United States Public Health Service

MACHINATORES VITAE

Engineer and Architect Newsletter

INSIDE THIS ISSUE:

From the Chief Engineer Officer

Sven E. Rodenbeck, Sc.D., P.E., BCEE
Rear Admiral, US Public Health Service
Assistant Surgeon General

May 2010

"May you live in interesting times."

This ancient Chinese blessing captures the spirit of the current environment that we find ourselves in. These are very interesting times. The *Patient Protection and Affordable Care Act of 2010* has changed how the US Public Health Service (PHS) Commissioned Corps will operate. There will no longer be a cap on the number of Regular Corps Officers on active duty. In addition, all Reserve Corps Officers on active duty when the law was enacted will be converted to Regular commissions. Effectively the old Reserve Corps has been eliminated and replaced by a Ready Reserve component; which will provide the Corps with a more robust and easily activated backup to our active duty cadre.

Such sweeping changes do cause temporary hiccups. Before our current active duty Reserve Corps Officers can be converted to the Regular Corps, we need to change our Regular Corps commissioning standards. If we were to continue to use the current Regular Corps commissioning standards, all active duty engineers would need to have a graduate degree or professional registration. Therefore, you should anticipate seeing new Regular Corps commissioning standards to be released soon that only requires Regular Corps Officers to possess an engineering degree from a program accredited by the Accreditation Board for Engineering and Technology.

(Continued on page 2)

In fact you will see quite a few new/revised PHS Commissioned Corps regulations and policies being released in the near future. The vast majority of these regulations and policies need to occur so we can effectively implement the new authorities we have been given by the *Patient Protection and Affordable Care Act of 2010*.

12th PHS Chief Engineer Goals

Reflect upon our past accomplishments as we prepare for our 100th Anniversary as a category;
Renew our efforts to recruit even more engineers and architects and advance the engineering and architectural sciences; and
Respond to the ever changing health needs of our country.

But these are not the only changes that are happening. At the 2010 USPHS Scientific and Training Symposium, the new PHS Associate Recruiter Program will be unveiled. This new program will be more focused and better reflect the needs of the Corps. To assure that engineer recruitment efforts dovetail into the new PHS Associate Recruiter Program, our Recruitment and Retention Subcommittee (RRS), Engineer Professional Advisory Committee (EPAC), has been hard at work developing a robust engineer recruitment program. You should expect to hear more about engineer recruitment over the next couple of months.

The Corps will be implementing a new billet system (position description). Yes, I know I have been indicating that the new billet system would be forthcoming shortly for a number of months now. Unfortunately, there have been some minor hiccups with the initial roll-out of the new billets for the Nurse and Therapist Categories. But those have been resolved and you should anticipate getting e-mails to begin developing your new Engineer Category specific billets in June or July. If your current position can be filled by other health professionals, then you will develop your new billet a few months later when the new multi-discipline billets are developed.

This October we will use a new job performance evaluation tool (Commissioned Officer Effectiveness Report – COER). Because of scoring inflation and some outdated performance measures, the old COER does not lend itself to identifying areas for improvement or the difference between an exceptional officer and a very good officer. Preliminary testing of the new COER indicates that the new instrument may help to overcome these shortcomings. The new COER also has fewer but more focused rating questions; which addresses the other major complaint regarding the old COER (i.e., too many questions and some questions are not related to job performance). Additional information about the new COER can be found at: http://dcp.psc.gov/COER_resources_2010.aspx

Yes, these are interesting times and there are a lot of changes taking place at the same time. But I firmly believe that all of these changes will result in significant improvements to our Commissioned Corps and greater opportunities for us.

(Continued on page 3)

In fact, all of these changes fit neatly into my second goal as your Chief Engineer - *Renewing*. We are renewing not only how the Commissioned Corps operates but how engineers and architects will be utilized; which means these are the best of times to be involved with the EPAC and its Subcommittee. As my primary advisory group, EPAC is intimately involved with these efforts. I look forward to having strong representation of engineers and architects (Commissioned and Civil Service) involved in EPAC and its subcommittees.

Only by sharing our collected knowledge and ideas will we be able to continue to protect, promote, and advance the health of our nation.

