) is a nationally recognized method of quantifying the time spent in the classroom during professional development and training activities. Ten hours of instruction = 1 CEU.*

I qualify for an exemption from the continuing education requirement based on:

- ☐ New registrant/first renewal period
- ☐ 120 consecutive days on active duty in the United States armed forces (documentation required)
- ☐ Retired status
- ☐ Other (requires a letter of explanation and may require additional documentation)

**CONTINUING EDUCATION REPORT FOR
ARCHITECTS, ENGINEERS, LAND SURVEYORS, & LANDSCAPE ARCHITECTS**

Biennial Renewal Period Ending December 31, 2019

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Registration # AELC 12171

Registrant Name Cindy J. Titus

All activities must be relevant to the practice of architecture, engineering, land surveying, or landscape architecture and relevant to promoting the public health, safety, and welfare within Alaska. The activities may include technical, ethical, or managerial content. This form may be duplicated if necessary. **DOCUMENTATION IS REQUIRED.**

PART 2 - CERTIFICATION

Date of Activity	Course Title/Description	Course Provider Address City, State	Instructor	Area Specify: Ethics, Technical, Business Practice, or Laws & Regulations	Class Type Specify: Face to Face or Online	PDHs Earned
1/17/18	From Roofs to Roads - Geofoam	Insulfoam 628 Western Drive, Anchorage, AK 99501	Steve Francis Stu Laidlaw	Technical	Face to Face	1
9/21/18	Incorporating Biological Treatment into the UAA Alaska Water Sewer Challenge	U.A.A. College of Engineering	Aaron Dotson	Technical	Online	1
9/28/18	Alaska's Role in the Private Space Race	U.A.A. College of Engineering	Ben Kellie	Technical/Business Practice	Online	1
10/12/18	Introduction to Trenchless Technology	U.A.A. College of Engineering	Matt Steph	Technical	Online	1
10/19/18	Development of an Anchorage Climate Action Plan	U.A.A. College of Engineering	Shaina Kilcoyne Micah Hahn	Business Practice	Online	1
10/26/18	The Challenges of Leachate Management at the Anchorage Regional Landfill	U.A.A. College of Engineering	Mark Madden	Technical	Online	1
11/2/18	Household Water Resources in Rural Alaska	U.A.A. College of Engineering	Kaitlin Mattos	Technical	Online	1
11/16/18	Structural Design of Plywood-Polyurethane Foam Structural Insulated Panels	U.A.A. College of Engineering	Scott Hamel	Technical	Online	1
2/15/19	Increasing Reuse of Oil and Gas Produced Water - Integrated Management	U.A.A. College of Engineering	Ted Peltier	Technical	Online	1
2/19/19	Update on the Nov. 30, 2018 Anchorage Earthquake - Geotechnical Perspective	ASCE - Anchorage Branch	John Thornley	Technical	Face to Face	1
3/1/19	Sustainability on Steroids - Performance Dashboard Drives Sustainability Efforts	U.A.A. College of Engineering	Mark Spafford	Business Practice	Online	1
3/8/19	Paying for Rain - a Brief History of Stormwater Fees in the U.S.	U.A.A. College of Engineering	Brian Chalkant	Business Practice	Online	1
TOTAL PDHs EARNED this page						12
PDHs BEING CARRIED FORWARD						—

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CONTINUING EDUCATION REPORT FOR
ARCHITECTS, ENGINEERS, LAND SURVEYORS, & LANDSCAPE ARCHITECTS

Biennial Renewal Period Ending December 31, 2019

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Registrant Name

Cindy J. Titus

Registration # AELC 12171

All activities must be relevant to the practice of architecture, engineering, land surveying, or landscape architecture and relevant to promoting the public health, safety, and welfare within Alaska. The activities may include technical, ethical, or managerial content. This form may be duplicated if necessary. **DOCUMENTATION IS REQUIRED.**

PART 2 - CERTIFICATION

Date of Activity	Course Title/Description	Course Provider Address City, State	Instructor	Area Specify: Ethics, Technical, Business Practice, or Laws & Regulations	Class Type Specify: Face to Face or Online	PDHs Earned
3/28/19	Regenerative Design & Water Reuse - Lessons from Mars	U.A.A. College of Engineering	Jay Garland	Technical	Online	1
3/29/19	Analysis of Nov. 30, 2015 Anchorage Earthquake	U.A.A. College of Engineering	Utpal Dutta	Technical	Online	1
4/5/19	Bridge Inspection	U.A.A. College of Engineering	Eric Thornley	Technical	Online	1
4/12/19	Chemistry for Contingency Planning - Managing Oil Spills in the Subarctic	U.A.A. College of Engineering	Patrick Tomco	Technical	Online	1
4/19/19	Unlocking 40 more Years in Prudhoe Bay	U.A.A. College of Engineering	Jenny Jensen	Technical	Online	1
4/26/19	A Changing Arctic Water Cycle Understanding the Processes	U.A.A. College of Engineering	Eric Klein	Technical	Online	1
9/6/19	Photoreactivity of Petrogenic Dissolved Organic Matter	U.A.A. College of Engineering	Phoebe Zito	Technical	Online	1
9/13/19	Seasonal Solar Thermal Storage	U.A.A. College of Engineering	Philip Hayes	Technical	Online	1
9/20/19	Sustainable Power Production by Biomass Gasification Internal Combustion Engine	U.A.A. College of Engineering	Farshid Zabihian	Technical	Online	1
9/23/19	Solar in Alaska	U.A.A. College of Engineering	Michelle Wilber	Technical	Online	1
10/4/19	Arctic Sea Ice - Development of a 3-D Model for Enhanced Storage Capacity	U.A.A. College of Engineering	Kelsey Frazier	Technical	Online	1
10/11/19	Expedient Airstrips in NPRA 1975-1981	U.A.A. College of Engineering	Tom Brooks	Technical	Online	1
TOTAL PDHs EARNED pg 1 & 2						24
PDHs BEING CARRIED FORWARD						---

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Registrant Name Cindy J. TitusRegistration # AELC 12171

All activities must be relevant to the practice of architecture, engineering, land surveying, or landscape architecture and relevant to promoting the public health, safety, and welfare within Alaska. The activities may include technical, ethical, or managerial content. This form may be duplicated if necessary. **DOCUMENTATION IS REQUIRED.**

PART 2 - CERTIFICATION

Date of Activity	Course Title/Description	Course Provider Address City, State	Instructor	Area Specify: Ethics, Technical, Business Practice, or Laws & Regulations	Class Type Specify: Face to Face or Online	PDHs Earned
10/18/19	Anchorage Storm Drain Pipes - Inspection Results & Findings	U.A.A. College of Engineering	Matt Steph1	Technical/Business Practice	Online	1
10/25/19	Development of Test Sites and Atmospheric Corrosion Studies Arctic	U.A.A. College of Engineering	Raghu Srinivasan	Technical	Online	1
11/1/19	Large-Scale Bitcoin Mining: History and Technical Introduction	U.A.A. College of Engineering	Sebastian Neumayer	Business Practice	Online	1
TOTAL PDHs EARNED pg 1, 2, 3						27
PDHs BEING CARRIED FORWARD						3

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Cindy Titus

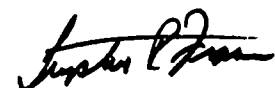
has completed the course on **CBPL**
EPS as Insulation and Structural Fill

Survey the history of Arctic applications using
Expanded Polystyrene (EPS) throughout Alaska.
Special focus on Geofoam light weight structural
fill and below grade rigid insulations.

