



Lead Lines



Eastern Pennsylvania Chapter
International Society of Explosives Engineers
www.easternpaisee.com

Volume 24 Number 4

Fall 2017

The Eastern PA ISEE welcomes requests for topics, and invites readers' letters and other contributions that relate to drilling, blasting, seismology and explosives engineering.

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Eastern Pennsylvania Chapter Clay Shoot & BBQ

Friday, November 10, 2017

FREE for Members

\$30 for Non-Members

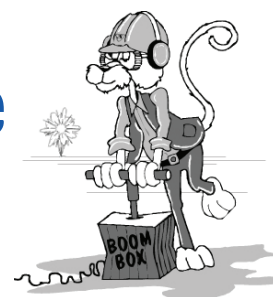
11:30am - 5:30pm

Lehigh Valley Sporting Clays
2750 Limestone St. Coplay PA 18037

The Eighteenth Pennsylvania Drilling and Blasting Conference

November 16 and 17, 2017

The Penn Stater Conference Center Hotel
State College, Pennsylvania



Register today!

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Letter from The President

Dear Chapter,

November is shaping up to be a busy month! On Friday, November 10th we will host a Clay Shoot and BBQ event. Originally this event was planned for August and we planned to charge participants \$50 per person to cover the event costs. However, thanks to the tremendous support from our sponsors, we were able to reschedule the shoot and make the event FREE for Chapter members and \$30 for Non-Members - basically covering the cost of the 2018 Membership. A win-win solution for everyone! The afternoon will include a BBQ lunch and some friendly competition on the course. If you haven't already registered, complete the form on page 4. It should be a great day!

The very next week we will all be together again for the Pennsylvania Drilling and Blasting Conference on Thursday, November 16th and 17th at The Penn Stater Conference Center Hotel in State College, PA. This event always draws industry leaders and is an event not to be missed! You can check out the conference website for additional details including exhibit space, registration and hotel rooms. Remember to stop by the Chapter booth!

Best regards,

Scott



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Eastern Pennsylvania Chapter Clay Shoot & BBQ

On Friday, November 10th the Eastern Pennsylvania Chapter will host its first Clay Shoot and BBQ. Join us at 11:30am for a BBQ lunch at the Lehigh Valley Sporting Clays course in Coplay, PA located at 2750 Limestone Street. The shoot will begin at 12:30pm with a mandatory safety class followed by a 1pm start.

Your registration includes a BBQ lunch, 8 station course with 50 rounds and a golf cart per team of 4. Ear protection is provided. You are encouraged to bring eye protection or purchase glasses for \$10.00. You can bring your own gun and ammo (7.5-9 lead shot only). Prizes will be awarded!

Thanks to our generous sponsors, the event is FREE for members. Non-members will be charged \$30 for a 2018 Chapter Membership.

Members can complete the registration form on page 4. Non-members will need to complete the registration form as well as the membership form on page 19 to sign up. Deadline to register is Friday, November 3, 2017.

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Eastern Pennsylvania Chapter Clay Shoot & BBQ



Friday, November 10, 2017

FREE for Members

\$30 for Non-Members

11:30am - 5:30pm

Lehigh Valley Sporting Clays

2750 Limestone St., Coplay, PA

Name_____

Company_____

Address_____

Phone_____ Fax_____

Email_____

Deadline to register is Friday, November 3, 2017

Your registration includes a BBQ lunch, 8 station course with 50 rounds and a golf cart per team of 4. Ear protection is provided. You are encouraged to bring eye protection or purchase glasses for \$10.00.

You can bring your own gun and ammo (7.5-9 lead shot only).

Prizes will be awarded!

The event is FREE for Members.

Non-Members will be charged \$30 for a 2018 Chapter Membership.

Non-members - please complete the membership form on page 19 and this registration form to sign-up.

Send to:

Eastern PA Chapter I.S.E.E.

Ethan Huff

c/o Vibra-Tech Engineers, Inc.