Machinatores Vitae!!
(Engineering for Life)

To get involved with EPAC activities, feel free to contact any of the following EPAC members.

	Point of Contact	**Agency**	**e-mail**
EPAC Chair	CDR Hilda Scharen	FDA	Hilda.Scharen@fda.hhs.gov
Subcommittee			
Awards	LCDR Varsha Savalia	FDA	Varsha.Savalia@fda.hhs.gov
Rules	CDR Peter Nachod	IHS	Peter.Nachod@ihs.gov
Public Health Engineering Practices	CDR Mike MarcAurele	IHS	mmarcaur@anthc.org
Career Development	LCDR Vivian Porter	IHS	Vivian.Porter@ihs.gov
Deployment Preparedness	CDR Ed Dieser	CDC	edieser@cdc.gov
Information	CDR Eric Shih	OS	Eric.Shih@hhs.gov
Mentoring	CDR Jim Simpson	FDA	James.Simpson@fda.hhs.gov
Recruitment and Retention	LT Kimberly Love	FDA	Kimberly.Love@fda.hhs.gov
USPHS Training and Scientific Symposium	CDR Chuck Hayden	CDC	chayden@cdc.gov
EPAC Website			http://www.usphsengineers.org/

2010 EPAC Chair

CDR Hilda F. Scharen

Are we really changing?

By the time you read this article, over a quarter of my term as the 2010 EPAC Chair will have elapsed. As I sit here in Washington, D.C. reflecting on the rough winter snow storms of 2010, I can not believe we are already this far into spring! Change isn't all bad - not by any means. The snow storms gave us an opportunity to rely on each other and get to know our neighbors better. In fact, I believe change is necessary in life to keep us moving ... to keep us growing ... to keep us interested ... Imagine life without change. It would be static ... boring ... dull.

Are we really changing? Let me start out by recognizing that our leadership has changed. We have a confirmed Surgeon General, a new Chief Engineer Officer and several new faces on EPAC including: LCDR Nathan Epling, LT Nazmul Hassan, LT Kimberly Love, CDR Eric Shih, and CDR Kenneth Sun. The best way for me to really see the progress we have made as a Corps is to look to our junior officers, who have recently joined the Corps. I remember when I was a junior officer working at NIH walking the hallways of the National Naval Medical Center Bethesda, MD and having someone point out to me that my rank device was facing the wrong way on my windbreaker jacket! Retrospectively, I had about a 50% percent chance of getting it right, considering the LTJG rank device insignia is a “bar”. Unfortunately, there was no OBC program to attend and uniform information was not yet on-line. We now have a program in place to make sure our new members of the Commissioned Corps are informed about uniforms, basic ready, and understand the importance of being involved in our Engineer category subcommittees. They are enthusiastic, dedicated, willing to learn, and ready to serve our country by responding to disasters.

I recently had the opportunity to test drive the new e-CAD system to board new applicants. I understand this initiative is being piloted for the Engineer and Pharmacy category first, then to other categories. Appointment Boards are now able to take place virtually, the only thing you need is a connection to the internet. This is a BIG change, a paperless application process where USPHS applicants can apply to the Commissioned Corps and get boarded more quickly. E-CAD, Direct Access, Officer Profile, and the transformed billet system are all

(Continued on page 5)

tools which are changing how we do business and will allow the Corps and OPDIVs to identify the right officer at the right time for the right position.

The EPAC has been actively working on several issues but not limited to: recruitment, how to engage our civil service engineer counterparts, enhance information dissemination and tools across the category to ensure officers are basic ready, ready for promotion, and have the support they need from our category. I believe all of EPAC subcommittees' goal is to help our officers and I am encouraging cross subcommittee collaboration to enhance our efforts. Many of you are already very active, as demonstrated by the successful Engineer Awards Breakfast held at the FDA White Oak Headquarters in Silver Spring, MD and the program the USPHS Training Symposium subcommittee put together promises to be an outstanding Category Day. I hope to meet many of you in San Diego! If you have some good ideas and are interested in having a direct impact on several key issues for our category, do not hesitate to contact one of our Subcommittee Chairs and join a subcommittee – meetings are typically only once a month!