- Title: From Roofs To Roads - Geofoam
- Date: January 17, 2018
- Hours: 1 Hour
- Presenter: Steve Francis and Stu Laidlaw

Location: UMIAQ Engineering, Anchorage, Alaska


INSULFOAM
628 Western Drive
Anchorage AK 99501



Phone: 907-279-9407
Email: steve.francis@insulfoam.com



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Location: UAA College of Engineering (EIB 211)

Date and Time: Sept. 21, 2018, 11:45 am-12:45 pm

Presentation Title: "Incorporating Biological Treatment into the UAA Alaska Water Sewer Challenge System"

Presenter Name: Prof. Aaron Dotson

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: [Signature]

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UAA Professional Development Seminar Series



Incorporating Biological Treatment into the UAA Alaska Water Sewer Challenge System

Presented by [Prof. Aaron Dotson](#)

During spring & summer 2018, the UAA team modified the demonstration scale in their Alaska Water Sewer Challenge water reuse system, replacing physical surfactant removal with sedimentation and a sequencing biological reactor. This modification resulted in a system configuration able to meet the Department of Environmental Conservation's design targets for capital cost, operating & maintenance cost, and minimize water/wastewater haul. This presentation will describe the modification, its associated challenges/successes, and on-going work on the project, funded by the Department of Environmental Conservation and the National Science Foundation.

Friday, September 21, 2018

11:45am - 12:45pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 9/28/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and Time: Sept. 28, 2018, 11:45 am-12:45 pm

Presentation Title: "Alaska's Role in the Private Space Race"

Presenter Name: Ben, Kellie, Co-Founder and CEO, K2 Dronotics

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: [Handwritten Signature]

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UAA Professional Development Seminar Series



Alaska's Role in the Private Space Race

**Presented by Ben Kellie,
Co-Founder and CEO, K2 Dronotics**

The private space race has been heating up for the last decade. There are currently over 25 separate efforts underway in the U.S. alone to build small private rockets to launch the next generation of micro and nano satellites. Can Alaska have a role in this future? This talk will focus on Ben's experience serving as a lead engineer developing launch sites, landing sites, and other assorted projects as part of this new space race, and share the unique perspectives that Alaskan's, with our creative, frontier "backwoods" thinking, can offer. The evolution of multiple large scale projects will be discussed, along with the myriad missteps, failures, and follies along the way—hopefully reminding students and professionals alike that big projects don't always work out the first time, and we must persist to get the results we want when working in a new area.

Ben Kellie, co-founder and CEO of K2 Dronotics, was raised as a bush pilot, trained as a mechanical engineer, and began his career helping SpaceX launch and land rockets on both U.S. coasts. Now based in Anchorage, K2 Dronotics deploys drones and expertise across Alaska to increase safety, lower costs, and make new discoveries. K2 Dronotics also provides consultation and design to start-up rocket companies in Alaska and across the U.S.

Friday, September 28, 2017

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 10/12/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 12, 2018, 11:45 am-12:45 pm

Presentation Title: Introduction to Trenchless Technology

Presenter Name: Matt Stephi (Stephi Engineers)

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: 

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UAA Professional Development Seminar Series

Introduction to Trenchless Technology

**Presented by Matt Stephi, PE,
Stephi Engineering**

Trenchless drilling is growing quickly in the Alaskan utility market. The construction or repair of water and sewer lines using trenchless methods can be cost-effective and feasible. This presentation will include a description and discussion of applications of common trenchless technologies in use today, including slip lining, cured in place pipe, other pipe lining systems, pipe bursting, grouting, horizontal directional drilling, auger boring, pipe ramming, micro tunneling and condition assessment tools.

Matt Stephi, P.E specializes in trenchless engineering, and has worked in this field in Alaska for 30 years. Matt is a Principal at Stephi Engineering LLC, a full-service engineering firm which specializes in trenchless technology consulting and other engineering services. Stephi Engineering specializes in water and sewer planning and design, landfill expansions, infiltration and inflow studies, permitting, construction, administration and inspection.

Friday, October 12, 2018

11:45 am-12:45 pm

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This confirms your attendance of the 10/19/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 19, 2018, 11:45 am-12:45 pm

Presentation Title: "Development of an Anchorage Climate Action Plan through Collaboration
between the Municipality of Anchorage and University of Alaska"

Presenter Name: Shaina Kilcoyne, (MOA) Solid Waste Services, & Prof. Micah Hahn (UAA)

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: Cindy J. Titus

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UAA Professional Development Seminar Series

**Development of an Anchorage Climate
Action Plan through Collaboration
between the Municipality of
Anchorage and University of Alaska**

Presented by: Shaina Kilcoyne, (MOA) Solid Waste
Services, & Prof. Micah Hahn (UAA)

Local communities are leading the charge against climate change, and Anchorage is no exception. The Municipality of Anchorage and the University of Alaska are teaming up to develop the city's first Climate Action Plan, a strategic roadmap for reducing carbon emissions and preparing for the impacts of climate change. This presentation will provide an overview of the Anchorage Climate Action Plan scope and timeline, guide a discussion on some of the proposed actions, and highlight how to get involved in the development of the plan.

Dr. Micah Hahn is an Assistant Professor of Environmental Health within the Institute for Circumpolar Health Studies at UAA. Her research focuses on the health impacts of climate change, and climate adaptation and resilience planning in Alaska. Dr. Hahn is committed to interdisciplinary collaboration, and community engagement. Although sometimes it is hard for Micah to narrow down the big world of environmental health, her priority research areas are Food Security, OneHealth, and Environmental Quality and Sustainability.

Shaina Kilcoyne is the Municipality's Energy and Sustainability Manager at Solid Waste Services. This is a new position, created by the Municipality to manage energy saving and sustainability efforts, many of which have already been identified in the 2017 Anchorage Energy Landscape and Opportunities Analysis.

