

# AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS

## *Northeast Section* **NEWSLETTER** *Winter 2020*

*As published on 02/11/2020.*

**Reserve Your Spot  
Now!  
Drone Short Course**

*Where: Morristown, NJ  
When: April 23, 2020*

**Take a look at what the  
Section is doing:  
December Meeting  
Minutes**



**What's the oldest  
impact crater on  
earth? Find out  
HERE!**

**Is there "snow" on the  
Earth's core?**

[www.ne-aipg.org](http://www.ne-aipg.org)

## EXCELLENCE ON EVERY LEVEL™

CASCADe provides a full range of environmental and geotechnical drilling, site investigation and characterization, and environmental remediation technologies. Our vision is to integrate technology, safety, sustainability and human potential to tackle the challenging environmental and geotechnical issues facing our clients.

## YOUR PARTNER FROM CONCEPT TO CLEAN UP

### DRILLING

environmental, geotechnical, utility  
clearance, IDW, sonic, auger, rotary, direct  
push

### SITE CHARACTERIZATION

high resolution site characterization,  
sampling, data visualization, MHPT, UVOST,  
CORE™™™, WATERLOG™™™, OIP™™

### REMEDIATION

in situ, ex situ, collaborative design,  
thermal, chemical, biological,  
emplacement

### CONTACT

#### ADT

Environmental &  
Geotechnical Drilling  
**Bill Poupis**  
516-616-6026 EXT 105  
wpoupis@aquiferdrilling.com

#### CASCADe

Strategic Account Manager  
**Jay Boland**  
M: 413-329-7525  
jboland@cascade-env.com

VISIT US TODAY AT [WWW.CASCADe-ENV.COM](http://WWW.CASCADe-ENV.COM) TO LEARN MORE

With Cascade offices across the United States, subsidiaries and international partners, we deliver reliable services **nationwide.**

# DRILEX

## ENVIRONMENTAL



### **Drilex Environmental is one of New England's premier drilling companies**

Drilex Environmental was established in 1995 and is one of New England's fastest growing, premier, full service Drilling and Environmental Construction companies. We are a quality drilling company, able to meet the ever changing needs of our clients.

[www.drilexenv.com](http://www.drilexenv.com)



Hartwell Business Park • 127 Hartwell Street • West Boylston, MA  
508-835-6724 • Fax: 508-835-6734

# AIPG NORTHEAST SECTION NEWSLETTER

## WINTER 2020 EDITION No. 159

PUBLISHED BY THE NORTHEAST SECTION OF THE AMERICAN  
INSTITUTE OF PROFESSIONAL GEOLOGISTS

### TABLE OF CONTENTS:

2020 NE/AIPG Executive Committee Directory .....	<u>5</u>
2020 Executive Committee Meeting Schedule .....	<u>7</u>
2020 Index of Advertisers.....	<u>8-9</u>
Presidential Ramblings .....	<u>11</u>
Drone Short Course.....	<u>13</u>
US Natural Gas Export Futures .....	<u>17</u>
Yarrabubba Crater.....	<u>25</u>
AIPG Mission Statement .....	<u>35</u>
December 2019 ExCom Meeting Minutes .....	<u>40</u>
Melting rock' models predict mechanical origins of earthquakes .....	<u>53</u>
LNAPL Transmissivity .....	<u>54</u>
A "Snowy" Planet Core .....	<u>79</u>
Piggybacking: Service Expanded .....	<u>82</u>
The Flatirons .....	<u>84</u>
NE/AIPG 2020 Publication Schedule .....	<u>85</u>
ATMG Scholarship List of Contributors .....	<u>86</u>
ATMG Scholarship Overview .....	<u>88</u>
Angelo Tagliacozzo Scholarship Perpetual Trust Fund Contribution Form <b>(Please Contribute Now!)</b> .....	<u>Last Page</u>

#### NEWSLETTER EDITOR

Brandon Tufano  
Roux Environmental Engineering  
and Geology, D.P.C.  
209 Shafter Street  
Islandia, NY 11749  
631-630-2347 (Office)  
570-702-9992 (Cell)  
btufano@rouxinc.com



#### PUBLISHER & ADVERTISING MANAGER

Dick Young  
Consulting Geologists, LLC  
179 Intervale Road  
Parsippany, NJ 07054  
973-335-2289 (Office)  
973-335-9799 (Fax)  
RYoungNJ@aol.com

The Newsletter of the Northeast Section of the American Institute of Professional Geologists is digitally published four times annually at [www.issuu.com/neaipg/docs](http://www.issuu.com/neaipg/docs). Design and layout by Brandon Tufano and Dick Young. Section Members and Advertisers are alerted to each issue by e-mail. Many thanks are extended to all who helped in compiling this issue.

## **2020 NEAIPG EXECUTIVE COMMITTEE AND SUBCOMMITTIES**

### **PRESIDENT**

Michael G. Grifasi, CPG-11489  
FPM Remediations, Inc.  
181 Kenwood Ave  
Oneida, NY 13421  
Office: (315) 336-7721 X215  
Fax: (917) 336-7722  
Cell: (917) 767-2662  
Email: m.grifasi@fpm-remediations.com

### **PRESIDENT ELECT**

Jennifer Rhee, MEM-2805  
HDR Inc.  
1 International Blvd  
Floor 10  
Mahwah, NJ 07495  
Work: (201) 335-9336  
Cell: (845)-664-5218  
jennifer.rhee@hdrinc.com

### **PAST PRESIDENT**

Jessica McEachern, CPG-11869  
37 Spencer Street W  
Farmingdale, NY 11735  
Office: (516) 694-5212  
E-mail: geode78@verizon.net

### **SECRETARY**

Adelina E Prentice, MEM-3075  
FPM Remediations Inc.  
181 Kenwood Ave  
Oneida, NY 13421  
Work: 315-336-7721 ext 228  
Fax: (315) 336-7722  
Email: a.prentice@fpm-remediations.com

### **TREASURER**

Robert P. Blauvelt, CPG-06508  
GEI Consultants  
300 Broadacres Dr, Suite 100  
Bloomfield, NJ 07003  
Office: (973) 873-7127  
Cell: (973) 803-0167  
Fax: (973) 509-9625  
rblauvelt@geiconsultants.com

### **MEMBERS**

Christopher Brown, CPG-10599  
PVE, LLC  
108 W 39th Street, Suite 501  
New York, NY 10018  
Office: (646) 602-4999  
Cell: (914) 475-2650  
E-mail: cbrown@pve-llc.com

Brandon Tufano, MEM-2954  
Roux Environmental Engineering and Geology,  
D.P.C.  
209 Shafter St.  
Islandia, NY 11749  
Office: (631) 630-2347  
Cell: (570) 702-9992  
E-mail: btufano@rouxinc.com

### **Member at Large**

Jeff Frederick, CPG-10989  
The Louis Berger Group, Inc.  
565 Taxter Rd., Suite 510  
Elmsford, NY 10523  
Office: (914) 798-3762  
Email: jfrederick@louisberger.com

Laurie Scheuing, CPG-09898  
46 Homestead Rd  
Saratoga Springs, NY 12866-5808  
Office: (518) 695-9445  
E-mail: lescheuing@aol.com

Luanne Whitbeck, CPG-07923  
P.O. Box 637  
Singerlands, NY 12159  
Office: (518) 475-1008  
E-mail: Luanne.whitbeck@gmail.com

Kelly A. Weyer, CPG-11826  
Clean Globe Environmental LLC  
PO BOX 1895, New City, NY 10956  
Office: 1-888-454-5923, Ext. 700  
kweyer@cg-env.com

### **SCREENING BOARD CHAIRMAN**

Charles A. Rich, CPG-04433  
CA Rich Consultants, Inc.  
17 Dupont Street  
Plainview, NY 11803-1602  
Office: (516) 576-8844 Fax: (516) 576-0093  
E-mail: crich@carichinc.com

### **NEWSLETTER EDITOR**

Brandon Tufano, MEM-2954  
Roux Environmental Engineering and  
Geology, D.P.C.  
209 Shafter St.  
Islandia, NY 11749  
Office: (631) 630-2347  
E-mail: btufano@rouxinc.com

### **DIRECTORY OF MEMBERS EDITOR**

Curtis A. Kraemer, CPG-06019  
111 Van Cedarfield Road  
Colchester, CT 06415  
Office: 860-861-4644  
email: curtkraemer@comcast.net

### **PUBLISHER & ADVERTISING MANAGER**

Richard H. Young, CPG-03356  
Consulting Geologists, LLC  
179 Intervale Road  
Parsippany, NJ 07054  
Office: 973-335-2289  
Fax: 973-335-9799  
E-mail: ryoungnj@aol.com

### **WEBMASTER**

Jessica McEachern, CPG-11869  
37 Spencer Street W  
Farmingdale, NY 11735  
Office: (516) 694-5212  
E-mail: geode78@verizon.net

*(Executive Committee continued on page 7)*



# **Delta Well & Pump co., Inc.**

**WATER AND ENVIRONMENTAL DRILLING**

97 Union Avenue PO Box 1309 Ronkonkoma, N.Y. 11779

**Phone: (631) 981-2255**

**Fax: (631) 981-2369**

Delta serves municipal and industrial customers

Providing a full range of drilling capabilities



(Executive Committee continued from page 5)

**2020 NORTHEAST SECTION SUBCOMMITTEES**  
(As updated 1/30/2020)

**Advertising Sales:** Dick Young

**Advisory Board Delegate:** Jeff Frederick

**Financial Planning and Treasury:** Bob Blauvelt, Dick Young

**Legislative Liaison and Registration:** Tom West (NY), Russell Slayback (CT), Sam Gowan (NY), Tim Stone (NY), Dorothy Richter (NH), Laurie Scheuing (NY)

**Membership:** Open

**Mentoring:** Dennis McGrath (Chairperson), Chris Brown

**Nominating:** Bob Blauvelt, Dennis McGrath

**Public Affairs:** Dennis McGrath (Chairperson)

**Scholarship:** Dennis McGrath (Co-Chairperson), Chris Brown (Co-Chairperson), Sam Gowan, Dean Herrick, Craig Werle, Tom West, Kelly Weyer.

**Section Directory:** Curt Kraemer, Editor, Dick Young, Publisher

**Section Meetings:** Jessica McEachern, Bob Blauvelt, Chris Brown, Jennifer Rhee

**Section Newsletter:** Brandon Tufano & Kim Burger, Editors; Dick Young, Publisher

**Screening Board:** Charles Rich (Chairperson); Don Bruehl, Carol Graff, William Penn, Daniel Toder, Andrew Tolman, William Prehoda

**2020 EXECUTIVE COMMITTEE MEETING SCHEDULE:**

January 6<sup>th</sup>

March 9<sup>th</sup>

May 15<sup>th</sup> (Spring Meeting on-site)

July 13<sup>th</sup>

September 14<sup>th</sup>

October 9<sup>th</sup> (Fall Meeting)

December 7<sup>th</sup>

**Meetings are typically held from 4:00 to 6:00 pm via teleconference.**

(End)

## ***2020 INDEX OF ADVERTISERS***

### **ENVIRONMENTAL CONSULTANTS**

AECOM.....	<u>23</u>
Alpha Geoscience.....	<u>19</u>
Arcadis.....	<u>36</u>
Brinkerhoff Environmental Services, Inc.....	<u>29</u>
C.A. Rich Consultants, Inc.....	<u>38</u>
CHA.....	<u>29</u>
CSG Environmental Consultants.....	<u>19</u>
EAI, Inc.....	<u>16</u>
EWMA.....	<u>34</u>
FPM-Remediations.....	<u>37</u>
Gannett Fleming.....	<u>24</u>
GEI Consultants, Inc.....	<u>28</u>
GEOSPHERE Environmental Management, Inc.....	<u>27</u>
Hager GeoScience, Inc.....	<u>18</u>
Hager-Richter Geoscience, Inc.....	<u>33</u>
Haley & Aldrich.....	<u>34</u>
Hatch Mott MacDonald.....	<u>39</u>
Lincoln Applied Geology, Inc.....	<u>22</u>
MC Environmental, LLC.....	<u>22</u>
McLane Environmental, LLC.....	<u>27</u>
PVE.....	<u>35</u>
Quantitative Hydrogeology, Inc.....	<u>29</u>
Regenesi.....	<u>23</u>
Richter Geology PLLC.....	<u>24</u>
Roux Associates, Inc.....	<u>11</u>
StoneHill Environmental, Inc.....	<u>32</u>
Tectonic Engineering.....	<u>32</u>
Terracon.....	<u>26</u>
TRC Environmental Corporation.....	<u>28</u>

### **DRILLING**

AARCO Environmental Services Corp.....	<u>51</u>
Allegheny Instruments, Inc.....	<u>43</u>
Boyd Artesian Well Co., Inc.....	<u>50</u>
Cascade Drilling.....	<u>Inside Front Cover</u>
Connecticut Test Borings, LLC.....	<u>43</u>
Directional Technologies, Inc.....	<u>58</u>
Drilex Environmental, Inc.....	<u>3</u>

*(Index of Advertisers continued on page 9)*

**2020 INDEX OF ADVERTISERS (Cont.)**

**DRILLING (Cont.)**

Eastern Analytical, Inc .....	45
General Borings, Inc .....	47
Geophysical Applications, Inc .....	48
Hetager Drilling, Inc. ....	47
Maine Test Borings .....	52
New England Boring Contractors of CT, Inc.....	52
Pennsylvania Drilling Company .....	57
Probe Support Services .....	10
SGS Environmental Services, Inc .....	48
Soil Mechanics Drilling Corporation .....	59
Soiltesting, Inc .....	50
Stephen B. Church, Co.....	64
Summit Drilling Co., Inc.....	46
Zebra Environmental .....	49

**ENVIRONMENTAL FIELD SERVICES**

Alpha Analytical.....	63
Atlantic Screen & Mfg., Inc .....	72
Badger Injection Solutions .....	75
Complete Environmental Testing, Inc. ....	72
ConeTec, Inc .....	82
Delta Well & Pump Co., Inc.....	6
EnviRent Corporation .....	83
Enviroscan .....	66
Envirosite Corporation .....	74
GEOD Corporation .....	65
Geologic Mapping and Resource Evaluation, Inc .....	73
Island Pump and Tank.....	83
Layne Christensen Company .....	68
Samuel Stothoff Company, Inc .....	72
SJB Services, Inc .....	78
X-ray Utility Locating Service .....	69

[www.geoproberentals.com](http://www.geoproberentals.com)

# Geoprobe® Rentals

[info@rentaprobe.com](mailto:info@rentaprobe.com)

Long Term  
Rental  
Discounts



**TRAINING Available**

7822DT TRACK • 7720DT TRACK  
6620DT TRACK • 54LT Track  
540MT & 420M Portable  
54TR Tractor • Grout Pumps  
Manual Slide Hammers • Trailers  
Tooling • Liners • Mob/Demob

*Providing various direct push  
Geoprobe® machines designed  
for unique environmental  
settings including wetlands,  
shoreslines, residential grounds,  
inside buildings and basements  
and more...*

**888•215•4666**

**PROBE**  
SUPPORT SERVICES  
[www.geoproberentals.com](http://www.geoproberentals.com)

[www.rentaprobe.com](http://www.rentaprobe.com)



## Presidential Ramblings – Winter, 2020

Hello Northeast Section and Happy New Year to all! The executive committee really hit the ground running this January. We're currently in the process of evaluating all 19 applications received for the Angelo Tagliacozzo Memorial Geological Scholarship and getting all of the ducks in a row for the two short courses we aim to host this year! I do believe that 2020 will be a fun and exciting year for the Section.

