The NRRPT NEWS

OFFICIAL NEWSLETTER of the *National Registry of Radiation Protection Technologists*

March 2016 Edison

Incorporated April 12, 1976

Chairman's Message

Greetings fellow RRPTs !

As I begin my third year as Chairman of the NRRPT, I am excited about the opportunities that the Registry is undertaking to promote the science of Radiation Protection through student/classroom interface and expanding our efforts to increase the value of being a Registered Radiation Protection Technologist. The Board and Panel members had a "Brainstorming" session at our last meeting and a large part of that meeting was a discussion on how not only these committees can give back to the Registry, but what our Registered members can give to their communities, states and nation drawing on their knowledge and skills as Radiation Protection professionals.

First and foremost, the educational avenue to become a Radiation Protection professional through the completion of a two or four year degree is an area where we as professionals can have a tremendous impact. Take the time to reach out to those degree programs in your area and, if given a chance, take the time to meet those in the classrooms. These students have many good questions and someone, like you, currently practicing in the field can give them the honest answers that they are seeking. Also take the time to discuss the scholarships that the Registry has available for students as you will read about later in this newsletter.

Second, mentoring of those new technicians entering the field allows you to directly pass down your knowledge and skills that one can only learn through years of work in the Radiation Protection field. As the current work force ages and eventually retires, years of institutional knowledge that only you may have needs to be shared so others can learn and adapt that information to a technologically advancing profession. It brings me joy to share work experiences of my past 34 years in the field with those just starting their career and I have witnessed that "Operating Experience" being utilized to reduce radiological consequences in the work environment.

Finally, encourage those technicians beginning their careers in the field of Radiation Protection to make a difference by providing and demonstrating the best radiological protection practices. No matter how long you have been in the business, other radiation workers are watching your radiological practices since you are a professional. Also encourage those entering the field to pursue becoming a Registered Radiation Protection Technologist. Many employers see registration as a willingness to take the additional

Inside This Issue

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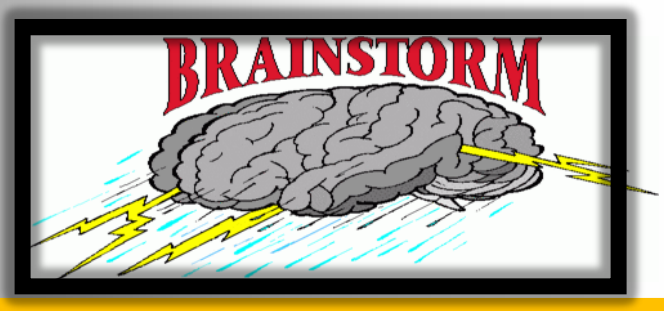
effort and initiative to study long hours and properly prepare themselves to pass the exam and become a proud member of the NRRPT.

The next Board and Panel meetings will be held in conjunction with the Health Physics Society Annual meeting July 15 – July 19 in Spokane, Washington. This will be a special meeting since it will be the 40th Anniversary since the inception of the Registry. Please remember that all members of the Registry are welcome at these meetings and encouraged to participate on the Panel of Examiners "Angoff" sessions. We hope to see you there!

Respectfully,
Eddie Benfield
NRRPT, Chairman of the Board



Kelly Neal leads the Strategic Planning (aka Brainstorm) meeting

NRRPT

Board of Directors Meeting

in

Austin, TX

January 2016

NRRPT

Panel of Examiners Meeting

in

Austin, TX

January 2016

If you'd like to join the Panel of Examiners please contact one of the following:

Exam Panel Chairman—Dave Wirkus—David.Wirkus@amwtp.inl.gov

Executive Secretary—DeeDee McNeill DeGrooth—nrrpt@nrrpt.org

Testing, testing…

By Todd Davidson

Welcome again to this recurring feature that sometimes gives example problems, sometimes gives test-taking strategies, and is always great fun. Note that the "great fun" is from the author's perspective. If you have great fun by reading this feature or by attempting to solve the problems, the author is gratified. It is certainly not expected.

