# NRRPT® NEWS

National Registry of Radiation Protection Technologists

Fall 2013 Edition

Incorporated April 12, 1976


## INSIDE THIS ISSUE



## Chairman's Message

Kelly Neal

Greetings fellow RRPTs!

We held our summer meeting in July in Madison, Wisconsin in conjunction with the annual meeting of the Health Physics Society. We were fortunate that the meeting was well attended by our Board and Panel members. As our Board and Panel members are all volunteers, I would like to offer my continued thanks to all of them for their support of the Registry. I would be remiss if I did not also offer my thanks to the employers of these members who in many cases sponsor their travel and attendance at these meetings.

Board member, past Exam Panel Chair and recent Arthur F. Humm, Jr. Award recipient Karen Barcal (Congratulations, Karen!) recently represented the NRRPT at a workshop sponsored by the National Council on Radiation Protection and Measurements (NCRP) titled "National Crisis: Where are the Radiation Professionals?" Participants included national societies, universities, industry, as well as representatives from many government departments and agencies. The participants gave presentations and attended workshops to provide and share information to assist the NCRP in its development of a summary report.

As many of you are aware, we are members of an overall aging workforce in a time when many of the previous avenues of entry to our profession either no longer exist or are greatly reduced. While new programs have come online during the last few years we likely do not

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have sufficient people in the pipeline to continue being able to support our respective industries at current levels. As such, we all need to continue our support of these programs.

Lastly, I would like to recognize two recent NRRPT award recipients. Dr. Dan Gollnick was the recipient of the Charles D. (Bama) McKnight Memorial Award and Karen Barcal received the Arthur F. Humm, Jr. Award. Please join me in thanking them for their outstanding contributions to the NRRPT. Congratuations!

Respectfully,
Kelly Neal
NRRPT, Chairman of the Board

# Welcome New Members

Congratulations to the following individuals who successfully passed the NRRPT examination on February 23, 2013:

Shoaib Ahmed
Amy L. Anaya
Kara N. Beharry
Nicholas M. Berliner
Allison L. Burnette
Petronilo Bustamante
Kenneth L. Clark
Michael W. Culp
Matthew E. Cushman
David J. Dolan
Russell E. Dorian
Michael T. Ellingsworth
Nathan R. Everetts
George A. Field
Justin T. Fox
Regina R. Fuchs
Matthew D. Grypp
Phillip C. Gulledge
Elbert S. Hairston
Anthony M. Harnish
Adam G. Hartberger
Nathan G. Hogue
Tara J. Jones
Terrence J. Klopcic
Donald R. Krause
Stephen J. Mathes
Eric J. Mikowski
James J. Mikowski
Keith S. Miles
Christopher J. Mitchell
Jeffery K. Morgan
Dean B. Morris
Sangho Nam
Celeste C. Peterson
Brian J. Rogers
Ernest L. Scott
Kevin H. Siebert
Christina L. Tabor
Greta I. Toncheva
Kevin R. Tschaenn
Melvin J. Weatherly
Rob M. Wielang
Fintan P. Woods

New Members: If you do not have access to the "Members Only" portion of the website, please contact the Executive Secretary (nrrpt@nrrpt.org). Your email address must be on file in order for you to gain access.

## 2014 USA NRRPT Exam Date

**February 22 , 2014 -** Deadline for application: Dec 31, 2013

**August 9, 2014 -** Deadline for application: Jun 13, 2014

# Four Part Harmony

(Part 1)

by Dave Biela

Over the next few editions of the NRRPT Newsletter I will be highlighting the open air demolition of the Cement Solidification System (CSS) and the Vitrification Facility Ex-Cell Off-Gas (NOx abatement equipment) System building (01-14 for short) at the West Valley Demonstration Project (WVDP).

## HISTORY

The 01-14 building was a four story concrete building built in 1971 to house Nuclear Fuel Services, Inc. (NFS) Iodine recovery process which was never put into service.