This newsletter marks the start of my second term as Section president. Not that I'm counting the days or anything. I'd like to thank my colleagues Laurie Scheuing, Brandon Tufano, and Chris Brown for staying on the committee for another term. Many of you exercised your right as Northeast Section members and voted them in last November

*(Ramblings continued on page 14)*



# ROUX

## Environmental Consulting & Management

- Brownfield Redevelopment
- Phase I & Phase II ESAs
- Constructed Treatment Wetlands
- Wetland Delineations and T&E Evaluation/Permitting
- Petroleum Remediation
- Stormwater/Wastewater Management
- Remediation Designs
- Litigation Support

*We Solve Our Clients' Most Challenging Environmental Problems*

**For more info: 1.800.322.7689 or [www.rouxinc.com](http://www.rouxinc.com)**

California • Illinois • Massachusetts • New Jersey • New York • Texas



# Environmental Consultants



# SAVE THE DATE!

Thursday, April 23, 2020  
Short Course – Morristown, New Jersey



## *American Institute of Professional Geologists - Northeast Section & Meadowlands Environmental Research Institute*

### *The Use of Unmanned Aerial Vehicles in Environmental Site Characterization*

Are you looking for an interesting way to learn about drone data collection on air quality, land use, water characteristics, and vegetation status while receiving four (4) LSP/LSRP CEUs?!

**This course will incorporate classroom learning followed by an interactive field demonstration of a real time drone data collection mission!**

Come join us to watch live demonstrations, connect with associates, and learn the cutting edge data resources that drones can provide.

**LOCATION: WSP Office at 412 Mt. Kemble Ave, Morristown, NJ**  
**COURSE AGENDA (11:30-4:30 PM):**

- 11:30- 12:00      Registration (Lunch Provided)
- 12:00 - 12:15      Welcome, introduction, and review of course objectives
- 12:15 - 1:00        Overview of flight principles and equipment; regulations and licensing requirements; safety considerations; and pre-flight planning.
- 1:00 - 1:45         Image acquisition in dangerous areas. Site characterization support with high-resolution photos; ortho-mosaics, video and terrain models.
- 1:45 - 2:00         Break
- 2:00 - 2:45         Application examples; industrial property assessment infrastructure evolution, flood control, land cover/use, mining residues.
- 2:45- 3:45         Field demonstration with data acquisition and post-processing data integration (LiDAR and GIS).
- 3:45-4:15         Review and summary with Q&A

*Save the Date continued on page 15*

*(Ramblings continued from page 11)*

and I thank you for your participation.

Back at home, my family and I are hunkered down for the winter. And by that I mean enjoying both the snow and occasional 55-degree days. When my son turned seven in December, I gifted him a rock tumbler and we immediately got to polishing. Just after the New Year we completed our first batch of rocks. It's important to know that this is something that I've wanted to do all of my life and that I'm only now getting around to doing it. And it brings me immense joy to watch my children engage in this process (or any STEM related process, really).



Upper right moving counter-clockwise – increasing level of polishing over time.

Anyhow, I hope you enjoy this newsletter! Many thanks to Brandon Tufano for doing such a good job putting it and all of the others together.

Until the next newsletter,

Michael

*(End)*

(Save the Date continued from page 13)

## *The Use of Unmanned Aerial Vehicles in Environmental Site Characterization*

The use of unmanned aerial data collection devices (drones) has become a standard tool for many scientific disciplines. Drones are being and will be used to support site remediation projects in numerous ways including:

- Accessing potential areas of environmental concern within complexes or sites that are inaccessible either due to structural issues or for other health and safety reasons;
- Collection of baseline air emissions data from disposal sites (e.g. methane discharge from landfills) or routine monitoring of air emissions during or after remediation; and
- Tracking of stressed vegetation, surface water runoff pathways, and thermal signatures indicative of subsurface reactions (e.g. tracking of ISCO injection efficiency).

This course will provide a more comprehensive understanding of the mechanics of their operation, the regulatory restrictions associated with drone usage, and the type of data packages they can generate. This will allow licensed professionals to make informed decisions on when or if drone collected data would be useful and how those data will be processed.

The course will be led by Dr. Francisco Artigas and Mr. Michael Stepowj. Dr. Artigas is the current director of the Meadowlands Environmental Research Institute (MERI) and research associate professor at Rutgers University. Stepowj is a GIS specialist at MERI and has a FAA Part 107 Unmanned Aircraft Systems Commercial Pilot License.

**Register Now Online at <http://ne-aipg.org/meetinginfo.php>**

**Registration will open March 1<sup>st</sup>**

**Course Registration: \$225 (includes lunch and afternoon snack)**

Register early to guarantee your spot! Seating for this event is limited!!

**CEU Credit Includes:**

4 LSRP (NJ) technical credits hours (Course No. 2019-044)

4 LSP (MA) technical credit hours (Course No. 1664)

4 PD hours by North Carolina Board for Licensing of Geologists (Approval Code 180128)

Qualifies for professional development hours for licensure in Pennsylvania and New Hampshire

## **Sponsorships are Available!**

Please contact Jennifer Rhee for additional information

[Jennifer.rhee@hdrinc.com](mailto:Jennifer.rhee@hdrinc.com)

All profits will benefit the professional groups to support geologic activities and academic scholarships.

*~ Please watch for more details coming soon ~*



# EAI, Inc.

## Environmental Management Services

Turnkey Solutions for Environmental Management



[www.eaienviro.com](http://www.eaienviro.com)



**GRACE**  
Construction Products

**CETCO**

**CARLISLE**



**AQUAFIN**

### Services:

- Vapor Barrier Installations
- Waterproofing
- Sub-slab Depressurization System Installation (SSDS)
- Venting/Monitoring System Installations
- Liquid Boot/GeoVent Installations
- Air Barrier Installations
- Tank Services
- Remediation
- Air Monitoring System Installations
- Asbestos/Lead Services
- Sandblasting
- Specialty Contracting Services

**Call EAI for All of Your  
Environmental Needs**

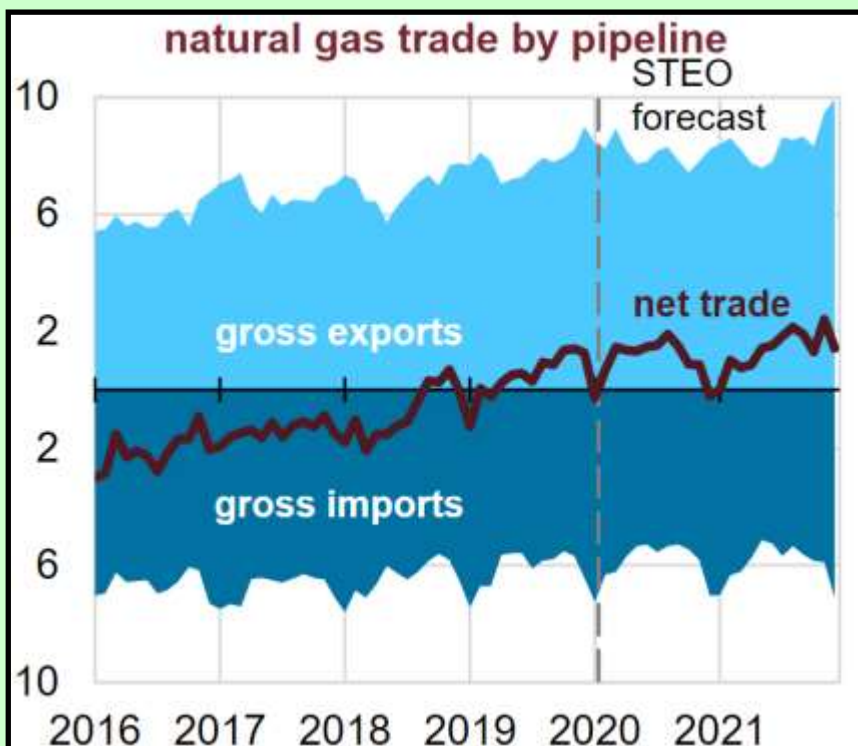
50 Prescott Street  
Jersey City, NJ 07304  
Tel: (201) 395-0010

[inforequest@eaienviro.com](mailto:inforequest@eaienviro.com)

# EIA expects U.S. net natural gas exports to almost double by 2021



In its Short-Term Energy Outlook (STEO), released on January 14, the U.S. Energy Information Administration (EIA) forecasts that U.S. natural gas exports will exceed natural gas imports by an average 7.3 billion cubic feet per day (Bcf/d) in 2020 (2.0 Bcf/d higher than in 2019) and 8.9 Bcf/d in 2021. Growth in U.S. net exports is led primarily by increases in liquefied natural gas (LNG) exports and pipeline exports to Mexico. Net natural gas exports more than doubled in 2019, compared with 2018, and EIA expects that they will almost double again by 2021 from 2019 levels.



(Article continued on page 18)

*(Article continued from page 17)*

The United States trades natural gas by pipeline with Canada and Mexico and as LNG with dozens of countries. Historically, the United States has imported more natural gas than it exports by pipeline from Canada. In contrast, the United States has been a net exporter of natural gas by pipeline to Mexico. The United States has been a net exporter of LNG since 2016 and delivers LNG to more than 30 countries.

In 2019, growth in demand for U.S. natural gas exports exceeded growth in natural gas consumption in the U.S. electric power sector. Natural gas deliveries to U.S. LNG export facilities and by pipeline to Mexico accounted for 12% of dry natural gas production in 2019. EIA forecasts these deliveries to account for an increasingly larger share through 2021 as new LNG facilities are placed in service and new pipelines in Mexico that connect to U.S. export pipelines begin operations.

*(Article continued on page 20)*



HAGER GEOSCIENCE, INC.

## Innovative solutions to Subsurface Problems

Celebrating 27 Years of  
Geophysical Consulting  
Services for Engineering,  
Environmental, and  
Infrastructure Projects

PH +1-781-935-8111

[hgi@hagergeoscience.com](mailto:hgi@hagergeoscience.com)

Jutta Hager, Ph.D., P.G., President

[jhager@hagergeoscience.com](mailto:jhager@hagergeoscience.com)



## Professional Geologic and Hydrogeologic Consulting

679 Plank Road, Clifton Park, NY 12065

[www.alphageoscience.com](http://www.alphageoscience.com)

### Mining Services

#### Hydrogeologic Investigation

- Impacts to surface and ground water
- Potential impacts from mine inflows
- Mitigation of mine inflows

#### Mineral Resources

- Resource and Reserve Analyses
- Aggregates, Sand, and Gravel
- Industrial Minerals, Metals and Salt
- Permitting

### Independent Laboratory Data Validation

#### Emergent Contaminants

- PFOS, PFOA, and other PFAS
- 1,4-dioxane

#### Quality Assurance/Quality Control

- Validation of soil, water, and air data
- Preparation of SOPs, QAPPs, and EDDs

Contact: John Nadeau, PG, CPG  
[jnadeau@alphageoscience.com](mailto:jnadeau@alphageoscience.com)

***Check out our Advertiser hotlinks wherever there is a website or email listed in an advertisement!***



ENVIRONMENTAL CONSULTANTS

- ✓ property transfer site assessments
- ✓ groundwater development, management, protection, permitting
- ✓ UST closures and investigations
- ✓ litigation support

Carol S. Graff, CPG-06429  
109 Renfrew Avenue  
Trenton, NJ 08618-3335

Phone: 609-393-4442  
FAX: 609-393-5999  
E-mail: [cgraff5297@aol.com](mailto:cgraff5297@aol.com)

*(Article continued from page 18)*

Net U.S. natural gas imports from Canada have steadily declined in the past four years as new supplies from Appalachia into the Midwestern states have displaced some pipeline imports from Canada. U.S. pipeline exports to Canada have increased since 2018 when the NEXUS pipeline and Phase 2 of the Rover pipeline entered service. Overall, EIA projects the United States will remain a net natural gas importer from Canada through 2050.

U.S. pipeline exports to Mexico increased following expansions of cross-border pipeline capacity, averaging 5.1 Bcf/d from January through October 2019, 0.5 Bcf/d more than the 2018 annual average, according to EIA's Natural Gas Monthly. The increase in exports was primarily the result of increased flows on the newly commissioned Sur de Texas–Tuxpan pipeline in Mexico, which transports natural gas from Texas to the southern Mexican state of Veracruz. Several new pipelines in Mexico that were scheduled to come online in 2019 were delayed are expected to enter service in 2020:

- ♦ Pipelines in Central and Southwest Mexico (1.2 Bcf/d La Laguna–Aguascalientes and 0.9 Bcf/d Villa de Reyes–Aguascalientes–Guadalajara)
- ♦ Pipelines in Western Mexico (0.5 Bcf/d Samalayuca–Sásabe)

U.S. LNG exports averaged 5 Bcf/d in 2019, 2 Bcf/d more than in 2018, as a result of several new facilities that placed their first trains in service. This year, several new liquefaction units (referred to as trains) are scheduled to be placed in service:

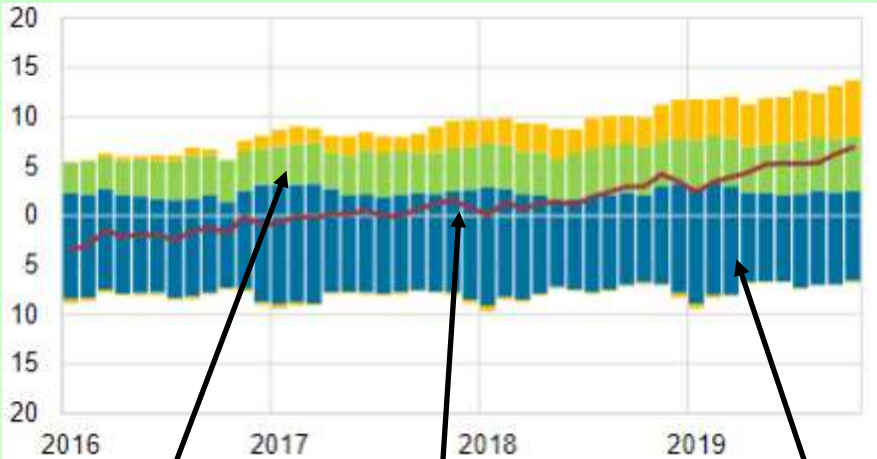
- ♦ Trains 2 and 3 at Cameron LNG in Louisiana
- ♦ Train 3 at Freeport LNG in Texas
- ♦ Trains 5–10, six Moveable Modular Liquefaction System (MMLS) units, at Elba Island in Georgia

*(Article continued on page 21 )*

(Article continued from page 20)

In 2021, the third train at the Corpus Christi facility in Texas is scheduled to come online, bringing the total U.S. liquefaction capacity to 10.2 Bcf/d (baseload) and 10.8 Bcf/d (peak). EIA expects LNG exports to continue to grow and average 6.5 Bcf/d in 2020 and 7.7 Bcf/d in 2021, as facilities gradually ramp up to full production.