**Friday, October 19, 2018
11:45 am-12:24 pm
UAA College of Engineering, EIB 211**

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This confirms your attendance of the 10/26/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 26, 2018, 11:45 am-12:45 pm

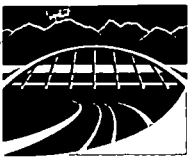
- Schedule change -

Presentation Title: "Sustainability on Steroids: Performance Dashboard Drives Sustainability Efforts and P3 Partnerships" *Water, Water Everywhere - The Challenges of Leachate Management at the Anchorage Regional Landfill*Presenter Name: ~~Mark Spafford (SWS)~~ Madden (SWS)

Professional Development Hours (PDH's): 1

Your name: Cindy J. TitusYour Signature: *Cindy J. Titus*

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UAA Professional Development Seminar Series ^{CBPL}

Water, Water Everywhere – The Challenges of Leachate Management at the Anchorage Regional Landfill

Presented by Mark Madden, P.E.

Leachate management at the Anchorage Regional Landfill has been a growing challenge as the landfill has matured.

The facility currently produces over 25 million gallons of leachate annually, which is trucked approximately 9 miles to the Anchorage Water and Wastewater Utility sewer system at Turpin Street and the Glenn Highway. The Municipality of Anchorage Solid Waste Services Department (SWS) is in the middle of a study to identify ways to better manage the leachate. This presentation will discuss some of the alternatives under consideration and challenges associated.

Mark Madden holds a Bachelors in Civil Engineering from Marquette University and a Masters in Geotechnical Engineering from Northwestern University, and is a registered Professional Civil Engineer in Alaska and Wisconsin. Mark is currently the Manager of Engineering & Planning for SWS. In his 40 year engineering career, Mark has worked in wastewater treatment, geotechnical and foundation engineering, environmental permitting, brownfield site restoration, and mining design and compliance, before finally arriving in the solid waste industry. Mark relies on his diverse experience to bring practical approaches to some of the landfill's most challenging projects.

Friday, October 26, 2018

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 11/2/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Nov. 2, 2018, 11:45 am-12:45 pm

Presentation Title: Household Water Resources in Rural Alaska: Water Quality, Availability and New Approaches

Presenter Name: Kaitlin Mattos

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: Cindy J. Titus

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**UAA Professional Development Seminar
Series**

Household Water Resources in Rural Alaska: Water Quality, Availability and New Approaches

Presented by Kaitlin Mattos



An estimated 3,000 homes in rural Alaska still don't have access to running water and safely managed sanitation services. This lack of in-home water and sanitation has led to increased exposure to illness and health impacts, but there

are initiatives across the state and within homes and communities which are trying to overcome those impacts. This presentation will examine new data that explains the water quality and availability in rural homes which are unserved with respect to water and sanitation. Current adaptations and behaviors adopted by unserved communities to accommodate their water needs, as well as new technologies being developed to improve the technical, economic and social components of water, sanitation and hygiene in rural Alaska will also be discussed.

Kaitlin Mattos is a PhD candidate in Environmental Engineering at the University of Colorado at Boulder. She received her undergraduate degree in Environmental Studies in 2009 from Washington University before working in the Mariana Islands for six years, doing ecology research, watershed and natural resources management, and community planning. Kaitlin received her Master's degree in Environmental Engineering from the University of Colorado Boulder in 2017. For her PhD research, she is engineering and researching household water and wastewater treatment systems for unserved communities in rural Alaska. After completing her degree, she plans to continue working on environmental and public health protection in small, isolated and rural communities.

Friday, November 2, 2018

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 11/16/2018 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Nov. 16, 2018, 11:45 am-12:45 pm

Presentation Title: "Structural Design of Plywood-Polyurethane Foam Structural Insulated Panels (SIPs) and Associated Testing"

Presenter Name: Scott Hamel, P.E., S.E., Ph.D.

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: [Handwritten Signature]

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UAA Professional Development Seminar Series

Structural Design of Plywood- Polyurethane Foam Structural Insulated Panels (SIPs) and Associated Testing

Presented by Scott Hamel, P.E., S.E., Ph.D.

Professor Hamel will provide a brief overview of the primary ASTM and ICC testing standards used for SIPs in construction, an overview of the design standards (or lack thereof) and building code provisions related to SIP construction, and a summary of a full regime of structural tests performed at UAA on Ply-PU SIPs produced by Alaska Insulated Panels (AIP). Various tests have been conducted, including transverse panel bending of various sizes, transverse bending of panels with factory and field spline connections, lintel bending, racking shear, and axial load (compression) tests. Results of the testing, along with the resulting design values for both short- and long-term loads, will be presented.

Originally from New Hampshire, Dr. Hamel completed a B.S. in Civil Engineering at Worcester Polytechnic Institute (WPI) in Massachusetts and a Master's in Civil Engineering, with an emphasis in structures, at the University of Colorado Boulder. Between degrees, he worked as a bridge inspector, roadway designer, and bridge engineer in Boston, and as a structural engineer in Denver, designing hospitals, museums, and courthouses. After earning his license as a Professional Engineer in Colorado, he returned to school and completed his doctorate in structural engineering at the University of Wisconsin-Madison.

Friday, November 16, 2018

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 2/15/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Feb. 15, 2018²⁰¹⁹, 11:45 am-12:45 pm

Presentation Title: Increasing Reuse of Oil and Gas Produced Water through Integrated Management

Presenter Name: Ted Peltier (Kansas University)

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

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UAA Professional Development Seminar Series

Increasing Reuse of Oil and Gas Produced Water through Integrated Management

Presented by Edward Peltier

Oil and gas production is a water-intensive industry, requiring significant freshwater inputs and generating large volumes of return water. This produced water often has high salinity and contains a range of other compounds, including scale-forming and toxic metals, dispersed oil and dissolved hydrocarbons, naturally occurring radioactive materials, and production chemicals. At the same time, much U. S. oil production occurs in water-stressed areas, leading to an interest in produced water treatment and reclamation for beneficial uses. Produced water is best managed using an integrated approach that considers water use and waste generation at each step of oil and gas production, and looks at recovery, treatment, reuse, and disposal as interrelated activities. This presentation will explain the need for an integrated approach to produced water management and the potential for various reuse options.

Edward (Ted) Peltier is an Associate Professor in the Civil, Environmental and Architectural Engineering Department at the University of Kansas. He holds a B.S. degree in Chemical Engineering from Princeton University, and M.S. and Ph.D. degrees in Civil & Environmental Engineering from Northwestern University. He is currently the lead investigator for an NSF-funded joint research project between the University of Kansas and West Virginia University to study produced water management, treatment, and reuse.

Friday, February 15, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



<http://www.asce-anchorage.org/>

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FEBRUARY MEETING ANNOUNCEMENT

Update on the November 30, 2018 Anchorage Earthquake – A Geotechnical Perspective

The M7.0 earthquake that shook on the morning of November 30, 2018 was the largest event to impact southcentral Alaska since the 1964 Great Alaska Earthquake. What have we learned in the days and weeks following the event? This presentation is an effort to provide some answers from a geotechnical engineering perspective. An overview of the variation of shaking across Anchorage will set the stage for the damage observed. Numerous accounts of liquefaction, lateral spreading, settlement, and ground failure will be summarized. Initial thoughts on the impacts of this earthquake to engineering design and future planning will be presented. If time allows, observations from a LiDAR changepoint detection analysis currently underway will be shown as well.