From the last article that I presented of this feature, I stated that I felt very strongly about unit conversion and unit analysis. I also stated that there would be several upcoming articles about unit conversion.

With that in mind, let's get started with Unit Conversion, Episode 1.01: the Train-Track method.

This starts with simple unit conversion, namely we want to convert some value with a set of units that is presented in the premise, into some different value with a different set of units. This is a very standard problem in science, engineering, and even in regulatory review – particularly when the regulatory limits are presented in a specific set of units.

Given: *Your car is travelling at a constant speed of 3000 cm per second on a US interstate in one of many US states. Generally, a speed limit of 65 mph is applicable in most US states on most parts of US interstates – therefore we are using 65 mph as the legal speed limit in this problem. Is your car travelling faster than the legal speed limit?*

To set up this problem, we work the train-track from left to right, beginning with the given information. It is generally useful to place the desired end-point units at the far right.

$$\frac{3000\ \cancel{cm}}{1\ \cancel{s}} \left| \frac{1\ \cancel{ft}}{30.5\ \cancel{cm}} \right| \frac{1\ mi}{5280\ \cancel{Ft}} \left| \frac{60\ \cancel{s}}{1\ \cancel{m}} \right| \frac{60\ \cancel{m}}{1\ h} = 67.1\ \frac{mi}{h}$$

Note the following distinct features of the train-track method.

- It is known as the train-track because the symbol, if numerical values and units aren't included, looks like the symbol for train lines and train-tracks in many maps.
- Any value or unit above the horizontal line of the train-track is considered the numerator; any value or unit below the horizontal line of the train-track is considered the denominator.
- Any unit in the numerator of the train-track can be canceled with the same unit in the denominator of the train-track. This cancelation is integral to solving problems with the train-track method because it makes it obvious what the final units are. Note that in the above problem, the only unit not canceled in the numerator was "mi"; the only unit not canceled in the denominator was "h."
- Note the values and units in each of the "factor cells," which is another name for each of the bundles of information between two vertical lines. Each factor is equal to one. For example 1 ft = 30.48 cm, 60 s = 1 min, etc. This is particularly true when the train-track method is used for simple unit conversion. That means, no matter how many factor cells that are used in a unit conversion, the given information is only multiplied by one each time. In other words, the answer is identical to the original information, only with a different set of units because the process only multiplies by one each time.
- Continuing with the idea of using the factor cells, note that factor cells can be used with the unit and value combination in either the numerator or the denominator, dependent upon how the known information and the final results needs to be presented.

Continued on next page

Bio on Our New Panel Member—Michelle Kovach, RRPT

Michelle Kovach—Michelle has been working in the radiological controls industry for 27 years, and has been a Radiological Engineer for 17 years. She became RRPT registered in 1994. She has worked as a technician, supervisor, manager, and engineer at Hanford, Rocky Flats, and Idaho. Her experience is mutli-faceted working at DOE facilities specializing in D&D, remediation, and research. Michelle currently works at Idaho National Laboratory supporting the Analytical Laboratory and Radiochemistry Laboratory. Michelle is active in Science, Technology, Engineering and Math (STEM) education, focusing on young women in the 8th grade and above. She promotes radiological protection and education at local elementary schools and adult training facilities. Michelle has a degree in Radiation Protection from Eastern Idaho Technical College and has completed the majority of her business degree at City University in Bellevue, WA. Michelle is a single mother who enjoys watching her daughter perform competitive cheerleading. She also enjoys golfing, yard work and snow machining.

2016 NRRPT Sustaining Dues

It's not too late to submit your 2016 sustaining dues and be included in the 2016 Handbook! If you haven't paid yet, please submit to the Executive Secretary's office as soon as possible!

Continued from previous page

So, as a solution to the premise – yes, your car is travelling faster than the legal limit. No judgement here…

Now, let's use the train-track method to solve a similar problem.