Based on my observations, the Corps has come a long way and I believe our category as a whole is not only in very good hands but ready to embrace the changes that lie ahead. Our EPAC members, many volunteers, past EPAC Chair CAPT John Longstaff who thankfully continues to serve in an advisory capacity, and our Chief Engineer Officer, I am confident we will make great strides this year!

CDR Hilda Scharen
2010 EPAC Chair

40 Years - A History and Overview of the EPA and PHS Engineers

CDR Nelson Mix

When the EPA was officially created in December 1970, approximately 300 employees (or 10%) were commissioned officers. Many had worked for the Health, Education and Welfare Department, one of the predecessors of the Department of Health and Human Services (DHHS). In 1990 there was approximately 240 officers and one flag officer; Rear Admiral Richard J. Guimond. Currently EPA has approximately 17,500 employees, of which 75 are commissioned officers. The EPA has officers from six of the eleven PHS Professional categories. The 38 PHS engineers at EPA are more than twice the size of the next largest category at EPA (the EHOs). Only IHS and FDA have more PHS engineers.

Organizationally, the EPA has the same 10 geographic regions as DHHS. EPA regional headquarters are in the also in the same cities as DHHS. The EPA also has 13 headquarter (HQ) program offices based in Washington, DC. In conversation, these are often referred to as air & radiation, water, pesticides, Superfund, general council, enforcement, IT, finance, resource management (includes personnel, facilities, contracts, and grants), research and development, international affairs, the inspector general, and the Office of the Administrator. Typically, the program offices create and refine policy, while the regions carry out the programmatic missions and environmental laws. It is common to have several HQ program offices co-located at any one of the 50 or so EPA properties across the country. In addition to the 10 regions and DC, the largest concentrations of EPA employees are at laboratories in Cincinnati, Las Vegas, and Raleigh-Durham, NC.

In 2009, the EPA was ranked as the 6th best place to work in the Federal government. This consistent top-10 annual ranking coupled with the EPA's mission *to protect human health and the environment* has attracted and retained some great PHS engineers. A couple to mention now includes CAPT Joseph Fredle (Ret.) who continues to work as an EPA On-Scene Coordinator for the Superfund program in Cleveland, and CAPT Thomas Sorg (Ret.) who continues to do research in Cincinnati. Also noteworthy is the success and recognition some PHS engineers have enjoyed at EPA. Both CAPT Rao Surampalli, PhD, PE (stationed in Kansas City) and CAPT Anthony Zimmer, PhD, PE (stationed in Cincinnati) were recipients of the Federal Engineer of Year Award, in 2001 and 2008, respectively. To summarize, PHS engineers have a 40 year history at EPA, can enjoy a variety of assignments, and can have a rewarding career!

Meet some of EPA's engineers…

(Continued on page 7)

LTJG Griff Miller, E.I.T.

Initially hired by EPA under the Federal Career Intern Program in 2007, LTJG Miller transitioned to the Commissioned Corps in 2009 and remains a Remedial Project Manager for the Office of Pennsylvania Remediation in the Land and Chemicals Division of EPA Region 3 in Philadelphia, PA. As a Project Manager, he is responsible for oversight of the cleanup of approximately 40 hazardous waste sites in Pennsylvania under the Resource Conservation and Recovery Act (RCRA). To date, he has ensured the proper cleanup and completion of RCRA Corrective Action obligations at over 10 hazardous waste sites across the state.

LTJG Griff Miller

In addition to his duties as a Project Manager, LTJG Miller is chair of the 8- to 10-member Corrective Action Webgroup, charged with maintaining the division's Corrective Action website (http://www.epa.gov/reg3wcmd/correctiveaction.htm). He has provided valuable assistance to several other projects around the office, including the redesign and maintenance of the division's project management Access database and efforts to provide the public with information on hazardous waste sites via interactive maps. A musician at heart, he is also a member of EPA Region 3's house band "The Arch Streeters," who perform at various EPA functions throughout the year.

CDR Sharon White, M.P.H.