Starting in the 1980's, the 01-14 building was modified to house the Cement Solidification System (CSS) and the Vitrification Facility Ex-Cell Off-Gas (NOx abatement equipment) System. During 1988 to 1995, the CSS received radioactive uranyl nitrate and Low-Level Waste Treatment System (LWTS) evaporator concentrates and stabilized them in cement. The waste was piped into the 01-14 building and staged in the 500-gallon Waste Dispensing Vessel (WDV) located in the 14 Cell (or Waste Dispensing Cell). The 14 Cell was approximately 14 feet by 12 feet by 23 feet to 46 feet high. The waste was then pumped to the adjacent Process Cell (approximately 38 feet by 14 feet by 17 feet high) to one of two high speed mixers where it was mixed with dry cement and poured into 71-gallon square

steel drums. Drum handling equipment in the Process Cell remotely sealed and surveyed the drums and transferred them to the Drum Loadout Area from which they were moved out of the building, to the Drum Cell for storage. The WDV was flushed and emptied in 1995.

In 2004, several non-radioactive vessels were removed from the 14 Cell. The Vitrification Facility Off-Gas Treatment System consists of two parts; the off-gas treatment equipment located in the Vitrification Facility (In-Cell) and the subsequent treatment equipment located in the 01-14 building (Ex-Cell). Preliminary treatment (e.g., scrubbing, mist eliminator, condenser, and high-efficiency particulate air (HEPA) filters) of the off-gas was initially performed in the Vitrification Facility. The Ex-Cell Off-Gas System located in the 01-14 building was located in the building's 01 Cell (approximately 14 feet by 8 feet to 14 feet wide by 44 feet high). The Ex-Cell System, as covered herein, previously treated pre-treated vitrification off-gas by further removing radioactive particulate and destroying NOx. The system also provided the motive force to maintain the Vitrification equipment at a slight vacuum compared to the Vitrification Cell ambient pressure for purposes of contamination control. The Vitrification equipment was in radioactive operations from 1996 to 2002.

As of May 1, 2004, portions of the 01-14 building were retrofitted to facilitate the treatment of sodium-bearing waste water (SBW). Generally, the treatment of the SBW involved the piping of SBW from Tanks 5D-15A/-15B in the Uranium Product Cell (UPC) to the 01-14 building. The SBW was fed from tanks in the UPC directly to approximately 600 gallon liners where the waste solidification agents (e.g., cement) were added and the waste stabilized within the liners. The liners were then removed from the facility and placed in storage.

In 2011 D&D activities began to isolate and/or remove radioactive equipment from the 01-14 building in preparation for open air demolition. The radioactive equipment left behind will be identified in future articles along with resuspension calculations and the demolition of the facility.

## 2014 NRRPT Sustaining Dues

The dues notice will be mailed soon. You may also go online and pay through PayPal.

## NRRPT Exam Panel Positions Available

If you're interested in joining the NRRPT Panel of Examiners, please contact Exam Panel Chairman, Rick Rasmussen at rickras@lanl.gov

# Dr. Dan Gollnick
# Recipient of the Charles D. (Bama) McKnight Memorial Award
### by Kelli Gallion

In January 2005, the Charles D. (Bama) McKnight Memorial Award was established in honor of "Bama" because of his significant contributions to the NRRPT. "Bama" was one of the Registry's great Pioneers as well as an exceptional Instructor/Teacher, one that you never forgot. "Bama" had the gift of making the technically difficult understandable and enjoyable.

This award is presented to persons who have given outstanding efforts in the radiation protection training field leading to increased knowledge and professionalism among Radiation Protection Technologists. Without any hesitation this is one of our highest awards we can bestow any individual.

On March 10th, 2013 I had the honor and privilege to present Dr. Daniel Gollnick with the Charles D. (Bama) McKnight award.

The award ceremony took place at his home in Alta Dena, Ca., in the company of his wonderful family including his wife, daughter, and 2 grandchildren. In addition were myself and my son; it was a real family affair! Following the presentation, we celebrated with cake, but the best part was all of us sitting together in his home office where he operates his Pacific Radiation Corporation business and listened while he shared some of his more memorable stories during his years spent in the field of Radiation Protection.

As if having the privilege of presenting Dr.Gollnick with his award wasn't enough, Dr.Gollnick presented ME with a personalized, autographed copy of his 6th edition of "Basic Radiation Protection Technology" book, thanking me for my contributions to the field of Radiation Protection!!! "WOW!!" I think it goes without saying how much it meant to me to receive such a meaningful gift from Dr. Gollnick.