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Thank You to our Clay Shoot & BBQ Sponsors!

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The Eighteenth Pennsylvania Drilling and Blasting Conference

November 16 and 17, 2017

The Penn Stater Conference Center Hotel
State College, Pennsylvania

Conference Themes:

The conference is for underground and surface blasters, engineers, suppliers, and other professionals associated with drilling, blasting, and explosives. The conference will cover new products and equipment, recent developments in blasting practice, safety, improved fragmentation, vibration control, and changes in regulations.

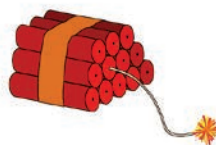


Registration is now open!

For more information, please visit the conference website at <http://www.outreach.psu.edu/blasting/>.

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In Memory of Joseph S. Colicchie



Joe was the son of Sara Fino (Sam) and Eleanor Colicchie. Adored husband of 35 years to Mona (Ritson) Colicchie; proud and loving father to Aubrey Bennett and husband, Mark, and Jared Colicchie and wife, Meredith; cherished “Pappy” of his only grandson, Mack Bennett, who was always a source of joy and sunshine; deceased is his sister, Anita Colicchie. He is also survived by his sisters, Bernadette Colicchie and Patricia MacPherson. Joe’s priority in life was always his family, and he shared his affection freely and unconditionally. He was selfless, and lived his life with both passion and purpose. His kind heart and amazing smile will forever be honored and celebrated by those who love him. An avid fisherman

and archery hunter, Joe loved the outdoors, but left this earth much too soon on July 2, 2017, after a full day of fishing with his lifelong friend.

Published in Pittsburgh Post-Gazette on July 6, 2017

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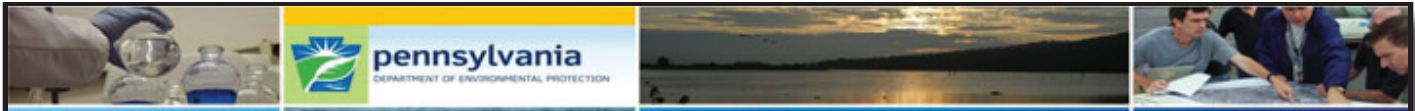
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Letter from The Chief

Dear Eastern PA ISEE Newsletter readers,

Good blasting records are critical in resolving damage complaints. Those records should be very detailed. They should describe, at a minimum, how each blast hole is loaded, burdens and spacings, stemming amounts and accurate locational information. Video recordings of blasts are very important and should be made available with the record. Additionally, including multiple seismograph monitoring reports obtained in different directions from the blast in a blast record is one of the most important elements of record keeping for resolving blasting damage complaints. DEP and Blasting Activity Permittees receive numerous blasting damage complaints every year. DEP resolves its blasting complaints by determining the vibration energy level that occurred at the structure that is alleged to have been damaged. It is impractical to conduct seismograph monitoring at every home near a blast site. However, if directional monitoring is conducted and a complaint comes from a homeowner in a direction where monitoring has been conducted, it is possible to accurately determine the highest vibration level that would have occurred at that home. In areas where homes surround the blast site it is beneficial to conduct seismograph monitoring in several different directions. If directional monitoring is not conducted, worst case predictions of vibration energy levels must be used to determine if blasting damages are possible. The outcome in those cases may not be as good for the Blasting Activity Permittee as they would be if directional monitoring was conducted. Please be careful and safe!

Rick



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“WHAT DOES IT TAKE?”