CDR White's current assignment is in the Office of the Administrator at EPA Headquarters in Washington, DC. CDR White is a senior technical advisor to the Associate Administrator for the Office of Homeland Security (OHS). OHS provides Agency-wide leadership and coordination for homeland security policy; including EPA's planning, prevention, preparedness, and response for terrorist attacks, natural disasters, and large scale accidents.

Beyond EPA's traditional responses to environmental issues, EPA is being called upon to respond to major disasters and terrorist attacks. Some of these responses have included; the 9/11 terrorist attacks, the anthrax mail attacks, the Columbia Shuttle disaster and recovery efforts, the ricin attack on Capitol Hill and the Gulf Coast Hurricanes.

Promoting the security of the Nation's water infrastructure is one of the most significant undertak-

(Continued on page 8)

Sampling teams at Capitol Hill

ings of EPA in a post-9/11 world. In her work at OHS, CDR White is the lead for water security issues. This requires close coordination with EPA's Water Security Division on their leadership role in ensuring the security and resiliency of drinking water and waste water systems.

The Associate Administrator for Homeland Security relies on CDR White to coordinate the Agency-wide process of establishing homeland security priorities and performance goals, tracking technical progress, and justifying investments. CDR White works across internal mission boundaries and budgets to ensure that the Agency's resources are targeted to the highest priorities and most pressing capabilities.

CDR White also works with EPA's Homeland Security Laboratory Response Workgroup on the development of an environmental lab network that has the capability and capacity to respond to chemical, biological, and radiological events, and serves as EPA's representative to the Department of Homeland Security's National Biosurveillance Integration System.

CDR David Harvey, P.E., M.P.H.

CDR Harvey's current duty station is at EPA Headquarters (Washington, DC) in the Office of Ground Water and Drinking Water. He is part of a team that coordinates the implementation of the EPA's National Tribal Drinking Water Program, with the goal of ensuring the 983 tribal public water systems serving 1.2 million people, meet the rules established by EPA under the Safe Drinking Water Act (SDWA).

In his headquarters role, CDR Harvey leads coordination efforts with other federal partners to improve the drinking water infrastructure on tribal lands. These partners include the Indian Health Service (IHS), USDA Rural Utility Services, Department of the Interior, and the Department of Housing and Urban Development.

CDR Harvey is working to increase the transparency and accountability of funding decisions made by the EPA tribal drinking water program. He is developing national strategies to improve the efficiency of fund movement between EPA's Tribal Drinking Water Set-Aside Program and the IHS's Sanitation Facilities Construction Program.

EPA and IHS Engineers
(CDR Harvey is fourth from the left)

(Continued on page 9)

In addition to his tribal work, CDR Harvey is the national arsenic rule manager responsible for responding to congressional and other public inquires regarding the national status of the arsenic rule implementation. The arsenic rule continues to be a challenge for small water systems in rural America. In FY 2009 approximately 1.4 million people were served by a public water system that had a violation of the arsenic maximum contaminate level for water. In response to the arsenic rule and other SDWA rule challenges, CDR Harvey annually assists in setting up a national conference for state drinking water primacy agencies to come together and learn about the technical solutions to solving SDWA compliance challenges.

CDR David Shoffner, P.E.

CDR Shoffner's current duty station is in the EPA's Office of Administration and Resource Management, Facilities Management Support Division, Facilities Support Branch in Research Triangle Park, North Carolina. His position is not one traditionally held by an engineer. He is the Security Manager for the Mega-lab (largest EPA campus outside of the DC area) and three off campus facilities (EPA-RTP). In this position, he is responsible for the protection of 2,500 federal and contractor staff, over 50,000 annual campus visitors, $129M of Government property, and $273M of Government facilities. His primary duties consist of managing the security guard force operations, badging and identification office, vehicle access and flow, operation and improvement of security related systems, investigations, and local representative for EPA's National Secure Information program.

Operating such a large laboratory facility with all of the varied missions ranging from air pollution research, standards development, and toxicology requires a support team of which CDR Shoffner is a part. In addition to security, the team integrates all functions of campus life encompassing health & safety, shuttle services, furniture, property management, dining operations, space management, and a conference center.