Receiving the personalized book, getting to see his home office where he has spent years dedicating his time to improve and advance the field of Radiation Protection, and to present him his award with our families present was a memory that I will never forget. Thank you Dr. Gollnick to you and your family for welcoming us into your home and making this such a memorable experience!

After the award presentation, Dr.Gollnick decided to sit down and share how he got started in the nuclear industry which resulted in the excellent article titled "Recollections of Days Past". It literally gave me chills reading it!! I am confident that you will all enjoy reading it just as much as I did. Dr.Gollnick's vivid description of his "recollections" truly demonstrates his dedication, passion and many years of support to not only the NRRPT, but the entire nuclear industry. I know that every RP technician out there (past, present, and future) will enjoy and appreciate this article.

On behalf of the Registry, we are sincerely grateful and appreciative of Dr.Gollnick for his outstanding efforts and contributions that have led to increased knowledge and professionalism amongst our Radiation Protection Technologists; and for taking the time to write and share his "Recollections of Days Past".

# Photos of Dr. Daniel Gollnick Receiving the Charles D. (Bama) McKnight Memorial Award


Kelli Gallion presents the Charles D. (Bama) McKnight Award to Dr. Dan Gollnick


Dr. Dan Gollnick and family


Dr. Dan Gollnick and wife Laurie


Congratulations Dr. Gollnick!


Dr. Dan Gollnick presents Kelli with his 6th edition of "Basic Radiation Protection Technology" book

# Recollections of Days Past

## by Daniel Gollnick

It was the summer of '64. We were driving from the midwest to Southern California. Across the Great Plains, over the mountains and then southwest into California, the car radio blasting out the Beatles ("A Hard Days Night") and the Beach Boys ("I Get Around") latest hits. All our worldly possessions were tightly packed on a 8 foot long rooftop carrier secured to the top of our Chevy station wagon. Our family pet, a black woolly spider monkey, occupied the back half of the car. I had accepted my first full-time teaching position with the Physics Department faculty of California State University Los Angeles. Science was booming! The russian launch of Sputnik in '57 opened the doors to the Space Race. Money flowed into science and technology. Cal State LA had just relocated from temporary quarters in downtown Los Angeles to a brand new campus under construction at the eastern city limits of LA. The Physics Department doubled in size that year. It then doubled again in the next 2 - 3 years. My first assignment was to construct and operate a 14 MeV neutron generator for teaching and research purposes.

Moving back a bit in time to 1959, I enrolled at Michigan State University majoring in Physics. I was very fortunate to be accepted as a Student Assistant by the campus Nuclear Physics group. I kept this position through graduation with a B.S. in Physics and a Masters in Experimental Nuclear Physics. I had two primary duties. First, I was responsible for daily recalibration and tune-up of the Department's brand new Multi Channel Analyzer. It was one of the world's first commercial units, manufactured by Radiation Control Labs in Chicago. It featured an unprecedented 256 channels! It occupied two 19" electronics racks and stood over six feet tall, about the size of a Porta Potty. The innards included 160 glass vacuum tubes. (Solid State devices powered by transistors were still in the future.) Every Monday I had to unplug each of the tubes, one by one, check them in a "tube tester," and replace them after discarding the many which had failed.

My second area of work was in radiation safety. Following a few weeks on the job training, I was a Radiation Protection Technologist! There was no NRRPT to say otherwise. Duties included processing rad waste, collecting and distributing film badges, contamination checks of the work areas and the occasional dose rate monitoring when handling neutron activated samples removed from a nearby swimming pool research reactor. The research group was focused on measuring the nuclear properties, e.g., half-life, of rare radioisotopes of some of the rare earth elements. For me, this was the start of a 52 year career in radiation protection.

Another fortunate event occurred at Michigan State. Through campus activities, I met my future wife, Laurie. We were married in Michigan in 1961. We celebrated our 51st wedding anniversary in 2012.

Settled in California, my radiation safety experiences in Michigan came in handy. The Campus Radiation Safety Officer was a fellow professor in the Physics Department. As the campus grew, so did that job description. I was soon helping out with the RSO duties. In 1968 I took over the Campus RSO job as part of my faculty duties when the previous RSO left Cal State for another position. I continued as Cal State's RSO until 1983.