By Steven D. Sandbrook, CMSP & President, Eagle Mine Safety

The “Safety Process”, as it is sometimes referred, is not an exacting science due to the “Human Factor (HF)” variable. HF is the sole determining dynamic in whether or not hazards will be reported, risks will be chanced and/or corrective actions will be taken and to what extent. The worst possible condition is ambivalence towards the process on the part of management. People work within the system and management creates the system; therefore, if the system fails, look towards management for the flaw. Too often management “Reacts”

to unacceptable behaviors and conditions instead of “Acting”. Simply asking only some of the “who, what, where, when, why & how” questions in determining what went wrong is short sided and therefore, we must ask all of those questions (and in some instances, multiple times) in our efforts to determine the root cause of the at-risk behavior that led to the failure in the first place. While good intentions may prevail, execution of support for the process usually is lacking in form. By asking all of the questions, we are able to draw a reasonable sketch of what the attitudes are of the involved employee(s) and how it relates to their at-risk behavior(s).



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Training alone will not solve the problem of combating at-risk behavior. Training provides the fundamentals for specific tasks that one will use in the performance of an assigned duties. Managing behaviors is the basis for consistent application of the skills learned in training. By nurturing and expanding the HF element focused on behavior modification, you will be managing the outcomes of behavior rather than the behavior itself.

Continued on page 14



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“WHAT DOES IT TAKE?” Continued

To this, we must first understand some basic principles of managing behavior:

- 1.) Employees must understand the consequences of their actions in order to change their behavior.
- 2.) Appropriate behavior is influenced by the perceived importance of the behavior itself.
- 3.) Knowledge of behaviors (good or bad) and possible consequences of their actions helps the employee understand the importance of compliance.
- 4.) Expectations and consequences for behaviors (again, good or bad) establish acceptable performance criteria from which employees can draw from in their decision making process.
- 5.) Employee's attitudes about themselves and their organization also influence their decision making process.
- 6.) You cannot manage outcomes, only actions.
- 7.) The deepest principle in human nature is the need to be appreciated.
- 8.) Communication of expectations must be frequent and personal.
- 9.) Progressive behavior management efforts must be consistent at all levels.
- 10.) Sincerity cannot be faked, so you must be 100% committed to the cause.

With this process, it is imperative that all pride be set aside and we expand our ability to accept constructive criticisms for the good of the company. The preconceived notion that the employees “don't care” must be dismissed. These employees lack motivation due to a feeling of insignificance within the company structure and a fear of retribution should they question as to whether or not the system they work within is safe. We must be committed to inspiring the desire in each person we manage to commit to excellence with management consistently setting the example without fail.



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Bureau of Alcohol, Tobacco, Firearms and Explosives

ATF

News Release

Headquarters



Contact: Public Affairs Division
202-648-8500
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For Immediate Release
Tuesday, September 19, 2017

Guidance on Disaster Preparedness for Federal Firearms Licensees and Federal Explosives Licensees and Permittees

WASHINGTON, D.C. – The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) is committed to ensuring public safety by working directly and through partnerships to assist federal firearms licensees (FFL) and federal explosives licensees and permittees (FEL/FEP) in complying with federal laws and regulations.

The National Oceanic and Atmospheric Administration's (NOAA) National Hurricane Center has forecasted Hurricane Maria as a potentially catastrophic hurricane, affecting many islands in the Caribbean, including Puerto Rico and the U.S. Virgin Islands.

A disaster preparedness plan should be established by all FFLs and FEL/FEPs to safeguard their businesses by protecting explosives, firearms, and required records. If necessary, licensees and permittees should take precautionary steps by contacting their local ATF field offices regarding:

- the relocation of **explosives** magazines and records from business premises to a safe location; or
- the removal of **firearms and ammunition** inventory, ATF Forms 4473 and 3310.4; and acquisition and disposition records from business premises to a safe location.

For more information in preparation for potential disasters, such as hurricanes floods and tornados:

- **Explosives** licensees and permittees should refer to ATF Publication 5400.16.
- **Firearms** licensees should refer to ATF Publication 3317.7.

More information about ATF, including local office contact information, is available at www.atf.gov. You can also contact the ATF Firearms Theft Hotline at 888-930-9275/888-930-9275.