## Monthly U.S. natural gas trade (Jan 2016—Oct 2019) Billion cubic feet per day



gross exports  
of liquefied natural gas  
by pipeline to Mexico  
by pipeline to Canada

gross imports  
by pipeline from Canada  
of liquefied natural gas

**NET TRADE**

Source: U.S. Energy Information Administration, Natural Gas Monthly

Principal contributor: Victoria Zaretskaya

(End)

# **MC ENVIRONMENTAL, LLC**



## **Innovative Environmental Services & Consulting**

- Hydrogeology
- Water Resources
- Regulation Compliance
- Monitoring Programs
- Instrumentation
- Site Assessments
- Site Assessments
- Remediation
- Property Transactions
- UST, Spill Response
- Expert Testimony

26 Railroad Avenue #182, Babylon, NY 11702-2216  
Phone 631 321 4500 Fax 631 321 0190  
mike@mc-environmental.net



- Brownfields Evaluation, Cleanup Negotiations and Remediation
- ASTM Phase I and II Real Estate Assessments
- Facility Operations Environmental Audits
- Permit Status/Compliance Review
- Single and Multiple Lot Septic System Design and Permitting
- Water Supply Siting, Analysis, and Permitting
- Federal, State, and Local Development Permitting
- Boundary Surveying, ALTA/ACSM Land Title Surveys, Construction Layout, Construction Inspection

163 Revell Drive, Lincoln, VT 05443  
802-453-4384 \* 802-453-5399 (Fax) \* 800-477-4384  
Email: lagvt@lagvt.com



**AECOM**

## Imagine it. Delivered.

As a fully integrated firm, AECOM connects knowledge and experience across our network of experts to help solve our client's most complex challenges. From high-performance buildings and transit systems, to resilient communities and environments, our work is transformative, differentiated and vital.

[aecom.com](http://aecom.com)

### Concerned about Site Remediation Budgets, Timelines and Technology Performance?



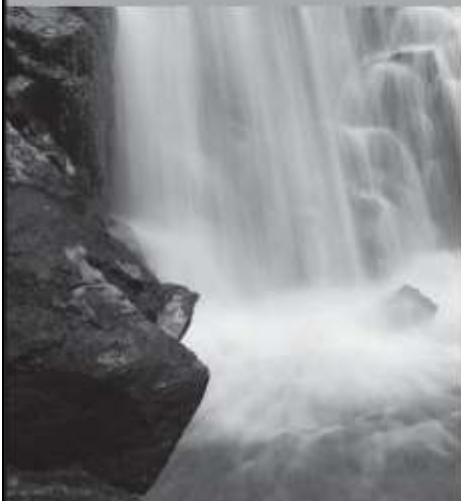
**We can help.**

- Scalable site remediation solutions for almost any budget
- Proven remediation technologies on over 20,000 sites worldwide
- Expertise and experience to meet timeline expectations
- Combined remedy approaches to maximize performance and cost savings

**[www.regensis.com](http://www.regensis.com)  
(949) 366-8000**



## DEFINING INNOVATION WITH SUSTAINABLE SOLUTIONS



Site Investigation and Remediation  
Geotechnical/Earth Sciences  
Sustainability  
Brownfields Characterization and Redevelopment  
Dams and Hydraulics  
Environmental Infrastructure  
Architecture  
Civil  
Transportation  
Water/Wastewater  
Structural  
GIS/Information Technology  
Construction Management/Design-Build



Your Trusted Advisor Since 1915

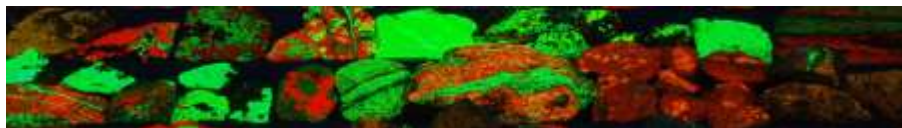
[www.gannettfleming.com](http://www.gannettfleming.com)

James M. Barish, CPG, LSRP ■ Phone: (609) 584-9599 ■ Cell: (609) 385-5822

[jbarish@gfnet.com](mailto:jbarish@gfnet.com) ■ More than 55 offices worldwide

Suite 203, 3575 Quakerbridge Road, Hamilton, NJ 08619

ISO 9001:2015  
CERTIFIED



## RICHTER GEOLOGY PLLC

**Dorothy Richter, P.G.**

(NH, NY, PA, NC, KY, IL, MN)

President

603 231-7845

[dorothy.richter@outlook.com](mailto:dorothy.richter@outlook.com)

[richtergeology.com](http://richtergeology.com)

# Yarrabubba Impact Structure

In today's age with so many questions surrounding our climate and its undeniable change, it is our job to look into the past and determine what may have moderated historic climate shifts and draw what parallels we may. A group of scientists did just that by accurately dating the Yarrabubba impact structure and investigating its timing relative to a shift in global climate.



Modern day Yarrabubba crater.

You can still see the uplifted center peak, all that remains of the once massive complex crater structure in the Western Australia outback.

To determine the exact age of Yarrabubba, Dr. Timmons Erickson of Curtin University and NASA's Johnson Space Center and colleagues analyzed the minerals zircon and monazite that were 'shock recrystallized' by the asteroid strike.

The researchers inferred that the impact may have occurred into an ice-covered landscape, vaporized a large volume of ice into the atmosphere, and produced a huge crater in the rocks beneath.

*(Yarrabubba crater continued on page 30)*



# Reliable.

Convenient Responsive Innovative

Your business objectives are our top priority. We deliver information on time so you avoid delays, surprises and costly mistakes down the road. For projects large and small, single- or multi-site, you can rely on consistent results nationwide.



Manchester, NH [603] 647 9700  
Offices Nationwide [terracon.com](http://terracon.com)

## Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

# GEOSPHERE

ENVIRONMENTAL MANAGEMENT INC.

NEW HAMPSHIRE

MASSACHUSETTS

(603)-773-0075

(888)-838-6571

WWW.GEOSPHERENH.COM

GROUNDWATER SUPPLY

SITE ASSESSMENTS

LSP SERVICES

GEOTHERMAL

WETLANDS

PROFESSIONAL CONSULTANTS PROVIDING  
GROUNDWATER & ENVIRONMENTAL SOLUTIONS



## MCLANE ENVIRONMENTAL, LLC

### Range of Services

Ground Water Modeling

Contaminant Fate  
and Transport

Aquifer Characterization

Remediation Design  
and Optimization

Exposure and  
Risk Assessment

Water Resources  
and Supply

Natural Resource  
Damages

Coastal Zone  
Modeling

Wastewater  
Disposal Analyses

GIS and  
Data Visualization

Litigation Support



Providing ground water consulting services to clients nationwide, including:

- industrial corporations,
- law firms,
- municipalities,
- DOD, DOE, and others.

Specializing in ground water modeling, chemical fate and transport, well field optimization, and litigation support services.

Visit our web site at  
[www.McLaneEnv.com](http://www.McLaneEnv.com)

E-mail: [info@McLaneEnv.com](mailto:info@McLaneEnv.com)

707 Alexander Road, Suite 206  
Princeton, NJ 08540

Ph. 609.987.1400 Fax 609.987.8488

# 50 Years of Environmental Solutions in New Jersey

- Ground Water Investigation and Remediation
- Soil Investigation and Remediation
- Ground Water Supply Development
- Underground Storage Tank Investigation
- ISRA Compliance
- Environmental Site Inspections and Audits
- Brownfields Investigation and Permits
- Litigation Support and Expert Testimony
- LSRP Services



41 Spring Street, Suite 102  
New Providence, NJ 07974  
T: 908.988.1700 F: 908.464.3712  
[www.trcsolutions.com](http://www.trcsolutions.com)

GEI provides geotechnical, environmental, water resources and ecological consulting and engineering services. We provide these services from planning and design through construction and operations. Our clients include government agencies, institutions, industries, developers, utilities and professional service firms.



For more information  
contact Bob Blauvelt at  
573.873.7127  
[www.geiconsultants.com](http://www.geiconsultants.com)

GEI Consultants, Inc.  
300 Broadacres Drive, Suite 100  
Bloomfield, NJ 07003





**QUANTITATIVE  
HYDROGEOLOGY  
INC.**

- Aquifer Characterization & Conceptualization • Modeling •
- Aquifer Tests → Design, Implementation, & Analyses •
- Flow & Transport Analyses/Evaluations • Environmental Litigation •

**Michael A. De Cillis, CPG-6986,**

*providing Hydrogeologic & Environmental-Consulting Services, and  
Technical & Logistical Support within the Ground-Water Profession since 1976.*

42 Marc Ct, Bay Shore, NY 11706-7351 ~ (631) 859-3507 ~ E-mail: [madedcillis@toptonline.net](mailto:madedcillis@toptonline.net)

# BRINKERHOFF



**ENVIRONMENTAL SERVICES, INC.**

Geologists • Hydrogeologists • Environmental Scientists

**Environmental Consulting • Environmental Permitting  
Site Investigation • Soil and Groundwater Remediation**

1805 Atlantic Ave. • Manasquan, NJ 08736

Tel: 732-223-2225 • Fax: 732-223-3666 • [www.brinkenv.com](http://www.brinkenv.com)



*Providing Full Service Engineering, Planning and  
Construction Expertise to Our Clients for Over 80 Years*

*Imagine*  
What We Can Do for You!

**CHA**  
[www.chacompanies.com](http://www.chacompanies.com)  
800.836.0817

*(Yarrabubba crater continued from page 25)*

“The timing raised the possibility that the Earth’s oldest asteroid impact may have helped lift the planet out of a deep freeze,” said Curtin University’s Professor Chris Kirkland.

“Yarrabubba, which sits between Sandstone and Meekatharra in central Western Australia, had been recognized as an impact structure for many years, but its age wasn’t well determined.”

“Now we know the Yarrabubba crater was made right at the end of what’s commonly referred to as the early Snowball Earth — a time when the atmosphere and oceans were evolving and becoming more oxygenated and when rocks deposited on many continents recorded glacial conditions.”

The study authors noted the precise coincidence between the Yarrabubba impact and the disappearance of glacial deposits.

“The age of the Yarrabubba impact matches the demise of a series of ancient glaciations,” Dr. Erickson said.

“After the impact, glacial deposits are absent in the rock record for 400 million years.”

“This twist of fate suggests that the large meteorite impact may have influenced global climate.”

Numerical modeling further supports the connection between the effects of large impacts into ice and global climate change.

Calculations indicated that an impact into an ice-covered continent could have sent half a trillion tons of water vapor into the atmosphere.

This finding raises the question whether this impact may have tipped the scales enough to end glacial conditions.

“This study may have potentially significant implications for future impact crater discoveries,” said Dr. Aaron Caves, also from Curtin University.

“Our findings highlight that acquiring precise ages of known craters is important — this one sat in plain sight for nearly two decades before its significance was realized.”

*(Yarrabubba crater continued on page 31)*

(Yarrabubba crater continued from page 30)

“Yarrabubba is about half the age of the Earth and it raises the question of whether all older impact craters have been eroded or if they are still out there waiting to be discovered.”

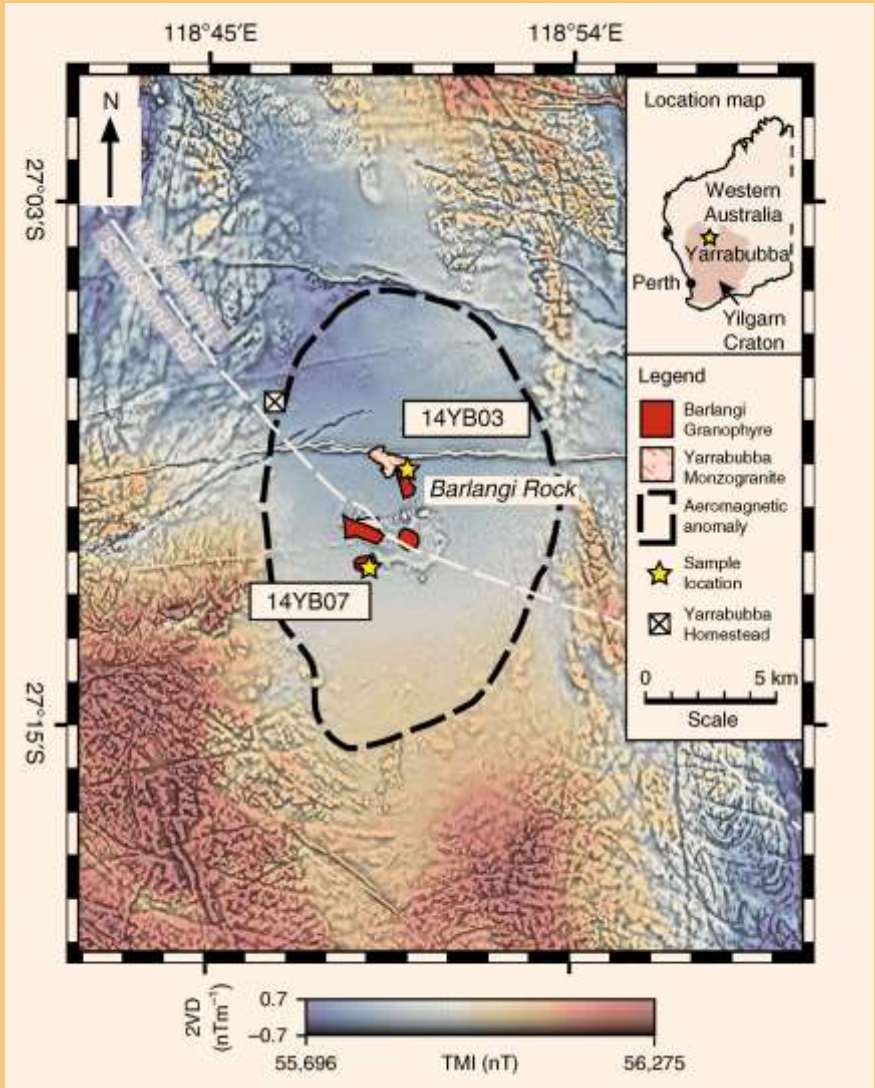


Figure 1: Description on page 38.

(Yarrabubba crater continued on page 38)

# Tectonic

PROVIDING SOLUTIONS. EXCEEDING SERVICE.

- NJ Licensed Site Remediation Professional (LSRP) Services
- Phase I/Phase II Environmental Site Assessments
- Industrial Site Recovery Act Services
- Tank Closures & Spill Investigations
- Vapor Intrusion Studies & Mitigation
- Remedial Design of Contaminated Soil/Groundwater
- Terrestrial Ecological Evaluations
- Mold, Asbestos & Lead Management
- Subsurface Investigations & Geotechnical Engineering
- Geotechnical Instrumentation & Monitoring
- Vibration & Noise Monitoring
- Retaining Wall & Excavation Support Systems Design

[www.tectonicengineering.com](http://www.tectonicengineering.com)

800.829.6531

NY, NJ, CT, PA.