John Thornley, P.E.

John Thornley is a Senior Geotechnical Engineer with Golder Associates in Anchorage. John received his Bachelor's and Master's degrees from University of Nevada Reno. While in Reno John studied geotechnical and earthquake engineering. John is currently working on a wide range of projects across Alaska, primarily focusing on transportation and building infrastructure. He has been involved in a wide variety of site-response characterizations, including seismic hazard analyses (SHAs), in both thawed and permafrost sites. In addition to working at Golder, he is chair of the Municipality of Anchorage Geotechnical Advisory Commission. John is currently a PhD candidate at the University of Strathclyde Glasgow under the direction of Dr. John Douglas and is studying the seismic response of the Anchorage basin. In response to the Anchorage Earthquake in November John is acting as the co-lead for the Earthquake Engineering Research Institute (EERI) Field Reconnaissance efforts.

When: Tuesday, 19 February 2019 — doors open at 1130

Where: The Anchorage Moose Lodge, 4111 Arctic Boulevard

Cost: \$15 per person — cash | check | credit card | onsite ATM

Lunch: Peppercini's sandwiches and wraps | chips | soft drinks | desserts

RSVP: Eventbrite — <https://asce-anchorage-february2019.eventbrite.com/>

To ensure that the lunch order serves all attendees, please register no later than 1200 on Monday, 18 February 2019.

This meeting qualifies for one hour of professional development.



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This confirms your attendance of the 3/1/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Mar. 1, 2018, 11:45 am-12:45 pm

Presentation Title: ~~Carbon-based Nanomaterials for Innovations in Drinking Water Treatment~~ *Sustainability on Steroids: Performance Dashboard Drives Sustainability Efforts & P3 Partnerships*

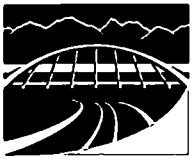
Presenter Name: ~~Dr. Omar Apul (UMass Lowell)~~ *Mark Spafford, Municipality of Anchorage Solid Waste Services*

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: *Cindy J. Titus*

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UAA Professional Development Seminar Series

**Sustainability on Steroids: Performance
Dashboard Drives Sustainability Efforts and P3
Partnerships**

**Presented by Mark Spafford, General Manager
Department of Solid Waste Services, Municipality of Anchorage**

The Municipality of Anchorage (MOA) recently developed a performance dashboard to engage staff and the general public in community sustainability efforts. The Department of Solid Waste Services (SWS) launched the dashboard and established internal and public-private partnerships to drive the strategies. This presentation will explain how SWS defined performance measures, set goals, and automated the extraction of data from its enterprise data management systems, and explain how the dashboard is educating staff and the public on the value of SWS services. The MOA experience will interest utility managers interested in transparent management of services, and development of strong partnerships with private entities to accomplish community sustainability goals.

Mark Spafford holds his Bachelors (2000) and Masters (2002) of Science degrees in Environmental Engineering from the University of Central Florida. A registered Professional Civil Engineer in the State of Alaska (2005). Mark has over 19 years of private and public agency experience with GeoSyntec Consultants, the Alaska Native Tribal Health Consortium, the City of St. Cloud (FL), the Denali Commission, and the Municipality of Anchorage's Water & Wastewater Utility and Solid Waste Services (SWS). Mark thrives on challenge—the more complicated the situation or problem, the better. He is a senior engineering and operations leader with a record of success creating strategies and executing visions, as well as a history of developing customer-oriented solutions to complex environmental infrastructure challenges. He is currently involved in developing a new Energy Efficiency and Sustainability program at SWS for the Municipality of Anchorage.

~~Friday, January 25, 2019~~
March 1

11:45 am-12:45 pm

UAA College of Engineering, EIB 211



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This confirms your attendance of the 3/8/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

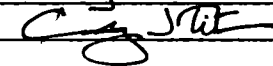
Date and time: Mar. 8, 2019, 11:45 am-12:45 pm

Presentation Title: Paying for Rain: A Brief History of Stormwater Fees in the United States

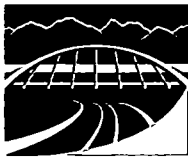
Presenter Name: Brian Chalfant (PA Dept. of Environmental Conservation)

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: 

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UAA Professional Development Seminar Series



Paying for Rain: A Brief History of Stormwater Fees in the United States

Presented by Brian Chalfant

This presentation will explore the evolution of stormwater fees enacted by local governments in the United States over the past 50 years. While underscoring the strong influence that federal and state regulation of municipal stormwater water systems has played in popularizing stormwater fees among local governments in the United States, the research presented in this presentation also highlights the crucial role that state-level legislation, judicial decisions, and other factors have on expanding or contracting the options local governments have with respect to financing stormwater management.

Brian Chalfant earned a B.S. in Biology and an M.S. in Environmental Science and Engineering from the University of North Carolina at Chapel Hill. After serving with the AmeriCorps Appalachian Coal County Team, Brian worked for the Pennsylvania Department of Environmental Protection for seven years as an aquatic and landscape ecologist. After completing his PhD at the University of Pittsburgh, Brian returned to the Pennsylvania Department of Environmental Policy where he currently serves as Deputy Policy Director.

Friday, March 8, 2019
11:45 am-12:45 pm
UAA College of Engineering, EIB 211



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This confirms your attendance of the 3/28/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 215)

Date and time: Mar. 28, 2019, 11:45 am-12:45 pm

Presentation Title: Regenerative Design & Water Reuse: Lessons from Mars and Early Adopters of Earth

Presenter Name: Jay Garland (EPA)

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: C. J. Titus

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UAA Professional Development Seminar Series

Regenerative Design & Water Reuse: Lessons from Mars and Early Adopters of Earth

Presented by Dr. Jay Garland

This presentation will review basic elements of regenerative design including the frame of reference of closed loop life support systems for space missions. A specific example of early adoption of a regenerative approach, on-site water reuse at the building or district scale, will be reviewed with a focus on the data gaps needed to facilitate safe implementation. As part of an on-going collaboration with states/utilities, EPA ORD has provided information on a risk-based approach to define treatment requirements, examined the wastewater microbiome for novel surrogates to monitor treatment performance, and compared life cycle assessment of alternative approaches for on-site reuse. Lessons learned from this effort can be used as part of a broader design of a regenerative water future.

Dr. Jay L. Garland joined the EPA's Office of Research and Development in 2011 after spending over 20 years working on NASA's efforts to develop closed, bioregenerative life support systems for extended human spaceflight. He received a Ph.D. in Environment Science from the University of Virginia and his research has addressed a range of topics, including methods for microbial community analysis, factors affecting survival of human associated pathogens, and various biological approaches for recycling wastes.