###

Field Division: Headquarters

Ramsey's



Riddles

The Journal of Explosives Engineering September/October 2017

by Brian Wingfield

Ramsey's Riddles is a new column paying tribute to ISEE's past president, Dale Ramsey. Dale passed away in 2016 and is sorely missed by the industry. His dedication to blaster training was evident throughout his 41-year career.

Ramsey's Riddles are brain-teasers for veteran blast technicians needing a refresher and apprentice blasting technicians for study before attempting blasting certifications.

Problems are based upon the assumption that participants have a basic knowledge of blasting calculations and formulas. Hints will be provided using the *18th Edition Blasters' Handbook*.

Any suggestions, comments, or riddle designs may be submitted to Brian Wingfield at wingfield@isee.org.

An apprentice blaster has approached you with his/her blast design for an upcoming blast. Review the design and answer the following questions.

- 1) What is the approximate loading density in lbs/ft or kg/m?
 - a) 0.87 lbs/ft or 1.29 kg/m
 - b) 2.73 lbs/ft or 4.06 kg/m
 - c) 1.30 lbs/ft or 1.93 kg/m
 - d) 4.06 lbs/ft or 6.04 kg/m

Hint: ISEE 18th Edition Blasters' Handbook - Page 371 - 372.

- 4) What is the approximate scaled distance value?
 - a) 40.6 (Imperial) or 18.2 (Metric)
 - b) 28.7 (Imperial) or 12.9 (Metric)
 - c) 20.3 (Imperial) or 9.1 (Metric)
 - d) 23.3 (Imperial) or 10.5 (Metric)

Hint: ISEE 18th Edition Blasters' Handbook - Page 565.

- 2) What is the approximate powder factor in lbs/yd³ or kg/m³?
 - a) 1.40 lbs/yd³ or 0.83 kg/m³
 - b) 0.85 lbs/yd³ or 1.41 kg/m³
 - c) 1.19 lbs/yd³ or 0.71 kg/m³
 - d) 1.27 lbs/yd³ or 0.75 kg/m³

Hint: ISEE 18th Edition Blasters' Handbook - Page 346.

- 5) What would be the estimated predicted ground vibration using the general industry vibration amplitude equation?
 - a) 1.04 in/sec or 26.41 mm/sec
 - b) 1.29 in/sec or 33.24 mm/sec
 - c) 0.74 in/sec or 19.10 mm/sec
 - d) 0.43 in/sec or 10.97 mm/sec

Hint: ISEE 18th Edition Blasters' Handbook - Page 567.

- 3) Approximately how many pounds or kilograms per delay? (SLP-17 - page 20 contains delay definition. www.ime.org/products/details/21)
 - a) 116.8 lbs/delay or 53.3 kg/delay
 - b) 38.5 lbs/delay or 17.8 kg/delay
 - c) 77.0 lbs/delay or 35.6 kg/delay
 - d) 154.0 lbs/delay or 71.1 kg/delay

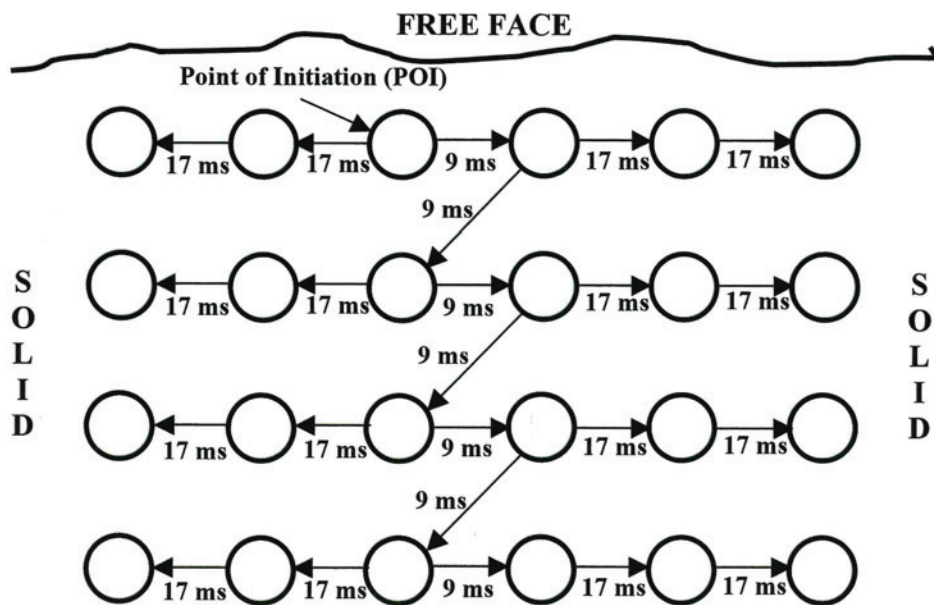
Hint: ISEE 18th Edition Blasters' Handbook - Page 575.