## StoneHill Environmental, Inc.

Providing Environmental Consulting Services  
Throughout New England Since 1989

- ▶ Phase I & II Due Diligence Assessments
- ▶ Water Resource Impact Studies & Development
- ▶ Rock Blasting Groundwater Impact Studies
- ▶ Expert Witness and Litigation Support
- ▶ Contaminated Site Investigation and Remediation

**Contact: Timothy Stone CPG**

**Licensed Geologist NH, ME, DE, PA / Massachusetts LSP**

600 State Street, Suite 2, Portsmouth, New Hampshire 03801  
(603) 433-1935 □ (800) 639-4503 □ FAX: (603) 433-1942

NH-WBE/MBE, MA-SOMWBA, WBE Teaming

# HAGER-RICHTER

***Geophysics for the Engineering Community***

***National Reputation | Nationwide Practice  
Take a Closer Look. You'll Like What You See.***

***[www.hager-richter.com](http://www.hager-richter.com)***

**Main Office**

8 Industrial Way—D10  
Salem, New Hampshire 03079  
T: 603-893-9944

**NY / NJ Office**

846 Main Street  
Fords, New Jersey 08863  
T: 732-661-0555

*dba HR Geological Services in New York*



Have an idea for a Newsletter article?  
We are always more than willing to  
**incorporate our member's**  
ideas and experiences  
into the quarterly Newsletter!

Submit your ideas to Brandon Tufano  
at: [btufano@rouxinc.com](mailto:btufano@rouxinc.com)

**HALEY &  
ALDRICH**

**Building communities.  
Improving our infrastructure.**

*Creating new possibilities with clients.*

- Property development and brownfields reuse
- Remedial investigations, design and construction
- Environmental, health and safety management
- Energy facility and linear utilities development
- Underground construction risk management
- Sustainable design enhancement

25 Offices Nationwide • T. 617.886.7400 • [HaleyAldrich.com](http://HaleyAldrich.com)



An Environmental Consulting  
& Remediation Firm

**Timely Response.  
Time-Proven Solutions.**

- Guaranteed Fixed-Price Remediation
- Environmental Due Diligence
- Regulatory Compliance
- Litigation Experts and Environmental Forensics
- Indoor Air Quality

Call the experts at EWMA to assist with  
your environmental questions.

(800) 969-3159  
[www.ewma.com](http://www.ewma.com)

Parsippany, NJ  
Hamilton, NJ  
New York, NY





*"Realize Your Vision"*



- Assessment & Remediation Services
- Vapor Intrusion Evaluations
- Brine Disposal Wells
- Reservoir Evaluation and Gas Storage Facilities
- GIS Services

Contact us today to learn how we can help with your next project!

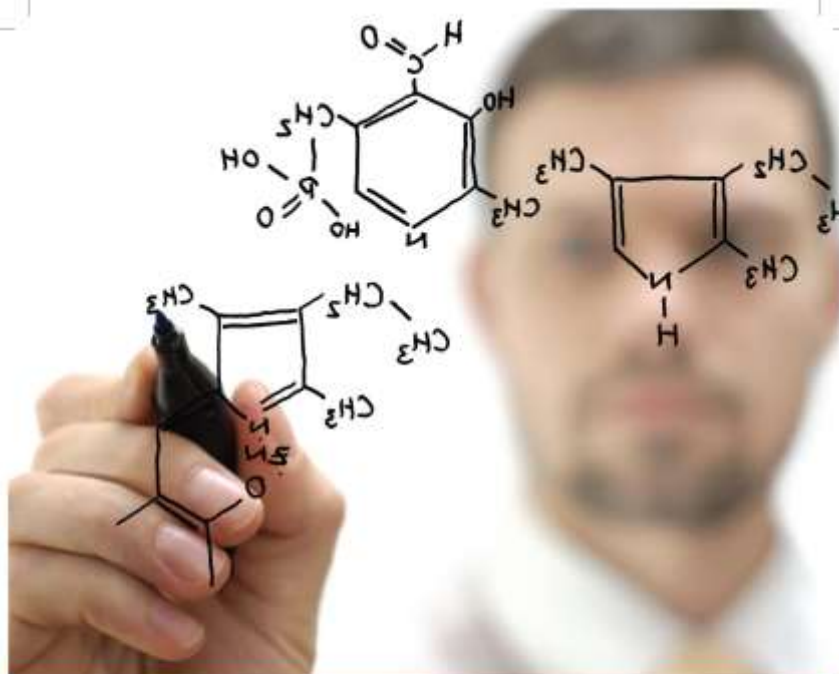
Environmental • Civil Engineering • Structure Design  
Landscape Architecture • Land Planning • Municipal • Energy • Survey

(845) 454-2544 | [www.PVE-llc.com](http://www.PVE-llc.com) | [info@PVE-llc.com](mailto:info@PVE-llc.com)

## What are the AIPG Purposes?

The purposes of the Institute shall include:

- Advancing the geological sciences and the profession of geology;
- Establishing qualifications for professional geologists;
- Certifying the qualifications of specific individual member geologists to the public;
- Promoting high standards of ethical conduct among its members and adjuncts and within the profession of geology; and
- Representing and advocating for, the geological profession before the government and the general public.



## Solutions to complex challenges

A continually shifting world makes any engineering design solution difficult, often overwhelming. We help you overcome these challenges.

First, we start with you – defining true value and a successful outcome. With a deep understanding of the nexus between regulatory, technological and environmental drivers, we deliver certainty on cost-effective projects and programs that meet and exceed your goals.

**Together we can do a world of good.**

[www.arcadis-us.com](http://www.arcadis-us.com)

Two Huntington  
Quadrangle Suite 1510  
Melville, NY 11747  
631 249 7600

Imagine the result.

 **ARCADIS**  
Infrastructure · Water · Environment · Buildings

# **FPM** Remediations, Inc.

*Environmental Remediation Services*

An **Olgoonik** Company

- ◆ HUBZone-Certified Small Disadvantaged Business
- ◆ Self-Perform Investigation/Remediation Activities at Sites Impacted by Environmental Contaminants and Munitions
- ◆ Specialize in Performance-Based Contracting
- ◆ Certified/Licensed Engineers, Geologists, Geophysicists, and Scientists and In-house Unexploded Ordnance Experts
- ◆ 20+ Years DoD Experience



**FIND OUT MORE AT: [WWW.FPM-REMEDIATIONS.COM](http://WWW.FPM-REMEDIATIONS.COM)**

**Your FULL COLOR half-page advertisement could be right here. Contact Advertising Manager Richard Young at [ryoungnj@aol.com](mailto:ryoungnj@aol.com)**

*(Yarrabubba crater continued from page 31)*

Composite aeromagnetic anomaly map of the Yarrabubba impact structure within the Yilgarn Craton, Western Australia, showing the locations of key outcrops and samples used in this study. The image combines the total magnetic intensity (TMI, cool to warm colors) with the second vertical derivative of the total magnetic intensity (2VD, grayscale) data. The demagnetized anomaly centered on the outcrops of the Barlangi granophyre is considered to be the eroded remnant of the central uplift domain, which forms the basis of the crater diameter of 70 km. Prominent, narrow linear anomalies that cross-cut the demagnetized zone with broadly east-west orientations are mafic dykes that post-date the impact structure.

Image credit: Erickson et al, doi: 10.1038/s41467-019-13985-7.

Article reproduced from Science News <http://www.sci-news.com/space/yarrabubba-crater-08040.html>

*(End)*



**ca RICH**  
ENVIRONMENTAL SPECIALISTS

***Your Full-Service Environmental Expert Since 1982***

- Due Diligence
- Geology Services
- Emerging Contaminants
- Groundwater Resources
- Air Quality / Soil Vapor
- Construction Oversight
- Brownfield Redevelopment
- Remediation
- Peer Review
- Regulatory Liaison
- Litigation Support
- Valuations / Tax Cert.
- Expedited Deal Flow
- Strategic Thinking

17 Dupont Street, Plainview, NY 11803 ■ Tel. 516.576.8844  
Fax. 516.576.0093 ■ [www.carichinc.com](http://www.carichinc.com)



- > environmental engineering
- > site assessments & remediation
- > environmental investigations
- > environmental services related to real estate transactions
- > storage tank management
- > hydrogeology/groundwater modeling
- > cost recovery litigation support
- > expert testimony
- > brownfields



**Hatch Mott  
MacDonald**

**Delivering Solutions**

*headquarters: Iselin, NJ  
offices across North America*

**800.832.3272**

**[www.hatchmott.com](http://www.hatchmott.com)**

# DECEMBER 2019 MEETING MINUTES

NE SECTION – AIPG  
EXECUTIVE COMMITTEE MEETING  
MONDAY, DECEMBER 9, 2019

## Distribution:

Jessica McEachern	Michael Grifasi	Bob Blauvelt
Jeff Frederick	Kelly Weyer	Luanne Whitbeck
Laurie Scheuing	Chris Brown	Brandon Tufano
Dennis McGrath	Jennifer Becker	Adelina Prentice
Dick Young		

## Call to Order (4:04 PM)

### *Secretary's Report*

November 2019 – Luanne makes motion to accept, Jessica seconds. Motion passes with no discussion.

### *Treasurer's Report*

October 2019 and November 2019 – The NE Section budget is in good standing. The national meeting income share is shown in deposits, and the usual payables for bankcard and Star Chapter web hosting fees. An increase in Star Chapter fees is possible in the near future. The section just about broke even on the national meeting costs and revenue.

The Angelo Tagliacozzo Memorial Geological Scholarship (ATMGS) fund has had a good month of growth, and the past year has shown a growth by approximately 13%. With the current balance, the fund could provide approximately 12-15k each year without affecting principle.

### *Correspondence*

♦ Student Chapter Updates: Brooklyn College, SUNY Geneseo, SUNY Binghamton, etc. – No updates on current chapters; a

(December Minutes continued on page 41)

discussion to reach out to previous points of contact to see if we can reestablish contact with current members.

- ◆ Scholarship-related – The deadline for the scholarship passed on the 5<sup>th</sup> and there are about 18 or 19 applicants with complete applications.

### *Old Business*

- ◆ Short Courses – Geophysics & Drone Technology in 2020 – Discussion to combine the Drone Technology course with the Spring meeting (see below), and Jeff will contact the Morristown NJ training center as a possibility for the training courses.
- ◆ NE Section Reach-Out to MA, NH, RI, ME – No new updates.
- ◆ Scholarship Committee – New Members – With a recent vacancy, Kelly will be assuming a permanent role and has been helping with managing input. Jeff will be serving as a floater, and Michael and Adelina confirm interest to participate. A separate call to orient new members to the application and scoring system is proposed for later in the month.

*NE Section – Student Chapter Engagement* – No new updates.

### *New Business*

- ◆ 2020 ExCom Elections – Candidates were reelected.
- ◆ Spring Meeting – 2020 – An offer was received by Milena Cunningham of the New Jersey Licensed Site Remediation Professionals Association (LSRPA) to offer a discount of courses and potentially promote the AIPG Spring meeting in exchange for promoting the LSRPA conference in February. In light of this, the downstate New York and New Jersey area would be the target for the AIPG Spring meeting. A discussion followed on offering the Drone short course instead of a field trip, and the possibility of offering the course to meeting attendees without the course fee, depending on whether they wanted the education credits.

# Drilling





## GeoVISION™ BOREHOLE VIDEO CAMERA SYSTEMS

**Hand Reel to 1000 Feet, Electric Winch to 2000 Feet  
Joystick-Controlled Pan Tilt or Dual View Cameras**



**Bore Diameters From 1-Inch To Mine Shafts**

[sales@alleghenyinstruments.com](mailto:sales@alleghenyinstruments.com)  
[www.alleghenyinstruments.com](http://www.alleghenyinstruments.com)

800-255-1353  
802-626-5302



**Serving Southern New England and Eastern New York**

## **Connecticut Test Borings, LLC**

**Geotechnical and Environmental Drilling**

- ✦ Hollow Stem Auger Drilling
- ✦ Soil Sampling - Rock Coring
- ✦ Monitor Well Installations
- ✦ Direct Push (Geoprobe®) Sampling

[www.connecticuttestborings.com](http://www.connecticuttestborings.com) • 203-888-3857 • fax 203-888-0655 • [ctblc@sbcglobal.net](mailto:ctblc@sbcglobal.net)

*(December Minutes continued from page 41)*

### *Publications*

Newsletter – An email from Brandon (not on call) to update the Holiday newsletter is in review.

Advertising Sales Update & Income – Currently in the process of sending invoices for upcoming year to advertisers so they can decide if they want to budget the cost for 2019 or 2020.

### *Addendum*

The meeting schedule for 2020 was distributed prior to the meeting:

January 6

March 9

May 15 (Friday, Spring meeting)

July 13

September 14

October 9 (Friday, Fall meeting)

December 7

*Motion was made to accept and was seconded.*

Dennis brings up the March NE GSA meeting and attendance for representation. Reimbursement was previously a line item but was not included in 2019.

Motion to adjourn was made and seconded.

Adjournment (5:18 PM)

*(End)*



## Support Our Advertisers and Sponsors!

The Executive Committee reminds all our members to support the companies that advertise in this Newsletter and generously sponsor our meetings. Their support represents a major

contribution that helps the Northeast Section continue its mission to promote the profession and build the cornerstone of our

Section, the *Angelo Tagliacozzo Memorial Geological Scholarship Perpetual Trust Fund*. It is our advertisers and sponsors who make our Newsletter so successful and well-distributed, reaching more than 700 members across eight states.

Please let our advertisers and sponsors know that you appreciate them by working with these companies whenever possible. Be sure to personally acknowledge their support when you speak with their representatives, and mention you saw their ad or sponsorship in our Newsletter.

*Thank you to all our advertisers and sponsors!*



**Eastern Analytical, Inc.**  
professional laboratory & drilling services



GROUNDWATER  
SOIL & SLUDGE  
WASTEWATER  
STORMWATER  
DRINKING WATER  
SURFACE WATER

we're with you every step of the way | [www.eailabs.com](http://www.eailabs.com) | 800.287.0525



## *Experience Sonic*

When it comes to unconsolidated formations, there is no better technology than Sonic. With drill speeds up to 4 times faster and as much as 80% less waste, environmental consultants are realizing significant results and value. Benefit from clear and undisturbed samples in overburden, sand, gravel, clay, cobbles, boulders, bedrock, and delicate formations.

Also consider that cutting-edge technology is only part of the story. **Summit Drilling's Sonic Division** has invested in the best people the industry has to offer. Our new sonic rigs are operated by highly skilled and specially trained drillers who deliver unmatched sample quality and efficiency in the field. *More importantly*, sonic represents the safest drilling technology to date. At Summit Drilling, safety is more than training. It's our company culture.