Given: *A neutron is traveling at a speed of 7.9E+5 furlong/fortnight. Can this neutron be considered to be a thermal neutron? Hint: A thermal neutron can generally be considered to be travelling at a speed of 2.2 km/s.*

While you're waiting for the next installment of this feature, feel free to contact me with types of problems you'd like to see, or with any comments on the problems and solutions. You may contact me by any of the following email addresses.

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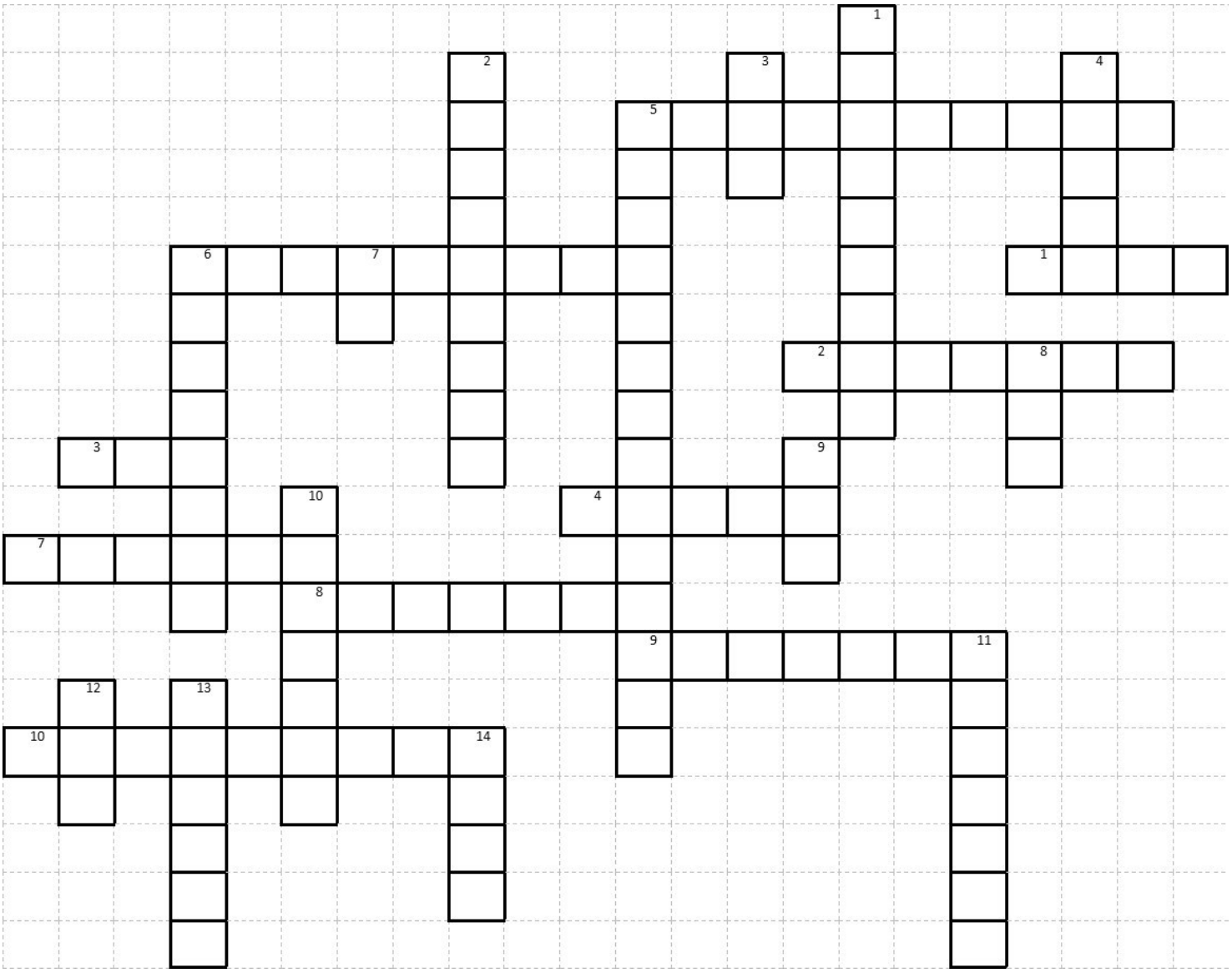
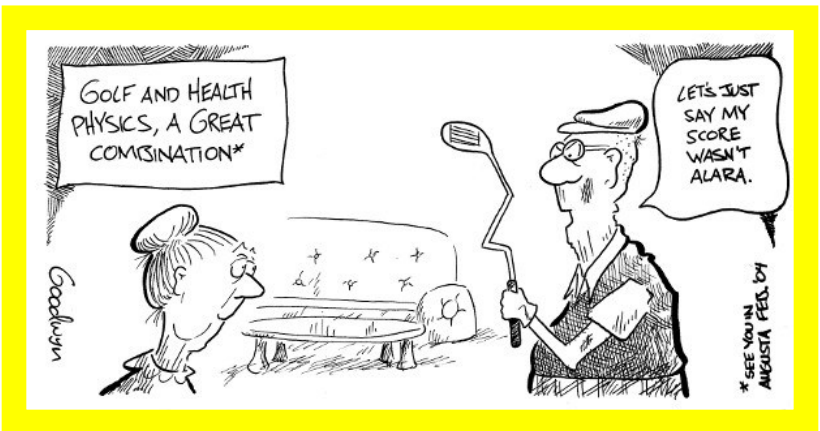
By the way, I hope you have great fun solving this problem.