Having an engineer as security manager has been very beneficial for EPA with the current and planned physical security projects. To be in compliance with Homeland Security Presi-

CDR Dave Shoffner using a Solar Powered Air Station to check tire air pressure on a Government hybrid vehicle

(Continued on page 10)

dential Directives and other security requirements, a new Physical Control Access System is being installed. The project management skills CDR Shoffner has developed as a Corps Officer and engineer over his career are an excellent match for coordinating installation of the new components, integration of the hardware/software, and simultaneous operation of the existing system.

In addition to security, CDR Shoffner has been co-coordinator with the Environmental Management System Team that is responsible for monitoring compliance with and leading EPA-RTP to exceed requirements of Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management. In support of the EO and in an effort to reduce fuel consumption, he teamed with LCDR Jason Mangum (PHS Environmental Health Officer) to design, develop, and construct a solar powered air compressor station for vehicle tire inflation. Keeping vehicle tires properly inflated helps vehicles operate more efficiently and increases miles traveled per gallon. Using a log book for user data collection and standard equations, the station saved an estimated 300+ gallons of fuel in the first few months of operation. The station has been in operation on the campus for 2 years and won an EPA's Leading Edge Award as a Sustainability Champion.

CDR Jennifer Mosser, P.E., M.S.

CDR Mosser's current duty station is at EPA Headquarters (Washington, DC) in the Office of Air and Radiation. She is in the radiation protection program which develops policies, plans and standards to protect the general public and environment from unnecessary exposure to ionizing radiation. As a member of the radiological emergency management group, she participates in internal and interagency preparedness, response, and recovery planning efforts for radiological/nuclear incidents involving radiation-contaminated sites, nuclear power plant accidents, transportation accidents, and acts of terrorism.

She works to carry out EPA's responsibilities assigned by the multiple plans that apply to radiological/nuclear emergency response in the United States. The Radiological/Nuclear Incident Annex of the National Response Framework identifies EPA as a Coordinating Agency, which means that, in certain circumstances, EPA provides the leadership, expertise, and authorities to implement and facilitate nuclear/radiological aspects of a response. For example, EPA would provide the leadership of the U.S. internal response to a foreign incident.

CDR Mosser, EPA Remedial Manager and Tennessee State folks at a Superfund site

She also supports EPA's Radiological Emergency Response Team (RERT), which provides technical guidance and on-scene assistance during a radiological incident. Additionally, she is working with others across EPA to develop technical Standard Operating Procedures for radiological assessment and analysis that will help to establish consistency among the Agency's responders.

In her headquarters role, CDR Mosser coordinates with EPA's two national environmental radiation laboratories and other EPA program offices on homeland security programs as they relate to radiation issues. Her other duties

(Continued on page 11)

include being an EPA representative on the National Security Staff's Improvised Nuclear Device Interagency Policy Committee tasked with identifying policy gaps that affect the ability of the federal government to response to an improvised nuclear device detonation and to propose resolutions. She also participates on the federal interagency workgroup that is recommending new or changes to existing federal regulations and programs that will support development of a National Disaster Recovery Framework to guide federal government recovery efforts.

CAPT Andy Smith, P.E., CHMM

CAPT Andy Smith is detailed to the EPA Region 10 in Seattle as a Federal On-Scene Coordinator (OSC). An OSC is the federal representative who monitors or directs cleanup of an oil spill or hazardous material release. The cleanup action can range from an out-the-door emergency response to a more planned, but time-critical, removal at a discovered site. The OSC oversees the cleanup. But if there is no viable responsible party, then the OSC needs to lead the cleanup. At an environmental emergency response the OSC becomes the incident commander under the Incident Command System or joins unified command in a multi-jurisdictional response.

CAPT Smith came on as an OSC in 2002 to the Emergency Response Unit. OSCs have been brought together from all ten regions for national incidents such as Capitol Hill Anthrax, Space Shuttle Columbia, and Hurricanes Katrina and Rita. It was recognized shortly after Capitol Hill Anthrax, that there was a need for national consistency among OSCs for response work in many areas with health and safety being one of them. CAPT Smith works with a national work group that is establishing these standards.