Thursday, March 28, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 215



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This confirms your attendance of the 3/29/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Mar. 29, 2018, 11:45 am-12:45 pm

Presentation Title: Analysis of November 30th, 2018 Anchorage Earthquake (Mw 7.0)

Presenter Name: Utpal Dutta

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: C. J. Titus

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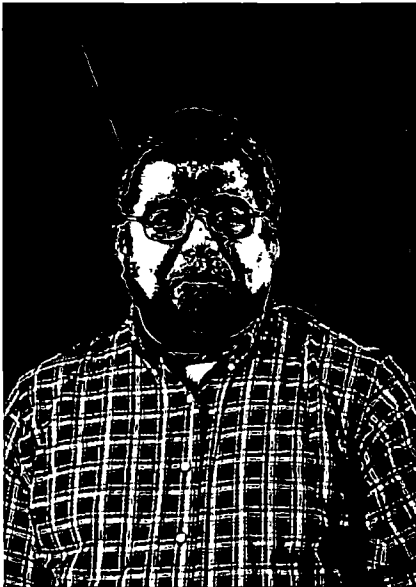
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UAA Professional Development Seminar Series

Analysis of November 30th, 2018 Anchorage Earthquake (Mw 7.0)

**Presented by Utpal Dutta, Associate
Professor**



An Mw 7.0 earthquake vigorously shook Anchorage, the largest city in the state of Alaska on November 30th, 2018. The quake was located about 14 km northwest of Anchorage, and at a depth of 41.8 km on the

subducting Pacific plate, underneath the North American plate. The earthquake provided a wealth of recorded motions of engineering interest. Approximately thirty station sensors, deployed at various parts of the Anchorage bowl covering major geological units and various structures, have recorded these motions. We will present overall information of the data collected at such sites, and an analysis of recorded motions to understand the variability of the ground motions.

Utpal Dutta graduated from the Indian School of Mines at Dhandad, India with a M.Sc (Tech) in Applied Geophysics in 1988, and then received his Ph.D from the same institute in 1992. After a brief assignment for one year as a Research Fellow at University of Delhi South Campus, Dr. Dutta joined the faculty as a Lecturer (Assistant Professor Level) in Geophysics at Guru Nanak Dev University (GNDU), Amritsar, India. He taught various graduate courses in Exploration and Solid Earth Geophysics at GNDU from 1992-1998. He joined the faculty as a Visiting Research Scientist at the Geophysical Institute, University of Alaska Fairbanks in 1998. In 2003, Dr. Dutta became a Research Associate at the Environment and Natural Resource Institute, under the joint appointment of University Alaska Anchorage and Geophysical Institute, UAF.

Friday, March 29, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211

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This confirms your attendance of the 4/5/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Apr. 5, 2018, 11:45 am-12:45 pm

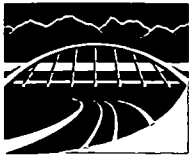
Presentation Title: Bridge Inspection

Presenter Name: Eric Thornley, P.E. (Michael Baker Intl)

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: Cindy Titus



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UAA Professional Development Seminar Series

Bridge Inspection

Presented by Eric Thornley, P.E., S.E.

To prevent catastrophic failures and protect the traveling public, bridge owners across the nation have implemented federally-regulated bridge inspection programs. This presentation will focus on the Federal Highway Administration's National Bridge Inventory Program (NBIP). Will include a brief history of the program's development and discussion of the National Bridge Inspection Standards (NBIS), an overview of the National Bridge Inventory (NBI) bridge inspection types, common bridge types, non-destructive testing (NDT) typically used on bridge inspections, and methods of access for bridge inspections.

Eric Thornley is a structural engineer in Michael Baker International's Anchorage office, specializing in bridge design, load rating, and inspection. Eric has a B.S. from the Wentworth Institute of Technology and a Masters of Civil Engineering degree from Norwich University. He is a registered professional civil engineer and registered structural engineer in the State of Alaska. Eric is a qualified bridge inspection team leader, with over 10 years of experience conducting bridge inspections in 19 states, including Alaska. He has a Society of Professional Rope Access Technicians (SPRAT) Level 3 Certification which he uses to provide bridge owners with hands-on bridge inspection services utilizing modified climbing and rope access techniques.

Friday, April 5, 2019

11:45 am-12:45 pm

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This confirms your attendance of the 4/12/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Apr. 12, 2018, 11:45 am-12:45 pm

Presentation Title: Chemistry for Contingency Planning: Managing Invasive Pest and Oil Spills in the Subarctic

Presenter Name: Patrick Tomco (UAA)

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

Your signature: Cindy Titus

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UAA Professional Development Seminar Series

Chemistry for Contingency Planning: Managing Invasive Pest and Oil Spills in the Subarctic

Presented by Patrick Tomco

High-latitude regions experience unique contaminant exposure scenarios when compared to temperate regions, due to long, cold, dark winters. Permitting and response decisions in Alaska are typically extrapolations from research findings conducted in lower latitudes, where contaminant attenuation, fate/transport, and toxicological effects can vary from those experienced here. This talk will highlight several recent research studies on this topic that are useful for contingency planning, including pesticide persistence and oil spill toxicity.

Patrick Tomco is an Assistant Professor of Chemistry at UAA and Manager of the ASET (Applied Science Engineering and Technology) Lab housed in the ConocoPhillips Integrated Science Building. Dr. Tomco is the Chair of the local Alaskan section of the American Chemical Society. His research interests are in the field of environmental organic chemistry, particularly in the persistence and toxicology of contaminants in cold regions.

**Friday, April 12, 2019
11:45 am-12:45 pm
UAA College of Engineering, EIB 211**



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This confirms your attendance of the 4/19/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

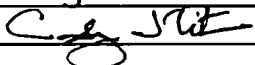
Date and time: Apr. 19, 2018, 11:45 am-12:45 pm

Presentation Title: Unlocking 40 More Years in Prudhoe Bay

Presenter Name: Jenny Jemison (BP)

Professional Development Hours (PDH's): 1

Your name: Cindy J. Titus

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UAA Professional Development Seminar Series

Greater Prudhoe Bay: Unlocking 40 More!

Presented by Jenny L. Jemison

In 2017, BP Alaska celebrated the 40th anniversary of the start-up of the Prudhoe Bay field. When discovered in 1968, it was the largest onshore oilfield in North America, a distinction it still holds today. With over 20 billion barrels of oil in place, Prudhoe Bay became the “anchor” field for the North Slope, an oil and gas “super” basin with 25 producing fields. As the Alaskan North Slope enters a renaissance of exploration activity, giant discoveries, and new developments, the Prudhoe Bay field is faced with its own future: how can technology be leveraged to unlock the next 40 years of production?

Jenny Jemison is a licensed professional petroleum engineer, with a BS in Civil Engineering from UAA, and a MS in Petroleum Engineering from UAF. As a proud graduate of both schools, she serves as the Campus Recruiting Team Lead at BP, to help promote good BP jobs for good Alaskan students (and financial support for the schools to go with it). She is currently serving as the Chair of the UAA College of Engineering Advisory Board. Jenny is incredibly humbled by the opportunity to serve the people she considers to be her greatest mentors.