Rad Crossword Puzzle

Solution on Page 11





Rad Crossword Puzzle

Across

1 A filter that removes more than 99.97% of 0.3-micron diameter particles is called a ____ filter
2 Skyshine is the result of _____ scatter effects when shielding is not placed above the source
3 The smallest concentration of radioactive material in a sample that will yield a net count rate just exceeding 2 standard deviations
4 With the "beta-shield" open an ion chamber will detect only beta particles, True or False
5 Radioiodine in the thyroid has a 120 day _____ half-life
6 The "D" in CANDU stand for _____
7 MARSSIM has _____ basic steps in its process
8 A neutron survey instrument with a spherical moderator is typically called a _____
9 Only Plutonium and ____ have isotopes considered fissile
10 SI equivalent for the Curie (Activity)

Down

1 Geiger tubes typically ____ ____ (two words) be used for field measurements of beta fields
2 Mixed waste has both radiological and _____ characteristics
3 The best beta shielding will be made with a ____ Z material closest to the source
4 The _____ Isolation Pilot Plant (WIPP) is located near Carlsbad New Mexico
5 Slowing beta radiation often produces _____ radiation
6 Exposure protection is _____ proportional to the time spent in the field
7 A Tenth Value Layer (TVL) reduces the exposure rate _____ one tenth.
8 Clearance of internally deposited radioactivity involves ____ totally independent and separate processes
9 Neutrons emitted from a fission reaction range from 0 up to about 10 ____
10 MARSSIM guideline values for residual activity are called _____ Concentration Guideline Levels (DCGLs)
11 the Multi-Agency Radiation Survey and Site Investigation Manual
12 The precursor to both the DOE and NRC was the _____
13 Exposure protection is inversely proportional to the _____ of the distance from the radiation source

Thank you Don Krause for the **NRRPT** Rad Crossword Puzzle!!

NRRPT Annual Meeting

The 2016 **NRRPT** Board and Panel annual meetings will be in conjunction with the HPS Annual meeting in Spokane, WA. The **NRRPT** Board meeting is Saturday, July 16 and Tuesday, July 19. The **NRRPT** Panel meeting is Sunday July 17 and Monday July 18. All **NRRPT** members are welcome to attend!

NRRPT
Night-Out in Austin, TX

An enjoyable night-out at the famous Salt Lick BBQ with the Board & Panel members and family & friends.

*** Our generous NRRPT Night-Out sponsors ***

Left to right:

John Arrowsmith (Frham Safety Products), Ken Baugh (B&B Environmental Safety), Eddie Benfield (Duke Energy) and Todd Davidson (Envirachem)

Board & Panel members enjoying a good ol' fashion barbeque at the Salt Lick BBQ in Driftwood, TX!