CAPT Andy Smith

OSC have contractors who do the majority of hands-on work. However, they don't have all the fun as OSCs are trained to enter a hazardous environment dressed out in level-A personal protective equipment, work with a variety of high tech equipment, or drive the mobile command post. Down time between responses and removal work is filled with training, exercises, planning and preparations which may be done internally or at a national level involving sister agencies like U.S. Coast Guard, National Guard Civil Support Team, or FEMA.

The Commissioned Corps personnel system is a nice match for the OSC position. Administratively, the CO is easier to manage with regards to overtime and hazardous duty pay (there are none), physical fitness standards (EPA is struggling to impose standards), or calling someone back to

Engineers' Week Activities

LCDR Jill Hammond and LCDR Melissa Burns

2010 USPHS Engineer Awards Breakfast Ceremony

The U.S. Public Health Service (USPHS) Engineering Professional Category celebrated National Engineers Week by recognizing several outstanding engineers at a breakfast and awards ceremony on Thursday, February 18, 2010, at the FDA White Oak Campus in Silver Spring, Maryland. This was the first year the event was hosted at White Oak, and the Building 66 Atrium was a striking and convenient location, drawing over 75 USPHS Officers, Civil Service engineers and other attendees, the largest attendance ever for this annual event.

The ceremony celebrated the achievements of agency engineers and also awarded the PHS Engineer of the Year, Engineer Responder of the Year and the RADM Jerrold M. Michael Award.

The keynote speaker at this year's event was RADM Robert Williams, P.E., DEE, Chief of Staff, Office of the Surgeon General. He spoke about the unique and diverse skills of engineers and the critical role they play in protecting, promoting and advancing the health and safety of our Nation. CDR Hilda Scharen, the Engineer Professional Advisory Committee Chair, was the Master of Ceremonies. Several dignitaries were also in attendance for the event, RADM John Villforth, P.E. (Ret.), RADM Richard Barror, Ph.D., P.E. (Ret.), RADM Jerrold Michael, Sc.D., P.E. (Ret.), RADM Richard Rubendall, P.E. and CAPT Jerry Farrell (Ret).

The following USPHS officers and civil service engineers were recognized as award recipients this year:

CAPT Cheryl F. Estill, M.S., P.E. was awarded the 2010 U.S. Public Health Service Engineer of the Year and the 2010 Centers for Disease Control and Prevention Engineer of the Year for exceptional service and contributions to worker's health and safety.

(Continued on page 13)

Barbara A. Anderson, MSEnvE, P.E. was awarded the 2010 Agency for Toxic Substances and Disease Registry Engineer of the Year for exceptional service and contributions to advancing the scientific understanding of vermiculite exfoliation and its impact on public health.

John Timothy Baldwin, Ph.D., E.I.T. was awarded the 2010 National Institutes of Health Engineer of the Year for exceptional service and contributions to improving circulatory support devices.

CDR David E. Harvey, P.E. was awarded the 2010 U.S. Environmental Protection Agency Engineer of the Year (Commissioned Corps) for exceptional service and contributions to drinking water protection.

CAPT John P. Riegel, P.E. was awarded the 2010 Indian Health Service Engineer of the Year for exceptional service and contributions to the Phoenix Area Office Sanitation Facilities Construction Program.

CDR Nathan Tatum, M.S., P.E. was awarded the 2010 National Park Service Engineer of the Year (Commissioned Corps) for exceptional service and contributions to upgrading the National Park Service Dam Safety Program.

LCDR Nikhil A. Thakur was awarded the 2010 Food and Drug Administration Engineer of the Year (Commissioned Corps) for exceptional service and contributions to regulating the manufacturing and distribution of infusion pumps.

Kimberly A. Trautman was awarded the 2010 Food and Drug Administration Engineer of the Year (Civil Service) for exceptional service and contributions to Medical Device Good Manufacturing Practices.

David S. Yantek, MSME was awarded the 2010 Centers for Disease Control and Prevention Engineer of the Year (Civil Service) for exceptional service and contributions to reducing noise exposure from mining and roof bolting machine.