The answers to this riddle can be found on page 18.

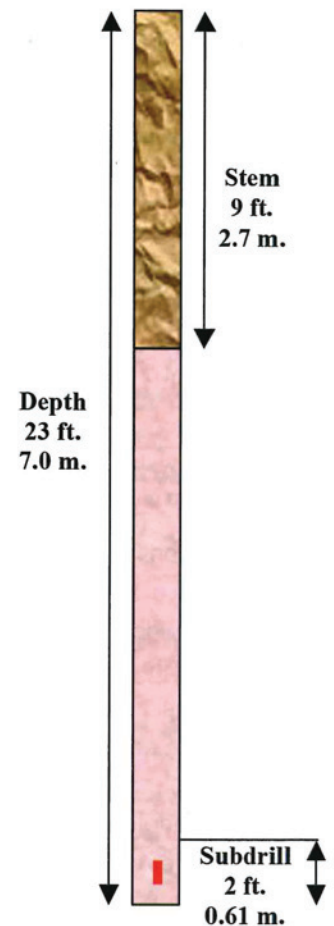
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Blasting Parameters	Imperial	Metric
Pattern	6 ft x 7 ft	1.83 m x 2.13 m
Explosives Density	0.82 g/cc	0.82 g/cc
1- Booster	¾ lb	341 grams
Downhole Non-electric Delay	500 ms	500 ms
Borehole Diameter	3 1/8 in	79.4 mm
Distance from Blast to Closest Structure	252 ft	76.83 m



The answers to this riddle can be found on page 18.



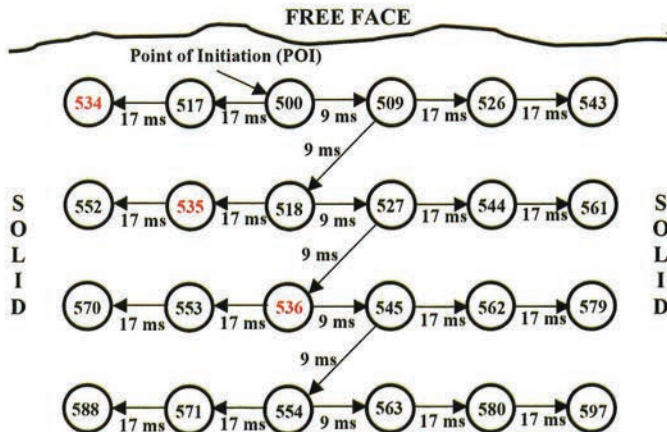
Not To Scale

Lead Lines



Ramsey's Riddles Answers

Continued from page 16 & 17.



1) What is the approximate loading density in lbs/ft or kg/m?