Bio on Our New Panel Member—Pete Darnell, RRPT, CHP

Professional: Registered Radiation Protection Technologist and Certified Health Physicist with over thirty years interdisciplinary experience in radiation program management, radiological assessment, exposure assessment, and personnel safety. Expertise in the assessment of radiation exposure hazards, radiation safety program management, and interpretation of regulatory guidelines, rules, and standards. Currently serving as a National Institute for Occupational Safety and Health (NIOSH) Health Physicist conducting dose reconstructions and providing technical review for the Division of Compensation Analysis and Support (DCAS). Involved with radiological emergency response with special emphasis on homeland security.

Professional Associations:

- NRRPT Panel of Examiners
- Homeland Security Section Board of Directors
- Cincinnati Radiation Society Board of Directors
- Health Physics Society – Intersociety Relations Committee Liaison

Personal: Generally a great guy and commonly acknowledged to be brainy and good looking; this ex-Navy nuke has progressed enough to be registered as a Radiation Protection Technologist and even be certifiable – as a Health Physicist, not a nut. Progressing from the Navy to health physicist was a tortuous path taking over 30 years through various power plants, universities and the Department of Energy until his triumphant arrival at the National Institute for Occupational Safety and Health. Though it is rarely mentioned, Pete excelled in radiation exposure hazards assessment, program management and regulatory therapy; only to wind up conducting dose reconstructions and providing technical reviews. His third love, behind his wife Candy (and the kids too – sometimes), is radiological emergency response with special emphasis on homeland security. His second love remains a mystery to his peers. Professionally, Pete remains busy with NIOSH and working with NRRPT Panel of Examiners, the Homeland Security Section Board of Directors, the Cincinnati Radiation Society Board of Directors and the Health Physics Society – Intersociety Relations Committee as a Liaison.

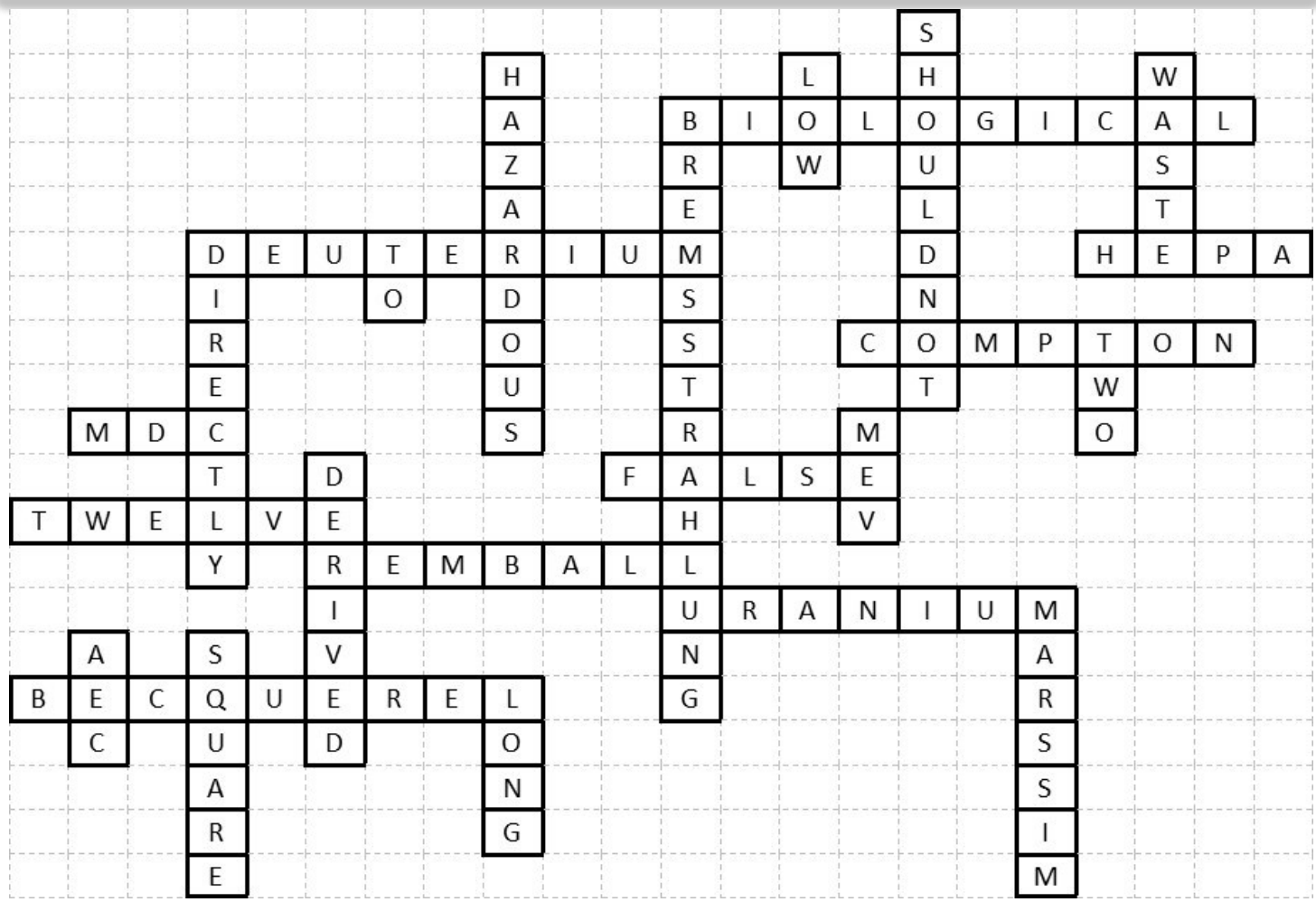
Editor's note: The comment about Pete being " commonly acknowledged to be brainy and good looking..." is very subjective and HAS NOT been scientifically nor statistically determined.