Friday, April 19, 2019

11:45 am-12:45 pm

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This confirms your attendance of the 4/26/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Apr. 26, 2018, 11:45 am-12:45 pm

Presentation Title: A Changing Arctic Water Cycle: Understanding the Processess & Implications

Presenter Name: Dr. Eric Klein

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: Cindy Titus

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UAA Professional Development Seminar Series



A Changing Arctic Water Cycle: Understanding the Processes and Implications

Presented by Dr. Eric Klein

The water cycle in the Arctic is experiencing profound shifts. These changes are largely driven by reductions in both the spatial (i.e., how much) and temporal (i.e., how long) extent of sea ice cover. We will explore how water isotopes can be used to understand past and present Arctic water cycle changes and the implications of these shifts on the distribution of water both in the Arctic and across the Earth.

Dr. Klein is a geoscientist who incorporates both modern and paleo environmental and climatological techniques in studies of hydroclimate patterns, ecosystem dynamics, and land cover changes. His past work includes research on wetland drying and succession in southcentral Alaska, and demonstrating the importance of hydrogeologic variability on the response of Alaskan peatland carbon accumulation to changes in climate. Dr. Klein's recent work uses water isotope geochemistry as a tool to help understand northern latitude hydroclimatic processes. These data and analyses not only provide a modern processed-based understanding of the current water cycle, but also help elucidate past hydrologic changes recorded in paleo records, such as Greenland Ice Sheet cores.

Friday, April 26, 2019

11:45 am-12:45 pm

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This confirms your attendance of the 9/6/2019 Professional Development Seminar!

Location. UAA College of Engineering (EIB 211)

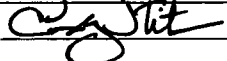
Date and time: Sept. 6, 2019, 11:45 am-12:45 pm

Presentation Title: Photoreactivity of Petrogenic Dissolved Organic Matter

Presenter Name: Phoebe Zito

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: 

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UAA Professional Development Seminar Series

Photoreactivity of Petrogenic Dissolved Organic Matter

Presented by Phoebe Zito, Assistant
Professor, University of New Orleans

The two largest contributors of oil entering the marine environment are from natural oil seeps (47 %) and anthropogenic sources (53 %). Once petroleum enters the environment, it can undergo many chemical and physical changes. Due to its dark color, it is optically active (contains many chromophores) and can undergo photodegradation, which is an important weathering process in the environment. These photodegradation processes result in the formation of oxyhydrocarbons, petroleum compounds formed upon weathering. Some oxyhydrocarbons are polar enough to dissolve into the water, becoming highly mobile and bioavailable to the ecosystem. Methodologies and techniques for assessing the impact of this on the environment can also be applied to other bodies of water that are affected by organic contaminants.

Phoebe Zito is an Assistant Professor in the Chemistry Department at the University of New Orleans. She specializes in studying the photochemical formation and fate of petroleum-derived dissolved organic matter. Phoebe has a B.S. from the University of South Florida (2007), and worked as an Associate Chemist in the pharmaceutical industry (2007-2011). She earned her Ph.D. from the University of New Orleans (2014), was a post-doctoral associate at the National High Magnetic Field Laboratory (2015 – 2017), and has been working in the environmental analytical field since 2017.

Friday, September 6, 2019

11:45 am - 12:45 pm

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This confirms your attendance of the 9/13/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

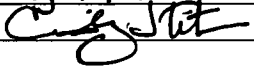
Date and time: Sept. 13, 2019, 11:45 am-12:45 pm

Presentation Title: Seasonal Solar Thermal Storage

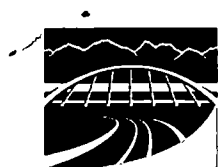
Presenter Name: Philip Hayes

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

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UAA Professional Development Seminar Series

Seasonal Solar Thermal Storage

Presented by Philip Hayes, Alyeska Pipeline

Diurnal solar thermal systems are a mature technology and often leave an abundant supply of surplus energy once needs are met. Seasonal Thermal Energy Storage Systems are an active area of research for bridging the gap between solar supply and demand. Currently, such systems are not recommended for residential applications, especially in cold climate zones. However, recent research shows that with the right equipment, a properly designed system is financially advantageous and could significantly reduce the costs of a home's heating bills. The presentation will provide an overview of industry design guidelines and how they can be improved to address cold climates. Additionally, solar thermal collector equipment and storage methods will be discussed, focusing on methods that are most applicable to residential applications. Lastly, an overview of the current state of research into the topic will be presented.

Philip Hayes, P.E. completed his master's degree in Mechanical Engineering at the University of Alaska Anchorage in 2017. He researched Seasonal Thermal Energy Storage Systems in residential applications for his thesis, *Modeling and Experimental Verification of Seasonal Solar Thermal Energy Sand-Bed Storage*. He currently works full time in Anchorage, Alaska and continues to research the topic of Seasonal Thermal Energy Storage.

Friday, September 13, 2019

11:45 am-12:45 pm

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This confirms your attendance of the 9/20/2019 Professional Development Seminar!
Location: UAA College of Engineering (EIB 211)
Date and time: Sept. 20, 2019, 11:45 am-12:45 pm
Presentation Title: Sustainable Power Production by Biomass Gasification Internal Combustion Engine
Presenter Name: Farshid Zabihian

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

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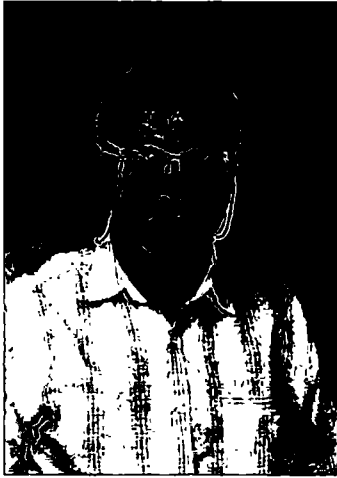
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UAA Professional Development Seminar Series

Sustainable Power Production by Biomass Gasification Internal Combustion Engine

Presented by Farshid Zabihian, ME
Department, California State University,
Sacramento

In this research, the performance of a small scale, downdraft gasifier internal combustion engine is evaluated. Varying compositions of agricultural wastes, such as wood chips and walnut shells as means of biofuel, affect the efficiency and overall performance of the gasification processes and engine combustion. Operational parameters, such as the temperature of the gasification bed, electrical output, feedstock consumption, specific gasification rate and emissions, are analyzed to observe the characteristics of the gasification system using different biomass fuels. The experiments indicated that the downdraft gasifier engine operated at higher bed temperatures and higher specific gasification rates when using woodchips at various electric loads. However, the system's overall efficiency is higher when using walnut shells, ranging from 13% to 17% compared to 9% to 11% when using woodchips. In addition, the experiments established the optimum air-to-fuel ratio set points for both biofuels by evaluating the emissions.