*Experience Sonic at An Exceptional Level. Call Summit Drilling and Speak with a Sonic Expert Today.*

*Now Open! Our Albany, NY Office  
Serving NY, CT & MA*

[www.summitdrilling.com](http://www.summitdrilling.com)

**Summit**  
Drilling ■ Direct Push ■ Injection  
An Exceptional Experience™

800-242-6648

**SOIL  
BORING**

(203) 758-5817 Phone  
(203) 758-0822 Fax

**ROCK  
CORING**

**Portable  
Skid/Propane  
Track  
Truck Rigs**



**Monitor Well  
Specialists  
OSHA  
Certified**

# General Borings, Inc.

**SUB-SURFACE INVESTIGATIONS**

**P.O. Box 7135  
Prospect, CT 06712**

**OBSERVATION  
WELLS**

**CONCRETE  
CORING**



40-Hour OSHA Trained  
MSHA Trained  
**PERSONNEL**  
Company Licensed in PA, OH, NY,  
WV, & VA

Specialist in Environmental, Geotechnical & Core Drilling  
No Job Too Large or Too Small



Split Inner Core Barrels  
Hydropunch II (Modified) Hydraulic  
Soil Probing

### **SAMPLING METHODS**

Split Spoon Sampling  
Continuous Soil Sampling  
Single & Dual Packer Testing

Soil Borings  
Monitoring Wells  
Well Development  
**CONSTRUCTION**  
Seal & Abandonment  
Pressure Grouting  
Piezometer Installation



Wireline Rock Coring System - "B" through 6"

Hollow Stem Auguring  
Dual Wall Reverse Air  
Air & Mud Rotary  
**DRILLING CAPABILITIES**  
Air Hammer  
Angle Drilling  
Indoor Drilling  
ATV/Track/Skid/Barge

Pennsylvania Office  
1857 Woodland Ave. Ext.  
Punxsutawney, PA 15767  
Voice - 800-337-4553  
Fax - 814-938-8833  
[phale@hetager.com](mailto:phale@hetager.com)

Ohio Office  
4151 Executive Parkway, Suite 350  
Westerville, OH 43081  
Voice - 800-337-4553  
Fax - 814-938-8833  
[phale@hetager.com](mailto:phale@hetager.com)



## THE TRUSTED LEADER IN ENVIRONMENTAL DRILLING SERVICES

Since 1985, SGS has helped set the standards of excellence in our industry.

SGS is the world's leading inspection, verification, testing and certification company.

### SGS ENVIRONMENTAL DRILLING

**Brian McGuire, General Manager**

t. +1 800 962 7327

us.envdrilling@sgs.com

www.us.sgs.com/drilling

WHEN YOU NEED TO BE SURE

**SGS**

## Fast & Accurate Surface and Borehole Geophysics

### Acoustic & Optical Televiewer Logging

Borehole Video & Geophysical Logging

Multi-Electrode Resistivity Imaging

Seismic Refraction & Reflection

Radar, Magnetics, EM & VLF

Do  
More  
than  
Scratch  
the  
Surface...

**G E O P H Y S I C A L**  
**A P P L I C A T I O N S**  
I N C O R P O R A T E D

**Holliston, MA • 508-429-2430**

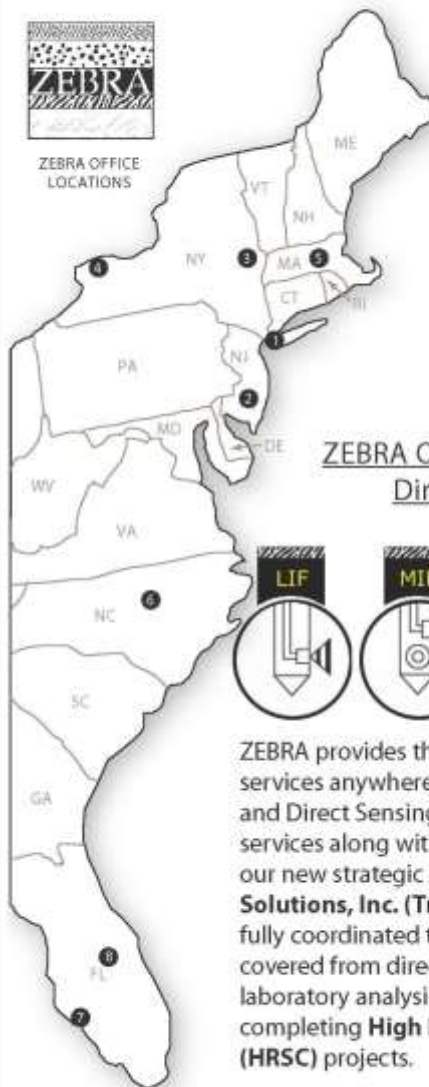
**Ask about our geophysical instrument rentals**

# ZEBRA Environmental Corp.

Providing Subsurface Sampling, Injection and Data Collection  
for Environmental Professionals Since 1992



ZEBRA OFFICE  
LOCATIONS



Headquarters:  
NYC, NJ &  
Southern  
CT Area

1 LYNBROOK, NY  
516-596-6300

2 JACKSON, NJ  
732-275-8333

Upstate NY &  
New England

3 ALBANY, NY  
518-355-2201

4 NIAGARA FALLS, NY  
716-297-6567

5 UXBRIDGE, MA  
508-581-9880

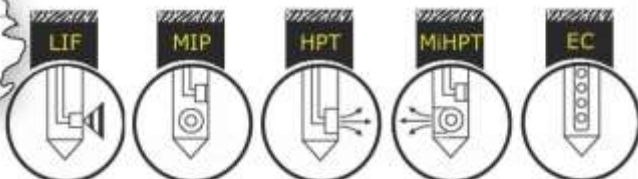
Southeast  
Region

6 CARY, NC  
813-626-1717

7 TAMPA, FL  
813-626-1737

8 Orlando, FL  
813-626-1717

## ZEBRA Offers The Widest Range of Direct Sensing Services:



ZEBRA provides the widest range of Geoprobe/ DPT services anywhere, including a toolbox full of Injection and Direct Sensing systems. ZEBRA is now offering **UVOST** services along with **EC, MIP, MiHPT, CPT, MIP/CPT**. With our new strategic partnership with **TRIAD Environmental Solutions, Inc. (TriadES)** we are able to offer our clients a fully coordinated team of professionals. We have you covered from direct sensing to quantitative on-site laboratory analysis with DPT operators experienced in completing **High Resolution Sites Characterization (HRSC)** projects.

1-800-PROBE-IT

WWW.TEAMZEBRA.COM

# BOYD ARTESIAN WELL CO., INC.

We design, manufacture and install round holes!

GEOTHERMAL WELLS  
WELL ABANDONMENT  
ROTARY & PERCUSSION DRILLING  
WELLS REPAIRED & DEEPEMED  
COMPLETE WATER SYSTEMS  
HYDROGEOLOGICAL CONSULTING  
MONITORING WELLS

SPLIT SPOON SAMPLING  
EXPLORATORY DRILLING  
HYDROFRACTURING  
IRRIGATION WELLS  
SPECIALTY DRILLING  
GRAVEL WELLS  
SITE ASSESSMENTS



CARMEL, NY

(800) 321-2693

WWW.BOYDARTESIANWELLCO.COM



Site & Subsurface  
Investigations

Geotechnical &  
Environmental  
Site Investigations



## SOILTESTING, INC.

- Test Boring - Core Drilling
- Monitoring Wells
- Micro Piles
- Helical Piers
- Underpinning

*53 Years of Drilling Services*

**140 Oxford Road, Oxford, CT 06478**

1-800-388-4473

(203) 888-4531

fax (203) 888-6247



*AARCO Environmental Services Corp.*

Premier Drilling Company



**AARCO Environmental Services Corp. is a premier full service environmental contracting company. Our expertise includes a wide variety of drilling services:**

*Environmental Drilling, Geotechnical Drilling  
Hollow Stem Auger, SONIC Drilling, Air  
Rotary Drilling, Mud Rotary Drilling, Well  
Installation, Well Decommissioning, Chemical  
Injection, Direct Push, Remote Access,  
Truck and Track mounted rigs.*

**NY & NJ Licensed**



***AARCO Environmental Services Corp.***

50 Gear Avenue, Lindenhurst, NY 11757

Ph: (631) 586-5900 Fx: (631) 586-5910

[www.aarcoenvironmental.com](http://www.aarcoenvironmental.com)

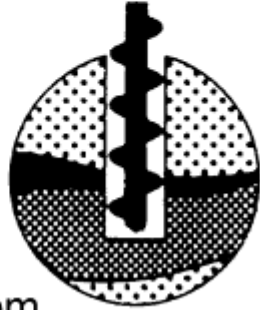
# NEW ENGLAND BORING CONTRACTORS OF CT., INC.

129 KREIGER LANE, GLASTONBURY, CT 06033

*THE RIGHT EXPERIENCE, THE RIGHT EQUIPMENT, THE RIGHT COMPANY*

## Serving New England, NY & NJ

- Test Borings
- Monitor Wells
- Construction Drilling
- Multi-Rig Capabilities



[www.newenglandboring.com](http://www.newenglandboring.com)

(800) 410-5550 • (860) 633-4649 • FAX: (860) 657-8046



## Maine Test Borings

18 Mack Lane  
Hermon, ME 04401

**Jon Rudnicki**

Ph: (207) 848-7041  
Ph: (800) 698-9142  
Cell: (207) 659-1749

Fx: (207) 848-7042  
[www.mainetest.com](http://www.mainetest.com)  
[jon@mainetest.com](mailto:jon@mainetest.com)

Want to reach more clients? How about over 800?  
Then ADVERTISE!

Contact Dick Young 973-335-2289 or email  
[RYoungNJ@aol.com](mailto:RYoungNJ@aol.com) **to get your company's advertisement**  
in the newsletter.

We offer all size ads from full page to business card size  
and full color to black-and-white.

## 'Melting rock' models predict mechanical origins of earthquakes

Engineers at Duke University have devised a model that can predict the early mechanical behaviors and origins of an earthquake in multiple types of rock. The model provides new insights into unobservable phenomena that take place miles beneath the Earth's surface under incredible pressures and temperatures, and could help researchers better predict earthquakes -- or even, at least theoretically, attempt to stop them.

For three decades, researchers have built machines to simulate the conditions of a fault by pushing and twisting two discs of rock against one another. These experiments can reach pressures of up to 1450 pounds per square inch and speeds of one meter per second, which is the fastest underground rocks can travel. For a geological reference point, the Pacific tectonic plate moves at about 0.0000000073 meters per second.

"In terms of ground movement, these speeds of one meter per second are incredibly fast," said Manolis Veveakis, assistant professor of civil and environmental engineering at Duke. "And remember that friction is synonymous with resistance. So if the resistance drops to zero, the object will move abruptly. This is an earthquake."

In these experiments, the surface of the rocks either begins to turn into a sort of gel or to melt, lowering the coefficient of friction between them and making their movement easier. It's been well established that as the speed of these rocks relative to one another increases to one meter per second, the friction between them drops like a rock, you might say, no matter the type. But until now, nobody had created a model that could accurately reproduce these behaviors.

In the paper, Rattetz and Veveakis describe a computational model that takes into account the energy balance of all the complicated mechanical processes taking place during fault movement. They incorporate weakening mechanisms caused by heat that are common to all types of rock, such as mineral decomposition, nanoparticle lubrication and melting as the rock undergoes a phase change.

After running all of their simulations, the researchers found that their new model accurately predicts the drop in friction associated with the entire range of fault speeds from experiments on all available rock types including halite, silicate and quartz.

(Article continued on page 64)

# Leveraging LNAPL Transmissivity at your Petroleum Site

By: Brandon Tufano

## **Introduction**

As consultants, it is our job to progress site remediation towards closure in the most effective and efficient way possible. This is a challenge when considering the size of some of our petroleum impacted sites. The impracticality of removing every molecule of petroleum is rarely time or cost effective. By applying the mechanics of aquifer transmissivity to saturated thickness of light non-aqueous-phase liquid (LNAPL), we can provide an alternative method by which to gauge a site's progression towards closure. Transmissivity of an aquifer is defined as the rate of flow under a unit hydraulic gradient through the saturated cross-sectional area of aquifer, expressed as  $\text{length}^2/\text{time}$ . By incorporating matrix material properties such as rock and soil type, porosity, and permeability, as well as LNAPL properties such as composition, saturation, and thickness of mobile LNAPL, LNAPL transmissivity can be estimated. LNAPL transmissivity is an indicator of a formation's ability to transmit LNAPL to wells and is directly proportional to LNAPL recoverability (ITRC, 2009). This proportional relationship between LNAPL transmissivity and recoverability is a much more powerful tool for evaluating LNAPL mobility and recoverability than the measure of free-product thickness in monitoring wells.

*(LNAPL Tn continued on page 55)*

Petroleum regulations vary greatly from state to state and typically regulatory programs allow the regulators to determine remedial endpoints. Many environmental regulations require that “free-product” (i.e., measurable petroleum product in recovery/monitoring wells) be recovered to the maximum extent “practicable” (MEP), but fail to establish ways of quantifying the MEP. This ambiguity lends itself to prolonged remediation projects, with protracted operation and maintenance programs since the recovery end point is not clearly defined within the remedial approach, if it is even possible at all. Historically, the most popular metric to guide remediation of a LNAPL site was free-product thickness present in wells. Albeit intuitive, this metric has been proven to be poorly correlated with the volume and recoverability of the free-product in the subsurface (ITRC, 2009). A much more reliable metric to evaluate the remaining LNAPL recoverability of free-product – and thus, the risk to potential receptors – is LNAPL transmissivity. As more projects opt into advocating for the use of LNAPL transmissivity as a remediation performance metric at their sites, regulators are giving more credence to transmissivity as a measure to establish achievable endpoints for site remediation.

### **Industry Acceptance**

In recent years, this paradigm of cleaning up to the maximum extent practicable has started to shift as states begin to realize the benefits associated with evaluating the technical factors that control LNAPL mobility and recovery (Figure 1—page 76).

# Atlas of a Geologist's Brain



**Your Full Color  
Professional  
Business Card Ad  
could be right here,  
selling for you  
every day!**

**Just Call Volunteer Advertising Manager Dick Young  
at 973-335-2289 or email [RYoungNJ@aol.com](mailto:RYoungNJ@aol.com)**



"We look into the earth"

## PENNSYLVANIA DRILLING CO.

FOUNDATION TESTING	INCORPORATED 1900
MONITORING WELLS	
DAM DRILLING	281 ROUTE 30
ENVIRONMENTAL WORK	IMPERIAL, PA 15126
"PENNDRIILL" DRILLING SUPPLIES	PHONE 724-695-2400
MONITORING WELL SUPPLIES &	FAX 724-695-2455
MANUFACTURING	800-245-4420

[www.pennsylvaniadrillingco.com](http://www.pennsylvaniadrillingco.com)

### LITTLE AIPG THINGS YOU CAN DO

What's going on out there? Let your colleagues know what you are working on, your new position, or a new company.

*Simply e-mail a paragraph or more to [btufano@rouxinc.com](mailto:btufano@rouxinc.com)*

Become active in your section. Attend one of our meetings.

*For details, simply e-mail [geode78@verizon.net](mailto:geode78@verizon.net)*

Join our **Executive Committee**. We always have **openings for creative, committed Geologists who want to make a difference**, and not much is asked of your time. Think about putting it on your resume! *For more info, simply e-mail [geode78@verizon.net](mailto:geode78@verizon.net) or [jfrederick@louisberger.com](mailto:jfrederick@louisberger.com)*



# GET TO THE SOURCE... THE FIRST TIME!



**with Horizontal Remediation Wells**

#### **Some of the benefits:**

- No business interruption during installation
- Maximum exposure to contaminants
- Cost efficient
- Reduced maintenance equipment, and operations cost.