2016 NRRPT Officers and Exam Panel Chairman

Left to right: Dave Tucker, Vice-Chairman of the Board, Eddie Benfield, Chairman of the Board, Terry LaFreniere, Secretary/Treasurer of the Board and Dave Wirkus, Exam Panel Chairman

Rad Crossword Puzzle

Solution

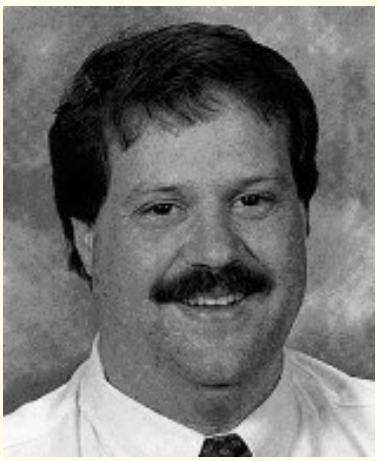


NRRPT Board and Panel members work the exhibit booth at the HPS Mid-Year Meeting in Austin, TX

Left to right:

Ed Lohr, Kelly Neal, Eddie Benfield, Mark Bayless, Michelle Kovach and Todd Davidson

The Passing of Our Dear Friend David ("Dave") Kent



Dave Kent, photo from NRRPT Newsletter, Spring 2000

Dave was born on June 22, 1962 and passed away November 2, 2015. Like most of you, I got to know Dave through the "world" of Radiation Protection, specifically the National Registry of Radiation Protection Technologists (NRRPT) Organization where he was a great Leader, Friend and Colleague, and I know I speak for the entire Health Physics community when I say how very much he will be missed.

Dave was the Chairman of the NRRPT Board of Directors when I joined in 2000, and was also honored with the NRRPT Fellow Member Award which exhibit his leadership and dedication towards promoting and advancing the science of Health Physics. Some of my fondest memories of Dave are that he always had a big smile on his face and was always willing to offer a helping hand or words of encouragement; he was truly a selfless person that strived to build the character of others.