Imperial

$$\text{lbs/ft} = .3405 \times (3.125 \text{ in})^2 \times 0.82 \text{ g/cc}$$

$$\text{lbs/ft} = 2.73 \text{ lbs/ft.}$$

Metric

$$\text{kg/m} = .000785 \times (79.375 \text{ mm})^2 \times 0.82 \text{ g/cc}$$

$$\text{kg/m} = 4.06 \text{ kg/m}$$

Answer: b) 2.73 lbs/ft or 4.06 kg/m

2) What is the approximate powder factor in lbs/yd³ or kg/m³?

Imperial

$$1) \text{ lbs/hole} = \text{lbs/ft} \times (\text{Depth} - \text{Stem})$$

$$2) \text{ lbs/hole} = 2.73 \text{ lbs/ft.} \times (23 \text{ ft} - 9 \text{ ft}) = 38.17 \text{ lbs} + 0.75 \text{ lbs} = 38.92 \text{ lbs/hole}$$

$$3) \text{ Cubic yards/hole} = (S \times B \times (\text{Depth} - \text{Sub})) / 27$$

$$4) \text{ Cubic yards/hole} = (6 \text{ ft} \times 7 \text{ ft} (23 \text{ ft} - 2 \text{ ft})) / 27 = 32.67 \text{ yd}^3$$

$$\text{Imperial Powder factor} = 38.92 \text{ lbs} / 32.67 \text{ yd}^3 = 1.19 \text{ lbs/yd}^3$$

Metric

$$1) \text{ kg/hole} = \text{kg/m} \times (\text{Depth} - \text{Stem})$$

$$2) \text{ kg/hole} = 4.06 \text{ kg/m} \times (7.0 \text{ m} - 2.7 \text{ m}) = 17.44 \text{ kg} + 0.341 \text{ kg} = 17.78 \text{ kg/hole}$$

$$3) \text{ Cubic meters/hole} = (S \times B \times (\text{Depth} - \text{Sub}))$$

$$4) \text{ Cubic meters/hole} = (1.83 \text{ m} \times 2.13 \text{ m} \times (7.0 \text{ m} - .61 \text{ m})) = 24.91 \text{ m}^3$$

$$\text{Metric Powder factor} = 17.78 \text{ kg} / 24.91 \text{ m}^3 = 0.71 \text{ kg/m}^3$$

Answer: c) 1.19 lbs/yd³ or 0.71 kg/m³

3) Approximately how many pounds or kilograms per delay?

Imperial

$$\text{lbs/delay} = \text{lbs/hole} \times \text{holes/delay}$$

$$\text{lbs/delay} = 38.92 \text{ lbs/hole} \times 3 \text{ holes/delay} = 116.76 \text{ lbs/delay}$$

Metric

$$\text{kg/delay} = \text{kg/hole} \times \text{holes/delay}$$

$$\text{kg/delay} = 17.78 \text{ kg/hole} \times 3 \text{ holes/delay} = 53.34 \text{ kg/delay}$$

Answer: a) 116.8 lbs/delay or 53.3 kg/delay

4) What is the approximate scaled distance value?

Imperial

$$\text{Scaled Distance (SD)} = \text{Distance} / W^{0.5}$$

$$\text{SD} = 252 \text{ ft.} / 116.76^{0.5} = 23.32$$

Metric

$$\text{Scaled Distance (SD)} = \text{Distance} / W^{0.5}$$

$$\text{SD} = 76.83 \text{ m.} / 53.34^{0.5} = 10.52$$

Answer: d) 23.3 (Imperial) or 10.5 (Metric)

5) What would be the estimated predicted ground vibration using the general industry vibration amplitude equation?

Imperial

$$\text{Predicted PPV} = k \times (\text{SD})^{-1.6}$$

$$\text{Predicted PPV} = 160 \times (23.32)^{-1.6} = 1.04 \text{ inches/second}$$

Metric

$$\text{Predicted PPV} = k \times (\text{SD})^{-1.6}$$

$$\text{Predicted PPV} = 1,140 \times (10.52)^{-1.6} = 26.41 \text{ mm/sec}$$

Answer: a) 1.04 in/sec or 26.41 mm/sec

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