#### **And a few of the applications are:**

- Horizontal Air Sparging
- Horizontal Soil Vapor Extraction
- Horizontal Bio Remediation
- Horizontal Soil Sampling
- Chemical Oxidation
- And many more...

**DIRECTIONAL**  
Technologies, Inc  
*Horizontal Directional Drilling Services*

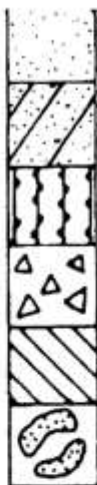
**203.294.9200**

[www.directionaltech.com](http://www.directionaltech.com) | Email: [ksequino@directionaltech.com](mailto:ksequino@directionaltech.com)

CARL VERNICK, P.E.  
President

## SOIL MECHANICS DRILLING CORP.

3770 MERRICK ROAD • SEAFORD, L.I., NEW YORK 11783  
(516) 221-2333



Test  
Borings

3770 Merrick Road  
Seaford, New York 11783  
Phone (516) 221 - 7500  
Fax (516) 221 - 0254

# SOIL MECHANICS

Environmental Site Assessments  
Geoprobe Environmental Sampling  
Inspection-Testing-Drilling

Carl Vernick P.E.  
President

*(LNAPL Tn continued from page 55)*

These new lines of thinking incorporate risk-based approaches, based on the evaluation of LNAPL recoverability through LNAPL transmissivity testing, to the assessment of LNAPL-impacted sites (ITRC, 2009). For instance, Michigan's Department of Environmental Quality implemented regulations determining a minimum LNAPL transmissivity of one-half square foot per day be required before LNAPL is considered no longer practicably recoverable (Michigan Department of Environmental Quality, 2014). Delaware has implemented regulations which determine the practicability of LNAPL management based on "mobile", "free," or "residual" determinations (Fischer, 2008). Texas has developed a five-step, risk-based management program for managing nonaqueous-phase liquids (NAPL) (TCEQ, 2008). Furthermore, according to the Interstate Technology and Regulatory Council (ITRC), sites in state regulatory programs in California, Kentucky, and Florida have been closed or granted "No Further Action" by demonstrating a lack of LNAPL recoverability using LNAPL transmissivity as a metric, regardless of observed in-well LNAPL thickness.

In order to apply a risk-based approach, it is necessary for consultants and regulators to have definitive metrics with which to measure the feasibility of LNAPL recoverability at a petroleum site. Theoretically, LNAPL present at or below residual saturation would have LNAPL transmissivity of zero.

*(LNAPL Tn continued on page 61)*

However, as a matter of practicality and technical feasibility, the ITRC suggests that, under ideal circumstances, hydraulic recovery systems can potentially reduce LNAPL transmissivity to between 0.1 and 0.8 ft<sup>2</sup>/day, and within this window the ambiguous “maximum extent practicable” goal is considered met. Consequently, some states have begun to edit existing regulatory frameworks to define realistic and achievable “maximum extent practicable” goals for LNAPL regulations incorporating risk-based proactive measures. Examples of these extent practicable objectives include recovery until a specific LNAPL saturation is reached or it becomes ineffective to continue removing LNAPL, or until the plume migration and movement has become static (ITRC, 2009).

### **Methods for Measuring LNAPL Transmissivity**

The governing body providing industry guidance for evaluating transmissivity is the American Standard for Testing Materials (ASTM). The industry commonly measures LNAPL transmissivity in several different ways, as outlined in the ASTM E2856-13 – *Standard Guide for Estimation of LNAPL Transmissivity* and summarized below:

*Recovery Well Evaluation* – includes the evaluation of recovery well operational data (e.g., volume of product recovered and volume of groundwater pumped) by applying the theory of radial flow through a porous media (ASTM, 2012; ITRC, 2009), to determine LNAPL transmissivity. Due to the continuous



# Field and Environmental Services





## Environmental laboratory solutions provided for your most demanding applications.

The 6th largest environmental testing laboratory in the United States and the largest privately family owned laboratory in the country with more than 50,000 square feet of state-of-the-art laboratory facilities offering:

-  Air
-  Sediment & Tissue
-  Forensic Petroleum
-  Regulatory Soil
-  Regulatory Water
-  Emerging Contaminants

For more information please contact us at 800-624-9220  
[info@alphalab.com](mailto:info@alphalab.com)  
[www.alphalab.com](http://www.alphalab.com)

Westborough, MA | Mansfield, MA | Brewer, ME | Portsmouth, NH  
Mahwah, NJ | Albany, NY | Buffalo, NY | Rochester, NY | Syracuse, NY | Holmes, PA

(Article continued from page 53)

Because the model works well for so many different types of rock, it appears to be a general model that can be applied to most situations, which can reveal new information about the origins of earthquakes. While researchers can't fully recreate the conditions of a fault, models such as this can help them extrapolate to higher pressures and temperatures to get a better understanding of what is happening as a fault builds toward an earthquake.

"The model can give physical meaning to observations that we usually cannot understand," Rattetz said. "It provides a lot of information about the physical mechanisms involved, like the energy required for different phase transitions."

"We still cannot predict earthquakes, but such studies are necessary steps we need to take in order to get there," said Veveakis. "And in theory, if we could interfere with a fault, we could track its composition and intervene before it becomes unstable. That's what we do with landslides. But, of course, fault lines are 20 miles underground, and we currently don't have the drilling capacity to go there."

Materials provided by Duke University. Original written by Ken Kingery. Note: Content may be edited for style and length .

Duke University. "'Melting rock' models predict mechanical origins of earthquakes: Friction drops as rocks slide past one another with greater speed." ScienceDaily. ScienceDaily, 17 January 2020. <[www.sciencedaily.com/releases/2020/01/200117080829.htm](http://www.sciencedaily.com/releases/2020/01/200117080829.htm)>.

(End)

# SB CHURCH

WELL & PUMP SERVICES SINCE 1886

49 Great Hill Road, Oxford, CT 06478

**203.888.2132**

[www.sbchurchco.com](http://www.sbchurchco.com)



**GEOD** CORPORATION

AERIAL PHOTOGRAMMETRY • LAND SURVEYING • SUE

***GEOD OFFERS YOU:***



*Photogrammetric Mapping • GIS Base Mapping*



*Subsurface Utility  
Mapping*



*Land & Engineering  
Surveying*



*Construction Surveys*



*Laser Scanning*

**24 Kanouse Road, Newfoundland, NJ 07435**  
**Telephone: 973-697-2122 ■ Fax: 973-838-6433**  
**Email: [marketing@geodcorp.com](mailto:marketing@geodcorp.com)**  
**Website: [www.geodcorp.com](http://www.geodcorp.com)**



***Specializing Exclusively in  
Land, Marine, and Borehole Geophysics***

**TECHNIQUES**

Ground Penetrating Radar  
Seismic Refraction/Reflection  
Magnetics  
Microgravity  
Electromagnetics  
Resistivity  
Electrical Imaging  
Spontaneous Potential  
Multibeam Sonar

Metal Detection  
Side Scan Sonar  
Hydrography  
Geoelectric Leak Detection  
Induced Polarization  
Sub-Bottom Profiling  
X-Ray Fluorescence  
Acoustic Leak Detection  
Borehole Logging and Imaging

**APPLICATIONS**

Rock Depth/Rippability Mapping  
UST / Drum Detection  
Utility Detection / Tracing  
Well/Water Supply Siting  
Fracture Detection  
Sinkhole Mapping  
Ordnance Detection  
Rebar and Cable Mapping  
Grave Detection  
Contaminant Plume Mapping  
Landfill Liner Leak Mapping  
Boring Location Clearance  
Subgrade Washout / Void Mapping  
Seafloor Mapping

Shipwreck Location  
Seismic Hazard Studies  
Hydrocarbon Detection  
Seismic Site Classification  
Bathymetric Surveys  
Well Characterization  
Well Construction Confirmation  
Bridge Pier Scour Detection  
Archeogeophysical Surveys  
Septic System Delineation  
Blast and Vibration Monitoring  
Detection of Foundation Elements  
Water Table Mapping  
Buried Landfill Detection

**7 REASONS TO USE ENVIROSCAN**

- Geophysics is our only product - so we really know what we're doing.
- We own all the gear for all techniques - so we use the right tools every time.
- Since we do only geophysics, we are not your competitor!
- We have 4 licensed PGs on-staff managing or reviewing every project.
- We provide fully electronic / digital / GPS-based mapping and reporting.
- We provide one-stop shopping for land, marine, and borehole geophysics.
- We are WBE - certified.



**717-396-8922**

1051 Columbia Avenue • Lancaster, PA 17603

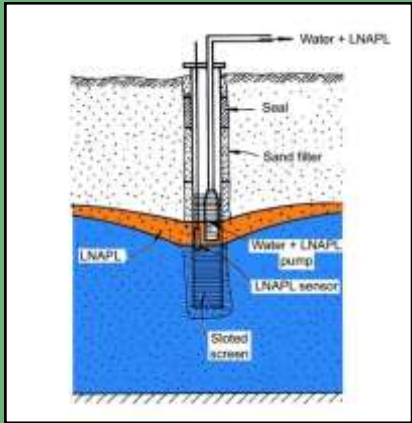
**www.enviroscan.com**



(LNAPL Tn continued from page 61)

collection of data that is often required as part of recovery system operation and maintenance, there is a robust data set generated that can be utilized to support the LNAPL transmissivity calculation. Furthermore, a well-defined conceptual site model is necessary to evaluate the parameters used in the equation. Transmissivity estimates derived from recovery well operational data represents the area of influence by pumping drawdown.

**Diagram of a  
dual-phase  
extraction well**



*Baildown Testing* – involves “instantaneously” displacing (i.e., bailing) a calculated volume of LNAPL from a monitoring well inducing a hydraulic head differential. Following LNAPL removal, the well is incrementally gauged to determine the amount of time it takes for the initial thickness of LNAPL to recover. LNAPL transmissivity can be calculated using LNAPL recovery data and the methods by Bouwer and Rice, Cooper and Jacob, or Cooper, Bredehoeft, and Papadopulos (Cooper and Jacob, 1946; Cooper, et. al 1967; Bouwer and Rice, 1976). Each of these methods, or a

(LNAPL Tn continued on page 70 )



**Layne**



**Resource Development  
and Maintenance**



**Water Treatment**

Layne Christensen's well-trained field crews and experienced staff work with clients to:

- Develop new water sources
- Rehabilitate existing wells, through either chemical or mechanical processes
- Provide pump service (new sales, repairs and installation)

Layne Christensen's professional engineers can assist in determining an appropriate treatment technology. We then fabricate systems scaled to each client's requirements.

**Experienced • Equipped • Committed**

*... Since 1882*

New England • (978) 937-2242

New York • (518) 295-8288

Long Island • (631) 218-0749

**Looking for Material  
for the Northeast  
Section Newsletter—  
We want you!**



**From the Editor**

There is plenty of room for growth in the Newsletter, and the digital/internet versions offer many opportunities to add value to your organization.

Thus, if you are interested, email Editor Brandon Tufano at [btufano@rouxinc.com](mailto:btufano@rouxinc.com) or Dick Young at [ryoungnj@aol.com](mailto:ryoungnj@aol.com).



50 Gear Ave  
Lindenhurst, NY 11757



Phone: (631) 979-2890  
Fax: (631) 979-2891  
Email: [locator@optonline.net](mailto:locator@optonline.net)  
Web: [www.x-raylocating.com](http://www.x-raylocating.com)

**We offer:**

- Line Locating
- Ground Penetrating Radar (GPR)
- Video Pipe Inspection (*DVD supplied*)
- Digital Mapping/Reports
- Fault Locating

Short notice? No problem.  
Call us and we'll work with you.

We work on commercial, residential, industrial and government properties

**We find buried:**

- Electric and Communication cables
- Water and Gas lines
- Sewer and Drainage pipes
- Metallic/Non-metallic pipes
- Tanks
- Cesspools/Drywells
- Manhole Covers
- Valves
- Pull-Boxes/Splice Boxes

Our employees are professional, courteous and accommodating

Visit our website  
[www.x-raylocating.com](http://www.x-raylocating.com)  
and fill out our  
Mark-out Request Form



**X-ray**  
Utility Locating Service  
(631) 979-2890  
[locator@optonline.net](mailto:locator@optonline.net)

combination of all three, can be applied using a program such as the Microsoft Excel based API LNAPL Transmissivity Workbook Tool (API, 2012). The baildown test is a versatile method for estimating LNAPL transmissivity given that it can be performed at any monitoring well with greater than approximately 0.5 feet of product thickness (ITRC, 2009). It is important to note that the transmissivity gathered from the baildown test represents a limited area surrounding the well and should not be applied to the surrounding aquifer without a strong conceptual site model that suggests homogeneity across the formation.

*Skimming Method* – involves the skimming of LNAPL from the groundwater surface in a well using a pump. Immediately following the removal of LNAPL the well is gauged until 25 percent of its original pre-skimming thickness returns. The well is then reskimmed and gauged in this manner until the recharge and removal come into equilibrium. This data is entered real-time into a spreadsheet that calculates transmissivity (provided by a third party or developed by the consultant) and the test is complete when two consecutive transmissivity values are within 25 percent of each other. This indicates that LNAPL removal has come into equilibrium with well recovery rate and transmissivity of the well is stable and representative of subsurface conditions. Like the baildown test the manual skimming test can be used on any well with LNAPL including wells with less than one-half foot of

apparent LNAPL thickness. The limiting factor for manual skimming is the viscosity of the LNAPL and its depth.

The transmissivity of deeply located or highly viscous LNAPL may prove troublesome through this method.

*Dye Tracer Testing* - includes placing a known concentration of fluorescent dye tracer into a well and monitoring its rate of dispersion into the surrounding media. The dye displacement is measured with an ultraviolet-visible (UV/VIS) spectrometer attached to a down-hole fiber optic cable. The rate at which the UV dye disperses is assumed to be proportional to LNAPL flow. Following the methods of Sale et al. (2007), Smith et al. (2011) and Mahler et al. (2012), an estimation of the LNAPL flow through a monitoring well can be determined. The long test duration, complicated nature of the observation equipment, and assumptions about subsurface conditions makes this a difficult test to conduct.