Farshid Zabihian is currently an Assistant Professor in the Department of Mechanical Engineering at California State University, Sacramento. He received his M.A.Sc. and B.Sc. in Mechanical Engineering from Iran University of Science and Technology in 1998, and Amirkabir University of Technology, Iran in 1996, respectively. He worked in the energy industry for eight years in various capacities, before returning to academia. He received his Ph.D. in Mechanical Engineering in 2011 from Ryerson University, Canada. His dissertation was on modeling of advanced hybrid power generation systems, particularly fuel cells. He was the recipient of the Governor General's Academic Gold Medal, the highest academic honor at the graduate level in Canada. He was previously an assistant professor at West Virginia University Institute of Technology between 2011 and 2016. He joined Sacramento State in 2017.

Friday, September 20, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211

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This confirms your attendance of the 9/27/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Sept. 27, 2019, 11:45 am-12:45 pm

Presentation Title: Solar in Alaska

Presenter Name: Michelle Wilber

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: Cindy Titus

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UAA Professional Development Seminar Series

Solar in Alaska

**Presented by Michelle Wilber, Research
Engineer, Alaska Center for Energy and
Power**



Solar Photovoltaics (PV) is growing in Alaska. Solar PV technology is a nascent but promising energy option in remote Alaska microgrids. A growing number of community and residential-scale installations in the state give an indication of the production and costs associated with solar PV in the state. Capacity factors for community-scale solar PV installations in Alaska range from 7% to 15%, which can still be economically viable given the high cost of electricity in most communities in Alaska. With remote locations and challenging conditions, total installed costs can be significantly higher than those in the rest of the United States, although trends indicate that costs per kilowatt-hour (kWh) are lower for larger system sizes, and are decreasing with time, as seen elsewhere. These trends and details on selected installations and programs will be presented. We will also look at software that can be used to assess solar potential for a site or community, and discuss challenges with available resource data.

Michelle Wilber is a research engineer at the Alaska Center for Energy and Power (ACEP), working on projects ranging from bringing more rooftop solar to Anchorage, to helping residents in the Bering Straits Region find solutions to the high cost of energy, to developing Raspberry Pi-based solar irradiance loggers. She has a BS in Astronomy from Caltech and an MS in Mechanical Engineering from UAA. She has worked as an engineering geologist, an organic gardening coordinator, in energy efficiency outreach, and as a park ranger in Katmai. All of it comes together in solving problems of finding sustainable energy sources in the Arctic, with the challenges of unstable permafrost for infrastructure foundations, finding the energy to grow food and provide fresh water, and other linkages between energy and the environment. Michelle grew up in Alaska, and is happy to be raising her son here as well. They like to take the dog hiking, camping, ice skating and skiing, but also enjoy a lot of cozy indoor time as well. She is thrilled to be doing work that she hopes will continue to make Alaska a great place to live for her family and all Alaskans.

Friday, September 27, 2019

11:45 am-12:45 pm

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This confirms your attendance of the 10/4/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

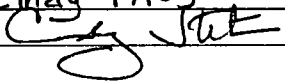
Date and time: Oct 4, 2019, 11:45 am-12:45 pm

Presentation title: Arctic Sea Ice - The Development of a 3-D Model for Enhanced Subsurface
Storage Capacity

Presenter name: Kelsey Frazier

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: 

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UAA Professional Development Seminar Series

**Oil Beneath Arctic Sea Ice: Predicting Under-Ice
Storage Capacity as a Means to Better
Anticipate Oil Slick Spreading Under Ice**

**Presented by Kelsey Frazier, UAA Graduate
Fellow with ADAC**

In the event of an Arctic oil spill, whether from a surface vessel, a subsurface pipeline, or a well blowout, ice in the water is a complicating factor. The presence of ice complicates the forecasting of the movement and spreading of oil, as well as the planning of the oil spill clean-up process. The underside of Arctic sea ice is not flat; rather it presents non-geometric, unpredictable protrusions into the water column. The depth to which these protrusions grow relates to the longevity of the ice itself. Older ice reaches further down into the water, creating larger inverted cavities that have the potential to store more oil. If a given area of ice has the capacity to locally store a large amount of oil, then oil spilled under ice in this area is less likely to spread laterally. The oil will become trapped in these inverted caverns and may be encapsulated by ice growth from below. The challenge faced by an oil spill forecaster is that information on the under-ice storage capacity roughness is not readily available. Hence, we explore whether "ice stage," which is assessed based on satellite and other data available from the ice surface, can be predictive of the under-ice storage capacity.

Kelsey Frazier is a graduate Fellow with the Arctic Domain Awareness Center (ADAC), a Center of Excellence for the Department of Homeland Security. She is also completing her master's degree in Mechanical Engineering at the University of Alaska Anchorage, and will graduate in December, 2019. As a Fellow, Kelsey is engaged in numerous research projects focused on using science and engineering to advance the capabilities of the U.S. Coast Guard and other associated federal agencies. Her efforts to quantify subsurface storage capacity enable better oil spill slick modeling by NOAA. Kelsey is currently working with colleagues in the Mechanical Engineering and Computer Science departments at UAA to create an Arctic Ice Condition Index (ARCTICE) to inform Arctic mariners of the relative risks of transit through the Beaufort, Chukchi, and Bering seas when ice is present.

Friday, October 4, 2019
11:45 am - 12:45 pm
UAA College of Engineering, EIB 211

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This confirms your attendance of the 10/11/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 11, 2019, 11.45 am-12:45 pm

Presentation Title: Expedient Airstrips in NPRA 1975-1981

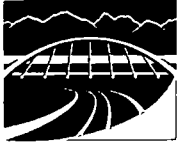
Presenter Name: Tom Brooks

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

Your signature: Cindy Titus

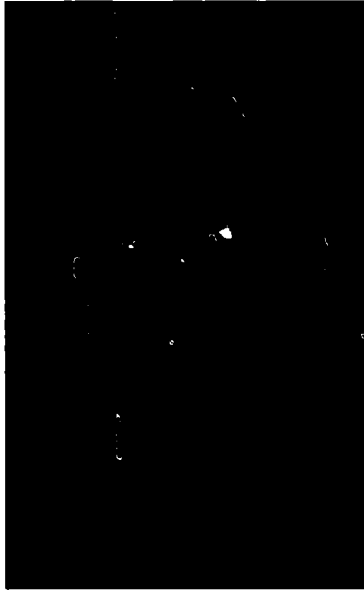
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UAA Professional Development Seminar Series

Expedient Airstrips in NPRA,

1974-1981

Presented by Tom Brooks, P.E.

In the 1970s, the U.S. Government drilled 28 test wells in the National Petroleum Reserve Alaska (NPRA). Initially, the U.S. Navy ran the program, followed by the USGS. Husky Oil NPR Operations, Inc., was the operator. The primary support for all wells was by air, requiring construction and

operation of about 50 "expedient" airstrips. Most wells were drilled in the winter, and most airstrips were constructed on lake ice.