Dave was a U.S. Navy Veteran, with 32 years of Nuclear Safety related experience including 23 years at U.S. Department of Energy Sites including Fernald, Portsmouth, and Paducah. Dave's unique leadership style allowed him to keep workers safe while having a calming influence in critical and high profile operations.

"Legacy" is a very over-used word these days; it seems that everyone and everything has to have one – but with Dave, it's true; he has left behind a very real legacy, which will positively impact the field of Radiation Protection and Health Physics for years to come. On a personal level, every one of us who knew Dave and worked alongside him will remember him with great affection. When all is said and done, however much you like your work, it's the people that you meet in it that really matter and colleagues like Dave are something very special; you don't come across many of them and when you do, they leave a lasting impression. Dave, we're really going to miss you.

Our deepest sympathy and condolences are with Dave's family and best friend and beautiful wife Beckie.

Memorial contributions may be made to the American Cancer Society 1121 Kinney's Lane Portsmouth Ohio 45662.

Kelli Gallion
Past Chairman of the Board

A note from Dave Wirkus (NRRPT Board of Director):

Dave Kent is the reason for my membership and association with the NRRPT. I found myself as a Rad Con Technician at the MOUND plant in Ohio where Dave was a senior ISIH Manager. We struck up a friendship and he

asked if I was interested in becoming NRRPT registered. At the time I did not even know what that stood for as my background was all in the Navy Program. I quickly got the information and with Dave's support and encouragement I started my long association with this great organization. I always appreciated Dave's easy going style of management, he made you want to do better and follow his example. He will be greatly missed, he has had a personal impact on my life for the better.

RIP Dave Kent you will me greatly missed.

A note from DeeDee McNeill DeGrooth (NRRPT Executive Secretary):

Dave Kent began his term on the NRRPT Panel of Examiners in 1992. He was then elected to the Board of Directors in 1996. When Dave became Chairman of the Board in 1999, he brought honor and dignity to the NRRPT organization. He was Chairman of the Board when the NRRPT began its Sponsorship program. This program continues to be instrumental in sustaining the NRRPT organization still today.

Along with his leadership and technical abilities, I loved his writing skills. He had an incredible way of putting words on paper. When he was Chairman, I'd tell him I needed the Chairman's Message for the NRRPT quarterly newsletter, the next day it was on my desk and perfectly written. If you needed an articles written or edited, Dave was your guy!

I never saw him happier than when he met, fell in love, and married the love of his life Beckie. My sincere condolences go out to her and their families.

Thank you Dave, for your friendship to me and loyalty to the NRRPT organization.

Student Scholarship Awards are on the Rise

The **NRRPT**, under the Cabrera Scholarship Awards program, awarded eighteen student scholarships in 2015. The increase in awards was due in part to the outreach efforts of several **NRRPT** members (thanks to Eddie Benfield, Terry LaFreniere, and Dave Wirkus). They visited several colleges and made presentations highlighting the **NRRPT**, the Associate membership category, and the opportunity for scholarship funds. This activity was associated with the Academic Expansion & Out Reach committee initiatives.

If you are interested or know someone who is interested in furthering their career in the radiation protection field through education, please visit the **NRRPT** webpage (nrrpt.org) under the Forms heading and download a student scholarship application. Also, if someone you know is interested in the radiation protection field and would like to be an Associate member of the **NRRPT**, the application is located on the same webpage. Associate members receive the **NRRPT** newsletter electronically and can attend all the **NRRPT** meetings. There is a onetime fee of $10 for the Associate membership.

Questions and comments on the **NRRPT** Awards Committee may be sent to nrrpt@nrrpt.org.

Some of our NRRPT sponsors at the HPS Mid-Year Meeting in Austin, TX

Thanks! we appreciate you!

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SCE is committed to a safe and timely decommissioning of the San Onofre nuclear plant that protects the environment and our customers' economic interests. SCE established a set of guiding principles focused on safety, stewardship and engagement that will guide the successful decommissioning of SONGS and can make San Onofre a model for the industry.

SONGS is proud of its' continued dedication of registered RRPT members that are represented in various organizations across the station.

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