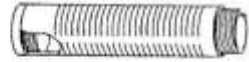
	Test Duration	Representative Area	Frequency of Method Transmissivity Value	LNAPL Type	LNAPL Thickness	Capital Cost*/ Analysis Cost
Recovery Well Evaluation	Until steady state conditions are met	Area	Continual time series	No limit	No Constraint	Low/Moderate
Builddown Test	Minutes to months	Point	Singular event	No limit	> 0.5 ft	Low to Moderate/ Moderate
Manual Skimming Test	Hours to weeks	Point	Singular event	High viscosity may be problematic	No Constraint	Low/Medium
Dye Tracer Test	3 - 6+ months	Point	Time-averaged over event duration	High viscosity may be problematic	< 0.2 ft	High/Low



**Atlantic  
Screen &  
Mfg., Inc.**

Manufacturers of Slotted & Perforated Pipe  
ranging from 1/2" to 24" in diameter

- Well Rehab. Products
- Manholes
- Bentonite
- Filter Sock
- Inline Chemical Mixers
- Sampling Bailers
- Clear PVC Pipe
- Locking Caps



**302-684-3197**  
FAX 302-684-0643  
142 Broadkill Rd. • Milton, DE 19968  
[www.atlantic-screen.com](http://www.atlantic-screen.com)  
email: [atlantic@ce.net](mailto:atlantic@ce.net)



**COMPLETE ENVIRONMENTAL TESTING, INC.**

Contact Robert Blake  
Technical Sales Representative

80 Lupes Drive  
Stratford, CT 06615

Tel (203) 377-9984  
Fax (203) 377-9952  
E-mail: [rblake@cetlabs.com](mailto:rblake@cetlabs.com)  
[www.cetlabs.com](http://www.cetlabs.com)

- Since 1886 -

## **SAMUEL STOFFHOFF CO., INC.**

**Flemington, NJ**

**WATER AND MONITORING WELL DRILLING  
ROTARY -AUGER-CORE-PROBE RIG  
DOWN HOLE VIDEO INSPECTION SERVICES  
HYDROFRACTURING & WELL REDEVELOPMENT  
7 PUMP SERVICE TRUCKS AND INVENTORY OF 400 PUMPS**

**Dick Stoffhoff  
FAX: 908-782-9528**

**David Lyman  
Phone: 908-782-2116**



[www.gmre.co/education.php](http://www.gmre.co/education.php)

## Online Continuing Education Courses for Geologists and Engineers



**Satisfy Your Continuing Education Requirements Easily and Inexpensively**

Course #1001

*Pyrite at Skytop: I-99 History and Geologic Setting*

Course #1002

*Pyrite at Skytop: Local Geology*

**Earn 4.0 PDH credits for each course**

**[www.gmre.co/education.php](http://www.gmre.co/education.php)**

Arnold G. Doden, Ph.D., P.G.  
Geologic Mapping and Resource Evaluation, Inc.  
925 W. College Ave., State College, PA 16801

Phone: 814.571.7716  
Email: [Arnold@gmre.co](mailto:Arnold@gmre.co)  
[www.gmre.co/education.php](http://www.gmre.co/education.php)

*(LNAPL Tn continued from page 71)*

**Table 1:** Advantages, limitations, and costs of various LNAPL transmissivity tests.

## Conclusion

Over the last several years, several states have begun to realize the impracticality of the ambiguous “maximum extent practicable” determination when remediating LNAPL-impacted sites. Instead, risk-based approaches backed by quantifiable goals better aid in the interpretation, evaluation, and remediation of these complex sites. LNAPL transmissivity metrics set forth by the ITRC in 2009 have allowed sites to come to closure as LNAPL transmissivity falls below 0.8 ft<sup>2</sup>/day, under the premise that the LNAPL at this transmissivity is practically immobile. As regulations surrounding LNAPL transmissivity evolve, it is important to continually evaluate site conditions and develop reliable methods for estimating LNAPL transmissivity. As consultants, we act as the bridge between regulatory bodies and our clients by understanding new regulations, their implementation,

*(LNAPL Tn continued on page 76)*



**Providing Critical Environmental Data on Properties Throughout the U.S.**

Envirosite's cost-effective government records database and historical property research solutions are used industry-wide for:

- Environmental Site Assessments (ESAs)
- Environmental Risk Management
- Phase 1 & 2 Reporting
- RSRA Desktop Reviews
- Due Diligence



*Our solutions provide near real-time data delivery. Receive the environmental information you need – when you need it.*

*Contact us at 866-211-2028 and reference our NEAIPG newsletter ad for a FREE TRIAL REPORT.*



## HOW DO YOU ACCESS DIFFUSION LIMITED PORE-SPACE?

With **COMPLETE CONTROL** of injection **DIRECTION**, **RADIUS**, and **VELOCITY**.

From the grounds of Space Launch Complex 15 at Cape Canaveral,

### **BADGER INJECTION SOLUTIONS, LLC**

is now servicing the Northeast with kinetically adjustable pore space dilation injection techniques to emplace your selected in-situ treatment amendment.

It's all about **CONTACT**, and the Badger Technology **DELIVERS**.

- **DAILY** injection volumes average 2,500 GALLONS with injection rates of up to 35 GALLONS PER MINUTE
- **TARGET SPECIFIC TREATMENT AREAS** using a selection of nozzle arrays (360°, 270° or 180°) with a **MINIMUM RADIUS OF 15-FEET**
- **VARIABLE INJECTION FLOW RATES** - essential in allowing amendments to diffuse into limited pore spaces



Environmental Assessment & Remediations is the certified BADGER technology provider for the Northeast.

Contact us **NOW** to coordinate your **INJECTION SERVICES** for 2016!

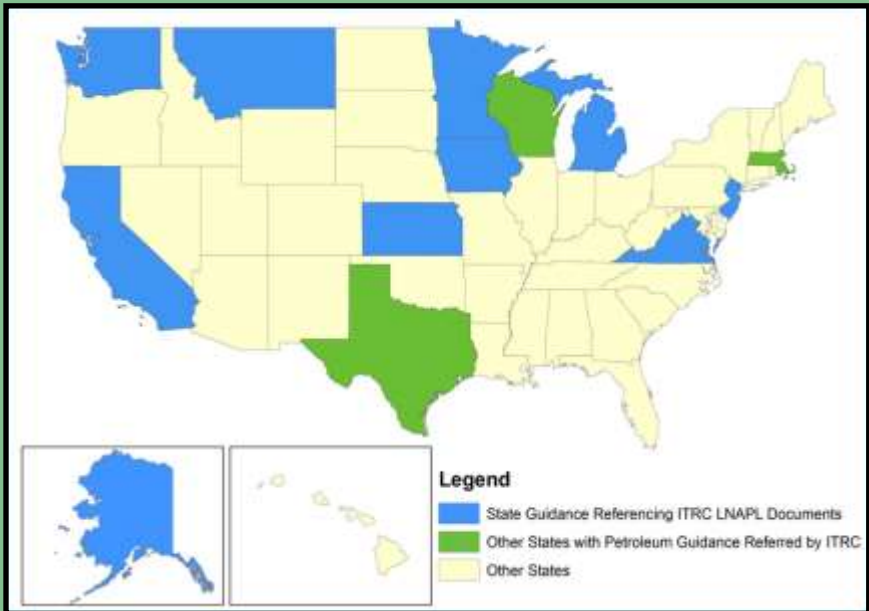
(631) 447-6400 ext 153

[allen@enviro-asmnt.com](mailto:allen@enviro-asmnt.com)

[badgerinjectionsolutions.com](http://badgerinjectionsolutions.com)



ENVIRONMENTAL  
ASSESSMENT &  
REMEDIATIONS



**Figure 1:** Regulatory map depicting states incorporating or referencing ITRC LNAPL documentation into guidance documents from ITRC 2009.

## References

- American Petroleum Institute Regulatory and Scientific Affairs Department, September 2012, API LNAPL Transmissivity Workbook: A Tool for Baildown Test Analysis, Washington, D.C.
- ASTM International, 2012. Standard Guide for Estimation of LNAPL Transmissivity. Designation: E2856
- Bouwer, H., and R. C. Rice (1976), A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, *Water Resour. Res.*, 12(3), 423–428, doi:10.1029/WR012i003p00423.
- Cooper, H. H., Jr., Bredehoeft, J. D., & Papadopoulos, I. S. (1967). Responses of a Finite-Diameter Well to an Instantaneous Change of Water. *Water Resources*, 3(1), 263-269.

- Cooper, H. H., Jr., and C. E. Jacob (1946), A generalized graphical method for evaluating formation constants and summarizing well-field history, *Eos Trans. AGU*, 27(4), 526–534, doi:10.1029/TR027i004p00526.
- Fischer, T. (2008). Changes to the Corrective Process. Retrieved from <http://www.dnrec.delaware.gov/tanks/Documents/Think%20Tank%20Archive/2008%20Spring.pdf>
- ITRC, 2009. Evaluating LNAPL Remedial Technologies for Achieving Project Goals.
- Locke, P. W. (2016, February 19). And Management (September 1, 2015) Massachusetts Department of Environmental Protection, Light Nonaqueous Phase Liquids (LNAPL) and the MCP: Guidance for Site Assessment and Closure, Policy #WSC-16-450. Retrieved October 31, 2017, from <http://www.mass.gov/eea/docs/dep/cleanup/lnaplfnl2-2016.pdf>
- Mahler, Nicholas, Tom Sale, Tim Smith , Mark Lyverse. 2012. Use of Single-Well Tracer Dilution Tests to Evaluate LNAPL Flux at Seven Field Sites. *Ground Water* 50, No. 6: 851-860
- Sale, Tom, Geoffrey Ryan Taylor, Gabriel Iltis, Mark Lyverse. 2007. Measurement of LNAPL Flow Using Single-Well Tracer Dilution Technique. *Ground Water* 45, No. 5: 569-578
- Smith, Tim, Tom Sale, Mark Lyverse. 2012. Measurement of LNAPL Flux Using Single-Well Intermittent Mixing Tracer Dilution Test. *Ground Water* 50, No. 6: 840-850
- Texas Commission on Environmental Quality. (2008). Risk-Based NAPL Management. Retrieved October 31, 2017, from [https://www.tceq.texas.gov/publications/rg/rg-366\\_trrp\\_32.html](https://www.tceq.texas.gov/publications/rg/rg-366_trrp_32.html)

(LNAPL Tn continued from page 77)

## Useful Links:

[API Workbook](#)

[ITRC LNAPL technical/Regulatory guidance](#)

[ASTM Standard Guide for Estimation of LNAPL Transmissivity](#)

[E-mail blast LNAPL Transmissivity: Lobbying the Regulators](#)

[Massachusetts Department of Environmental Protection, Light Nonaqueous Phase Liquids \(LNAPL\) and the MCP: Guidance for Site Assessment and Closure, Policy #WSC-16-450](#)

[Michigan Non-Aqueous Phase Liquid \(NAPL\) Characterization, Remediation, and Management for Petroleum Releases](#)

(End)



**EMPIRE GEO**  
**SERVICES, INC.**  
A SUBSIDIARY OF SJB SERVICES, INC.

*"Quality and Service - the way it used to be."*

- Subsurface Exploration
- Geotechnical Engineering
- Geotechnical Laboratory Testing
- Special Inspections
- Construction Materials Testing
- Environmental Services
- SWPPP Monitoring
- Storm Water Infiltration Testing
- Asbestos Abatement Monitoring



1.800.821.5911 • info@sjbegs.com • www.sjbegs.com

Offices in: Albany, Buffalo, Cortland, Jamestown and Rochester, NY

# A Look into the center of the Earth

The Earth's inner core is hot, under immense pressure and snow-capped, according to new research that could help scientists better understand forces that affect the entire planet.



Illustration of Earth's core (stock image; elements furnished by NASA).

Credit: © Vadimsadovski / Adobe Stock

The snow is made of tiny particles of iron -- much heavier than any snowflake on Earth's surface -- that fall from the molten outer core and pile on top of the inner core, creating piles up to 200 miles thick that cover the inner core.

The image may sound like an alien winter wonderland. But the scientists who led the research said it is akin to how rocks form inside volcanoes.

*(A Snowy Core continued on page 80)*

"The Earth's metallic core works like a magma chamber that we know better of in the crust," said Jung-Fu Lin, a professor in the Jackson School of Geosciences at The University of Texas at Austin and a co-author of the study.

The study is available online and will be published in the print edition of the journal *JGR Solid Earth* on December 23.

Youjun Zhang, an associate professor at Sichuan University in China, led the study. The other co-authors include Jackson School graduate student Peter Nelson and Nick Dygert, an assistant professor at the University of Tennessee, who conducted the research during a postdoctoral fellowship at the Jackson School.

The Earth's core can't be sampled, so scientists study it by recording and analyzing signals from seismic waves (a type of energy wave) as they pass through the Earth.

However, aberrations between recent seismic wave data and the values that would be expected based on the current model of the Earth's core have raised questions. The waves move more slowly than expected as they passed through the base of the outer core, and they move faster than expected when moving through the eastern hemisphere of the top inner core.

The study proposes the iron snow-capped core as an explanation for these aberrations. The scientist S.I. Braginskii proposed in the early 1960s that a slurry layer exists between the inner and outer core, but prevailing knowledge about heat and pressure conditions in the core environment quashed that theory. However, new data from experiments on core-like materials conducted by Zhang and pulled from more recent scientific literature found that crystallization was possible and that about 15% of the lowermost outer core could be made of iron-based crystals that eventually fall down the liquid outer core and settle on top of the solid inner core.

"It's sort of a bizarre thing to think about," Dygert said. "You have crystals within the outer core snowing down onto the inner core over a distance of several hundred kilometers."

The researchers point to the accumulated snow pack as the

cause of the seismic aberrations. The slurry-like composition slows the seismic waves. The variation in snow pile size -- thinner in the eastern hemisphere and thicker in the western -- explains the change in speed.

"The inner-core boundary is not a simple and smooth surface, which may affect the thermal conduction and the convections of the core," Zhang said.

The paper compares the snowing of iron particles with a process that happens inside magma chambers closer to the Earth's surface, which involves minerals crystalizing out of the melt and glomming together. In magma chambers, the compaction of the minerals creates what's known as "cumulate rock." In the Earth's core, the compaction of the iron contributes to the growth of the inner core and shrinking of the outer core.

And given the core's influence over phenomena that affects the entire planet, from generating its magnetic field to radiating the heat that drives the movement of tectonic plates, understanding more about its composition and behavior could help in understanding how these larger processes work.

Bruce Buffet, a geosciences professor at the University of California, Berkley who studies planet interiors and who was not involved in the study, said that the research confronts longstanding questions about the Earth's interior and could even help reveal more about how the Earth's core came to be.

"Relating the model predictions to the anomalous observations allows us to draw inferences about the possible compositions of the liquid core and maybe connect this information to the conditions that prevailed at the time the planet was formed," he said. "The starting condition is an important factor in Earth becoming the planet we know."

The research was funded by the National Natural Science Foundation of China, Fundamental Research Funds for the Central Universities, the Jackson School of Geosciences, the National Science Foundation and the Sloan Foundation.

*(End)*

## PIGGYBACKING: SERVICE EXPANDED FOR NE/AIPG ADVERTISERS!

The NE/AIPG Newsletter has again expanded its Piggybacking options offered to Advertisers. Advertisers can include promotional flyers or brochures along with NE/AIPG's normal distribution of the Newsletter.

Piggybacking gives NE/AIPG Advertisers a cost-effective way to get their promotional material into the hands of NE/AIPG's targeted audience of decision-makers. That audience has grown to over 800, including ~700 NE/AIPG Members and Applicants throughout New York, New Jersey, and the six New England states, as well as ~40± AIPG National and Section Officers, plus over 70 Advertisers, and others. NE/AIPG Members benefit from keeping current on available and innovative products and services.