1972 saw my establishment of the Bachelor's Degree Option in Radiological Health Physics, within Cal State's Physics Department. It was one of the first of its kind in U.S. universities. I utilized courses from the departments of Physics, Chemistry, Math and Biology to prepare students for careers in health physics and in medical physics. The core course covered topics from the Prep Guide for the ABHP Certification Exam. It included two afternoons a week of hands-on lab experiments and also required students to complete an internship at a local research reactor or hospital medical physics department. Many students went on to successful life-long positions in the field.

In 1974, I was contacted by the Nuclear Training Center at Rockwell International. This in-house organization wanted to expand into the commercial market by offering courses held at their under-utilized instructional facilities in Canoga Park, CA. I soon signed up to spearhead recruitment of instructors for an American Board of Health Physics review class for their Certification exams. We decided to closely follow the outline provided by the American Board, and the topics were fit into a two week, Monday - Friday schedule. Rockwell was willing to organize my assigned presentations around my teaching schedule at Cal State. The first classes were held in February of 1975. (This was also the year that I joined the ranks of the Certified Health Physicists.) I taught 8 of the topics in the first Rockwell class. The response of the health physics community was very good, so these HP Certification Review classes were offered three times a year until 1983. As the classes continued, the number of instructors was gradually reduced to only two of us. I eventually taught the complete 2 week course numerous times by myself through my consulting company, Pacific Radiation Corporation, formed in 1973.

The National Registry of Radiation Protection Technologists® was incorporated in 1976. (Coincidently, this was the year that I earned my Ph.D. in Radiological Physics from U.C.L.A.) Registry qualifications included the requirement to pass a national examination over the requisite topics. For the first time, a national body of experts was able to clearly define the subject areas and specific material that constituted the field of radiation protection technology. This made it feasible for commercial trainers to organize review classes for the annual Registry examinations. I approached Rockwell International and they agreed that this seemed a viable new entry for their nuclear training schedule. I immediately put together a series of 15 talks that covered the material as specified in the Exam Prep Guide published by the NRRPT®. I offered the first live course through Rockwell International in May of 1977. This may have been the first ever NRRPT® exam review course in the commercial sector. The fifteen topics were taught in a 40 hour format of three topics per day for 5 days Monday through Friday. Over the next years, I personally taught this course live to a total of 660 potential RRPTs. These classes were conducted at numerous sites in Canada as well as across the US.

After teaching the course several times, it occurred to me that it would be useful to have a "home study" version available commercially for students who, for whatever reason, would not find it convenient to fly to sunny Southern California to attend the class. I contacted Don Marshall, the first NRRPT® Chairman. Don, who was employed at the Idaho National Engineering Lab at the time, offered immediate enthusiasm for my project. In discussions over the course of several months we settled on the format of tape recorded lectures for each of the fifteen topics, a Study Guide with worked out problems for each topic, 15 lesson exams with multiple choice questions (equivalent to one NRRPT® exam), some supplemental reading books (including a math refresher, the Moe Technician Training manual and my published lab manual Experimental Radiological Health Physics) plus a final exam that the student sent to Rockwell for grading.

The Registry Board established a committee to evaluate the Home Study project. Norman Sunderland at the University of Missouri Radiation Safety Office was appointed to Chair the process. I proceeded to record the lectures, and prepare the Study Guide and exams. These were sent off to the Committee. At some point, they requested written transcripts for the recorded tapes, and these were also supplied. The materials were circulated from member to member of the Committee. Each added comments and critiques of the written content as well as elaborated on areas they felt were deficient or had been left out. Comments were forwarded to me and I revised the course as suggestions came in. This process took many months. At some point, it became clear that we needed a different approach to reach a final product. (One committee member would expand a particular topic but the same topic would be shortened by the next!) The NRRPT® Board settled on assigning Norm Sunderland the task of reaching final agreement on the topical contents with my concurrence. This was accomplished in August of 1979 and the revised course was submitted to the Board for final approval. The Board acted in December of 1979 stating that the Registry formally took action to "recognize the revised edition of the Rockwell course as a viable refresher course for radiation protection technologists." They also stated that "To our knowledge, this is the only home study course of its type available on the market today." Finally, the

Board made it clear that this process of approval of courses was so onerous and time consuming that they did not want to have to go through it again. Thus, the Gollnick course has the distinction of being the only one ever recognized by the NRRPT®! Without the tremendous expenditure of time and effort from both Don Marshall and Norm Sunderland, as well as the evaluation committee members, this project would never have seen the light of day. Many, many thanks to all of you!