Three airstrips were winter constructed for year-round use. Subgrade insulation was used in these airstrips, with the insulation thickness sized to prevent thaw below the insulation. The design improved performance during the initial summer thaw, decreased the requirements for fill materials, and limited the equipment, personnel, and time required for construction. Forty years later, these airstrips remain, and two are in use.

This presentation will be in three sections. The first discusses the ice airstrips, including ice thickness requirements and runway facilities. The second addresses the construction of the first two insulated airstrips in the 1977-1978 winter season, and the third extends the insulation application to a 1978-1979 site with a challenging schedule. The presentation will close with comments about the ongoing use of these airstrips.

Tom Brooks worked for Husky Oil NPR Operations Inc., from 1976 to 1981 as Senior Construction Engineer and Manager, Construction. Tom continued work on North Slope projects until 1986, when he joined the Alaska Railroad until his retirement in 2017. He has a BS and MS in Civil Engineering from Colorado State University, and an MBA from the University of Washington.

Friday, October 11, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211

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This confirms your attendance of the 10/18/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 18, 2019, 11:45 am-12:45 pm

Presentation title: Anchorage Storm Drain Pipes; Inspection Results and Findings

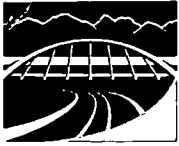
Presenter name: ~~Raghu Srinivasan~~ **Matt Steph**

Professional Development Hours (PDH's): 1

Your name: Cindy Tins

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UAA Professional Development Seminar Series

Anchorage Storm Drain Pipes: Inspection Results and Findings

Presented by Matt Stephi, PE

The storm drain system in Anchorage contains approximately 525 miles of pipes that are owned by the Municipality of Anchorage (MOA) and the State of Alaska Department of Transportation and Public Facilities

(DOT&PF). Many of the storm pipes are in poor condition and numerous failures have been observed and repaired. The MOA is planning to form a new Storm Water Utility to manage and operate the storm system in Anchorage. In a study completed in January 2019, MOA staff estimated that roughly \$1.0 billion is needed to bring the existing MOA-owned portion of the storm system to acceptable condition.

Since 2007, Stephi Engineering has completed inspection and condition assessment projects on 150,000 feet of storm pipe within the Anchorage area. The work has been done on pipes and manholes that are owned by both the MOA and the DOT&PF. This presentation will summarize the results of the various inspection projects and describe the defects and failures observed, and the findings from the condition assessment projects. Recommended estimated costs to upgrade or repair the defective pipes that were inspected will also be discussed.

Matt Stephi, P.E. graduated as a civil engineer from UAA. He has inspected, evaluated, provided QA/QC and designed repairs on 500,000 feet of pipe, and has engineered over 100 pipe repair projects in Alaska. His firm, Stephi Engineering LLC, specializes in pipe condition assessment and trenchless technology engineering.

Friday, October 18, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211

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This confirms your attendance of the 10/25/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Oct. 25, 2019, 11:45 am-12:45 pm

Presentation title: Development of Test Sites and Atmospheric Corrosion Studies in Cold Arctic Climate

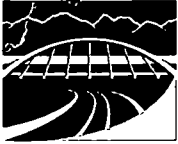
Presenter name: Raghu Srinivasan

Professional Development Hours (PDH's): 1

Your name: Cindy Titus

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UAA Professional Development Seminar Series

**Development of Test Sites and Atmospheric
Corrosion Studies in Cold Arctic Climate**

Presented by Raghu Srinivasan, Professor, UAA

The most common assumption is that there is very little to no corrosion in cold environments. However, previous studies in the Antarctic and Arctic regions have shown significant corrosion damage when exposed to cold conditions. Two important factors

affecting atmospheric corrosion rates in **cold arctic and sub-arctic** conditions are aerosol chlorides (or salt-laden snow from the marine environment or deicing salts on roads) and time of wetness (TOW) along with other climatic parameters like rainfall, temperature, humidity. Atmospheric corrosion damage in cold environments is close to the main human activity, which is concentrated near the coastal areas. A combination of urbanization and proximity to marine environments make arctic and sub-arctic regions in North America, particularly Alaska, an important natural laboratory to study atmospheric corrosion in cold regions, for a renewed better understanding of the atmospheric corrosion mechanisms. This will lead to good choice of materials and better design practices for infrastructure and other applications. Pilot modular and adjustable corrosion test racks were designed and installed on top of UAA's Engineering and Computation Building, and effects of impacts on corrosion of the angle of exposure will also be discussed.

Dr. Raghu Srinivasan received his B. Tech in Chemical and Electrochemical Engineering at the Central Electrochemical Research Institute, India in 2002, and his MS and PhD degrees in Mechanical Engineering at UHM in 2005 and 2010, respectively. He is a Mechanical Engineering faculty member at UAA's College of Engineering. Dr. Srinivasan's research interests are in the field of corrosion (atmospheric and marine corrosion), materials characterization, and materials compatibility.

Friday, October 25, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211

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Juneau
JUL 16 2020

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This confirms your attendance of the 11/1/2019 Professional Development Seminar!

Location: UAA College of Engineering (EIB 211)

Date and time: Nov. 1, 2019, 11:45 am-12:45 pm

Presentation Title: Large-Scale Bitcoin Mining: History and Technical Introduction

Presenter Name: Sebastian Neumayer

Professional Development Hours (PDH's): 1

Your name: Carly T. Hays

Your signature: [Signature]

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UAA Professional Development Seminar Series

Security Costs in Bitcoin and Other Cryptocurrencies

Presented by Sebastian Neumayer,
Assistant Professor, University of Alaska
Anchorage

Bitcoin uses around 0.25% of the world's total electricity production. This power is used to protect the Bitcoin network against attackers' attempts to spend their Bitcoin more than a single time. We will discuss various costs associated with guarding against these double-spending attacks, such as physical electronic waste, time spent waiting for transaction finality, as well as energy costs. We will also compare these costs to other cryptocurrencies that use different consensus mechanisms.

Sebastian Neumayer is an Assistant Professor of Computer Engineering at UAA. He received his Ph.D. in Electrical Engineering and Computer Science from MIT. His thesis dealt with the survivability of network infrastructures after disasters and physical attacks. He also spent five years working at MIT's Lincoln Laboratory in the Cyber Security and Information Sciences Division, where he focused on developing security metrics that accurately estimate risk for prevalent network threats. Along with his teaching responsibilities, Dr. Neumayer is continuing his research on the reliability of networks during both physical and cyber-attacks. He is also interested in all things Bitcoin/cryptocurrency, and even has a project to augment jewelry with Bitcoin and other digital assets. He welcomes anyone to reach out to him regarding digital currencies.

Friday, November 1, 2019
11:45 am-12:45 pm
UAA College of Engineering, EIB 211