**Piggyback Rates for digital issues** (see <http://issuu.com/neaipg/docs>):

1. A "Full Page" (~8" high by 5" wide) Space in Full Color costs \$125 per issue.
2. A "Double Full Page" (~8" high by 10" wide) Space in Full Color costs \$225 per issue.
3. A "Quad Full Page" (2 Doubles of ~8" high by 10" wide each) Space in Full Color costs \$425 per issue.

To schedule your Piggyback promotion, or to learn more, just call Dick Young at 973-335-2289 or e-mail [RYoungNJ@aol.com](mailto:RYoungNJ@aol.com).



**Geo-Environmental Site Investigation Services**

- Cone Penetrometer Testing • Piezo, Resistivity and Seismic Cones
- Ultra Violet Induced Fluorescence (UVIF) CPT, Natural Gamma (GCPT)
- Limited Access Drilling and Cone Penetration Testing
- Specialists in Overwater CPT Work
- Direct Push Geo-Environmental Soil Sampling
- Continuous Surface Wave Seismic Testing
- Groundwater and Vapor Sampling
- SPT Energy Calibration
- Customized Electronic Instrumentation
- Electric Piezometer Sales and Installation

**ConeTec serving the U.S. And Canada with offices in:**  
West 1-800-567-7969 • East 1-800-504-1116  
[www.conetec.com](http://www.conetec.com) • [insitu@conetec.com](mailto:insitu@conetec.com)

Vancouver, BC • Edmonton, AB • Salt Lake City, UT • West Berlin, NJ • Charles City, VA

# CRAFTSMANSHIP You Can Trust

*Put our 65+ years of Experience to the test*

## Services Offered

- Environmental
- Construction
- Alternative Energy
- Maintenance



Visit us online @  
[www.islandpumpandtank.com](http://www.islandpumpandtank.com)



# 1-800-458-PUMP

## Two Companies have Joined Forces!



ENVIRENT  
corporation

**Environmental  
RENTAL**

**FREE  
DELIVERY**  
on rental  
orders in  
North Jersey

- PID'S
- Water meters
- Dust meters
- Bailers and  
much more....

Now bigger and better  
with expanded capabilities  
for all your equipment needs  
while still providing the same  
great personal service you expect.

**10% OFF**  
your first rental  
with postcard

**(800) 446-8736 and (800) 219-7368**

[www.environmentalrental.com](http://www.environmentalrental.com)

[www.envirent.com](http://www.envirent.com)

# The Flatirons

By Brandon Tufano



For me, exposed tilted planer bedding has always held an inexplicable allure. By far not the most exciting geologic feature but none-the-less one that will draw me right in to marvel at the near perfect slanted sheets. Amongst the most famous of these are The Flatirons near Boulder, Colorado. The Flat Irons are a rock formation consisting of... you guessed it, flatirons. There are five prominent Flatirons ranging from north to south numbering First through Fifth, respectively along the east slope of Green Mountain (elevation of approximately 8,000 ft), and the term "The Flatirons" sometimes refers to these five alone. However, in addition to the five dominant flatirons numerous additional named flatirons protrude along the southern part of Green Mountain, Bear Peak, and among the surrounding foothills.

The Flatirons consist of conglomeratic sandstone of the Fountain Formation and their age is estimated at 290 to 296 million years old. It is estimated that The Flatirons were lifted and tilted into their present orientation between 35 and 80 million years ago, during the Laramide Orogeny. The Flatirons were subsequently exposed by erosion. What we are left with today is a simple yet marvelous expression of the very basics of geology. Next time you're in the area, do yourself a favor and talk a walk, you won't regret it.

# **NE/AIPG 2020 PUBLICATION SCHEDULE**

## **Winter Newsletter**

January 10	Deadline (Material to Editor)
January 24	Content to Publisher
February 10	E-mail to Members

## **Directory of Members**

February 10	Deadline (Material to Editor)
March 13	Content to Publisher
April 13	E-mail to Members

## **Spring Newsletter**

March 20	Deadline (Material to Editor)
April 3	Content to Publisher
April 20	E-mail to Members

## **Indian Summer Newsletter**

July 24	Deadline (Material to Editor)
August 14	Content to Publisher
September 1	E-mail to Members

## **Holiday Newsletter**

October 9	Deadline (Material to Editor)
October 23	Content to Publisher
November 9	E-mail to Members

**Please e-mail News, Info, & Articles  
to Brandon Tufano:**

**[btufano@rouxinc.com](mailto:btufano@rouxinc.com)**

**Cell 570.702.9992**

**For Advertising Rates & Info, Please Contact  
Dick Young:**

**[RYoungNJ@aol.com](mailto:RYoungNJ@aol.com)**

***cell 203.627.8085***

**ANGELO TAGLIACOZZO MEMORIAL  
GEOLOGICAL SCHOLARSHIP TRUST FUND  
LIST OF CONTRIBUTORS SINCE 1987**

**(All Contributors, Since Fund Inception Through October 2019)**

**FRIENDS OF THE FUND**  
**(\$1,000+)**

Aquifer Drilling & Testing, Inc.  
Banino, George  
Blauvelt, Robert P.  
Dimmick, Charles Wm.  
Kasabach, Haig F.  
Kraemer, Curtis A.  
Leggette, Brashears &  
Graham, Inc.  
McGrath, Dennis G.  
Northeast Section – AIPG  
Rexrode, H. Leonard, Jr.  
Roux Associates  
Roux, Paul H.  
Schiffman, Arnold  
Slayback, Russell G.  
Valkenburg, Nicholas  
Young, Richard H.

Burke, Michael R.  
Con-test Analytical  
Laboratory  
EcoRental  
Gavras, John M.  
Graff, Carol S.  
Harrington, Jonathan  
Kleiman, Amy  
Mahier, Luke  
Miller, David W.  
Neubeck, William S and  
Jean M.  
Nova Consulting &  
Engineering, LLC  
Patota, Jean M.  
PVE Sheffler  
Rich, Charles A.  
Richter, Dorothy  
Rosenfeld, Mordecai  
Soil Testing, Inc.  
Whitbeck, Luanne and Dean

**BENEFACTORS (\$500+)**

Cascade Drilling, Inc.  
Emerson, Mark  
FPM Remediations  
Frederick, Jeffrey  
Herrick, Dean H.  
Higgins, Jonathan B.  
(In Memory of Leo Hall)  
Kayler, Kyle  
McEachern, Michael  
Proce, Christopher  
Stone, Timothy S.

**PATRONS (\$250+)**

Airmag Surveys, Inc.  
Allen, Boyd III  
Alpha Analytical  
Anonymous  
Brinckerhoff, Laura  
(In Honor of  
Frank McCarthy)

**SPONSORS (\$125+)**

Alpha Geoscience  
Brown, Christopher  
Chamberlain, John Mark  
Climens, Robert H.  
DeAngelis, James  
Eggers, J.  
ERM – Northeast  
Fakundiny, Robert  
Graham, Jack B.  
Greenman, Michael  
Heindel, Craig and  
Chaves, Judith  
Hince, Eric  
Koch, Ellis  
Mathez, Muriel  
Pieriboni, John  
Prehoda, William P.  
Schechner, Claire and Louis  
Scheuing, Laurie  
Standish, Richard  
Stewart, Robert A.

*(Contributors continued on page 87)*

*(Contributors continued from page 86)*

Tsacoyannis, Nichol as  
Urban-Mead, Russel I B.  
Waste Management, Inc.  
(Matching Gift on Behal f of  
George Banino)

Waring, Andrew D.  
Wenz, Kenneth P.  
Werl e, Craig  
West, Wil I iam T.  
Wohl ford, Thomas

**CONTRIBUTORS (\$50+)**

**DONORS (Up To \$50)**

Arguden, A. Tefvik  
Barish, James M.  
Becker, Arthur E.  
Bel I , David L.  
Bel t, Edward S.  
Bugh, James  
Davis, R. Laurence  
Environmental Compl iance,  
Inc. (On Behal f of  
Joseph Torl ucci)  
Flick, Wil I iam  
Gal I agher, Evel yn A.  
Hanl on, Kerry  
Herman Karpel Memorial Fund  
(On Behal f of Friends of  
Rhoda Tagl iacozzo)  
Hnottavange-Tel I en, Ken  
Hoogerhyde, Kevin J.  
Housman, John J., Jr.  
Jonathan Paul Associates, Inc.  
Kaczor, Sofia  
Ketani, Ral ph  
Mase, David F.  
Masl ansky, Steven P.  
McEachern, Jessica  
Mozer, Robert  
Neubeck, Wil I iam S.  
Penn, Wil I iam E.  
Rice, John  
Rhyner, John  
Russo, Luigi  
Ryan, Michael J.  
Scott, David  
Shope, Steven  
Sil I man, Robert and Roberta  
Sparrow, Lesl ie  
Stokes, Kurtis W.  
StoneHil I Environmental , Inc.  
Tatl ock, Derek  
Timmons, Robert  
Torl ucci, Joseph  
Tyers, George

Babl in, Christopher  
Barbour, Richard and Rose  
Becker, Jennifer  
Bowes, James  
Bradl ey, Margaret  
Busa, Mark D.  
Cl ausen, Jay  
Cox, Peter  
Fal detta, Sarah  
St. Germain, Daniel J.  
Fournier, Leroy  
Fredrick, Wil I iam T  
Gannett Fl eming, Inc.  
Hager, Jutta  
Harwood, David G.  
Hergert, David  
Hixon, Richard A.  
King, Daniel  
Kowal ski, Richard G.  
Ross, Lauren and Shel l ey  
Sass, Daniel B.  
(In Honor of K. E. Caster)  
Shakti Consul tants  
Sinnot, Joseph  
Skehan, James  
Speidel , David  
Susca, Michael  
Vozza, Scott  
Wayl and, Russel I  
Weinstock, Eric  
Wheran Engineering

***Why Isn't Your Name  
On This List?  
Solve it!  
Simply see Pg. 89 and then***

**Move into Action!**

*(End)*

## **Celebrating 34 Years of Scholarships! The Angelo Tagliacozzo Memorial Geological Scholarship**

The Angelo Tagliacozzo Memorial Geological Scholarship was established by the Northeast Section of the American Institute of Professional Geologists in late 1986. The first Scholarships were presented to undergraduate Geology students in 1987.

ATMGS recognizes the dedicated leadership and service which Angelo provided to NE/AIPG, to AIPG, and to the geological profession, until his untimely passing on October 11, 1986. The Scholarship furthers Angelo's goal of acquainting young geologists with AIPG and with AIPG's importance to the geological profession.

### **ANGELO TAGLIACOZZO (1936 - 1986)**

Angelo Tagliacozzo received his doctorate in Geology from the University of Rome (Italy) in 1962. Thereafter, he worked in various positions as geologist, geophysicist, and hydrogeologist, which included assignments abroad, in the U.S., and with the United Nations. Angelo provided exemplary service to AIPG at the Section and National levels. He was a Northeast Section Executive Committee Member (1973-1982), Vice President (1977-1978), President (1979-1980), National Advisory Board Delegate (1981-1982), and Screening Board Chairman (1984-1986). Angelo's dedication to and leadership of the Northeast Section Screening Board has become the ultimate standard against which service in such a position is measured. Angelo also served as an AIPG National Executive Committeeman (1982); he was a vigorous advocate of measures to increase professionalism. Angelo was (and will be remembered as) a respected professional...and a friend.

### **THE SCHOLARSHIP**

NE/AIPG grants Scholarships to undergraduate geology students annually. The Scholarships are designed to help with the cost of summer field courses, textbooks, and other aspects of geological education. Scholarships are awarded, both on academic achievement and on financial need, to students enrolled in recognized geology programs at colleges or universities in New England, New Jersey, & New York.

### **YOUR CONTRIBUTIONS**

Your participation is encouraged in support of this dynamic memorial to Angelo and his recognition of the importance of AIPG to the geological profession. Contributions to the Scholarship Perpetual Trust Fund should be written to:

**Angelo Tagliacozzo Memorial Geological Scholarship Trust Fund**, and mailed to:

**NE/AIPG Geological Scholarship Trust Fund  
c/o Dennis McGrath, CPG  
P.O. Box 472  
Hastings-on-Hudson, NY 10706-0472**

*All Contributions* are invested perpetually, with earnings thereon used solely for the Scholarship. NE/AIPG bears all costs of administration. Please ask your employer about Matching your contribution, and Additional corporate contributions.

*For further information, contact Dennis McGrath:*  
[mcgrathdg@gmail.com](mailto:mcgrathdg@gmail.com) Cell: 914-424-8816

**Memorandum**

**To:** Dennis McGrath, Chairman, ATMG Scholarship, Northeast Section, AIPG

**From:**

**Date:**

**Re:** *I'm Taking the Pledge: **I'M IN FOR 2020!***

Dear Dennis,

Just a quick note to let you know that I'm 100% with you when it comes to achieving the Section's goal of 100% participation in support of the Scholarship Perpetual Trust Fund during 2020, the 34th Anniversary of the Scholarship! I agree with your encouragement that each and every Section Member make a contribution in accordance with their ability... and this is the one time when I don't want to be the odd person out!

***I'M IN FOR 2020!***

For 2020, the 34th Anniversary, I'm considering pledging... Thirty Bucks A Week, Thirty Bucks A Month, or Thirty Bucks for the Year!

Now, I know it could be more—and you know it could be less!—but I am committed to contributing as much as I can, so I'm not going to delay it any longer: ***I'M IN FOR 2020!***

Yes, my personal budget is tight, but I figure that, somehow, I can set aside \$30 each month (aka the cost of weekly lattes) this year to give back to the profession that has given me so much. Also, I just wanted to tell you I am delighted to know that every one of those hard-earned dollars that I contribute will be INVESTED in the Scholarship Perpetual Trust Fund, so my contribution today can keep on giving, year after year!

And that makes me feel like my contribution really means something, both now and in the long term! I have thought it over, and I know how important 100% participation is for Section pride! So, Dennis, ***I'M IN FOR 2020***

Professionally yours,

\_\_\_\_\_

*Times are really (GREAT / poor), so I am pledging:*

\_\_\_\_\_ 30 Bucks A Week (\$1560 for 2020)

\_\_\_\_\_ 30 Bucks A Month (\$360 for 2020)

\_\_\_\_\_ 30 Bucks A Year (\$30 for 2020)

Other: \_\_\_\_\_ (Every little bit is better than nothing!)

\_\_\_ I'll make it easy on you; I have enclosed my check, made out to "*Angelo Tagliacozzo Memorial Geological Scholarship Trust Fund.*"

\_\_\_ Please invoice me for my 2020 pledge by 10/31/20. I'll pay by 12/1/20.

Signed: \_\_\_\_\_

Name Printed: \_\_\_\_\_

Address: \_\_\_\_\_

*Mail this Pledge to: NE/AIPG Geological Scholarship Trust Fund, c/o Bob Blauvelt,  
345 Stuyvesant Ave Lyndhurst, NJ 07071*

- or -

*Email this Pledge to: NE/AIPG Geological Scholarship Trust Fund, c/o Bob Blauvelt  
blauvelt@geiconsultants.com*