During 1980, I accepted an appointment from the U.N. International Atomic Energy Agency to serve for 6 months in Argentina as one of their International Experts in Health Physics. I moved our family to San Carlos de Bariloche, near the Chilean border, where I helped establish the first graduate school level program in nuclear radiation protection in South America. Our families' experience living abroad certainly helped us to better understand the idea of "global citizens."

The field of radiation protection technology is not static - improvements and changes come along regularly. To reflect this, a second, updated edition of the Rockwell course was released in 1980. As time passed, feedback from the Rockwell Home Study students began to come in. Technicians preparing for the NRRPT® exam found the course extremely useful to their prep efforts. However, regarding future improvements to make the course even more useful, a consensus emerged rather quickly. Students wanted a "real textbook" on the subject. After some consideration, I decided to take on the challenge of this big project. I approached the folks at Rockwell for sponsorship. Although the personnel involved in the course operations were enthusiastic and supportive, the head of the Rockwell Nuclear Training Center refused my request. In his view, there wasn't a big enough market to justify
the costs.

Thinking time again! I finally concluded that the field definitely needed a comprehensive, all inclusive textbook written from the perspective of the technologist and pegged at a math level appropriate to the subject. At that same time, I was in negotiations with the training department at the San Onofre Nuclear Generating Station regarding setting up a program at Cal State LA whereby technicians completing rad protection training courses taught by the plant, as part of the technician's normal duties, could receive formal college credits for that work. (The program was approved and a significant number of plant technologists were helped along their path to a college degree by taking advantage of the transferable college credits issued by Cal State L.A.) Finally, I had begun to receive inquiries from organizations that were interested in having me conduct live, on-site RPT classes. All these factors converged in late 1982. I severed my relationship with Rockwell International, dropped my full-time faculty status at Cal State down to part-time, and spent 6 months writing the first edition of Basic Radiation Protection Technology.

Having had experience with large publishing firms around my experimental manual, I also took this opportunity to break with tradition and "self publish." I replaced my trusty IBM Selectric typewriter with a "newfangled computer thingy," an Apple IIe with a dot matrix printer! Lo and behold, I was a book publisher. The first printing was produced in March 1983. (That is when I discovered one of the advantages of the big publishing houses - an editorial staff. My first printing was released with the word Radiation misspelled on the cover as Radiaton! My mother caught it, suggesting kindly that the spelling looked a "little odd.") Pacific Radiation Corporation was up and running full bore.

Looking back from 2013, its been quite a ride! Tens of thousands of Basic RPT books have been sold all over the world. Six different updated editions have been published, all with the book title spelled correctly on the cover! The page count has climbed from 446 pages in the first edition to 903 pages in the current sixth. The Pacific Radiation Corp. version of a Self Study Course for NRRPT® exam preparation was first released in 1984 (and it included the textbook!) That course has been updated with each new book edition. The Rockwell course faded into history. Over the years, Pacific Radiation Corp. moved decisively into applied health physics. We became one of the major players in California in decontamination and decommissioning services as well as in the training services area. Course offerings were expanded to address nuclear terrorism and first responder/nuclear hazmat audiences.

Continued on page 15

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Recently I was honored and surprised to learn that the NRRPT® Board of Directors chose me to join the short list of recipients of the Charles D. (Bama) McKnight Memorial Award. I want to thank the Board for selecting me and both DeeDee McNeill DeGrooth and Kelli Gallion for their efforts to successfully organize and carry out the presentation. (Thanks also to Shane Gallion for volunteering his photography skills.) I am proud to have been of assistance to the Registry over the years in regards to technologist training. I have many fond memories of working with NRRPT® Board members and staff, particularly in the early days of Registry operations.

*NRRPT® NEWS*
c/o Dwaine Brown
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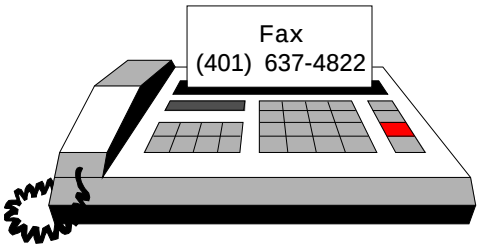


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