CAPT Bradley Harris, P.E. was awarded the 2010 U.S. Public Health Service Engineer Responder of the Year for 13 years of exceptional service and contributions during national emergencies.

CAPT Steven Bosiljevac, P.E. was awarded the 2010 RADM Jerrold M. Michael Award for exceptional commitment to the education and development of his peers.

(Continued on page 14)

(Front Row-Left to Right) CAPT John Riegel, CAPT Cheryl Estill, RADM Robert Williams, Kimberly Trautman, CDR Hilda Scharen

(Back Row-Left to Right) LCDR Nikhil Thakur, CAPT Steven Bosiljevac, CDR Nathan Tatum, CDR David Harvey, Dr. John Baldwin

2010 Federal Engineer of the Year Awards Ceremony

The 2010 Federal Engineer of the Year (FEYA) 31st Annual Awards Ceremony was held on Thursday, February 18, 2010, at the National Press Club in Washington, DC. This award is sponsored by the Professional Engineers in Government (PEG) of the National Society of Professional Engineers (NSPE). The keynote address was given by the U. S. Nuclear Regulatory Commission (NRC) Commissioner Dale E. Klein, Ph.D., P.E. The Federal Engineer of the Year Award is awarded to an engineer employed by a federal agency that employs at least 50 engineers worldwide. Candidates are nominated by their employing federal agency and the winner is selected by a panel of judges established by NSPE-PEG who consider engineering achievements, education, continuing education, professional/technical society activities, NSPE membership, awards and honors, and civic and humanitarian activities.

Three of this year's agency award recipients were also nominated as Top Ten finalists for the 2010 Federal Engineer of the Year Award. These engineers were John Timothy Baldwin, Ph.D., E.I.T., CAPT Cheryl F. Estill, M.S., P.E. and CDR Nathan Tatum, M.S., P.E.

Lisa M. Fotherby, Ph.D., P.E., of the U.S. Department of the Interior's Bureau of Reclamation was named the 2010 Federal Engineer of the Year. Fotherby has notable achievements in the fields of river research and development, engineering design, leading collaborative

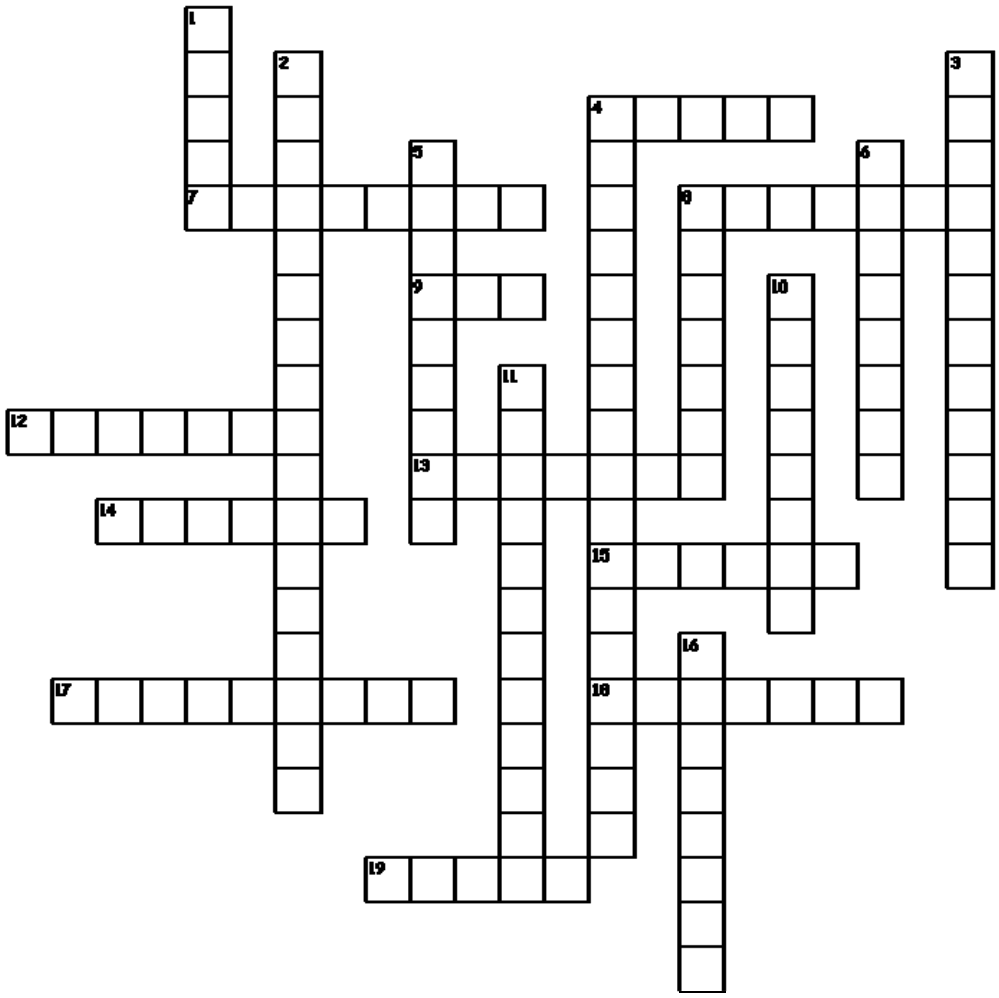
(Continued on page 15)

interdisciplinary teams, and adaptive management that demonstrates the synthesis of complex environmental data for responsible engineering. As part of the Animas-La Plata Project in Colorado, she was involved in the construction of an ecosystem-friendly design that preserves preproject sediment delivery in a stream system, promotes expansion of riparian habitat and natural channel evolution, and protects a native fishery. At the Platte River Implementation Program in Nebraska, one of the largest management programs in the country facilitating recovery of endangered and threatened bird species, Fotherby's efforts and leadership led to a unified understanding of the complex problem among various agency and stakeholder groups. Solutions resulted in increased streamflow and sediment supply, and the removal of river islands that impair sight distance for endangered birds.

In addition to this work, she has aided the development and pioneered the application of numerical models that link and track the process interactions of streamflow, sediment transport, vegetation growth and mortality, and river management actions to understand and predict river system response. The application of these models has been used to guide informed decisions on river management and the protection of river ecosystems.

(Left to Right) Dr. John Baldwin, CAPT Cheryl Estill, Dr. Lisa M. Fotherby (Winner), MAJ Ryan Novotny, Charles McEntyre, LCDR Isabelle Detter, Clifton Game, Richard Pinner, CDR Nathan Tatum, Dr. Yu-Tai Lee

Crossword Puzzle

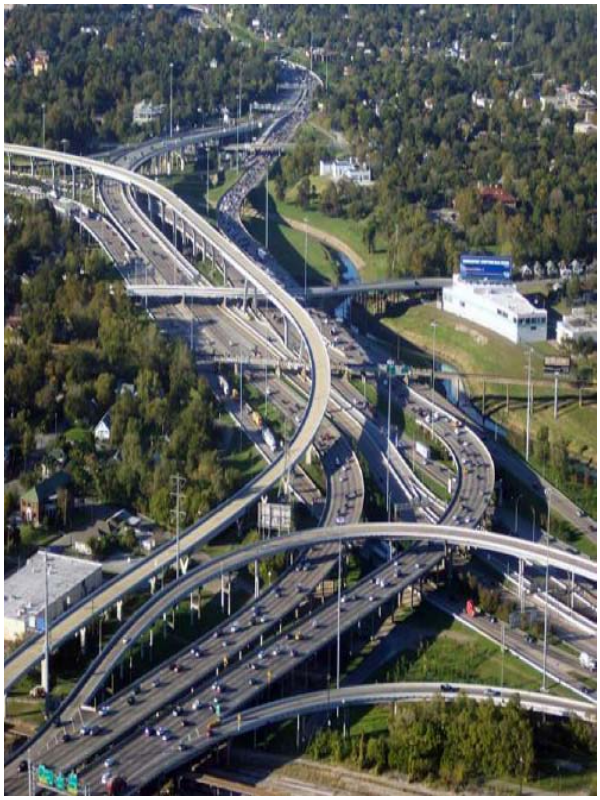


Across
4. 2010 Pacific Partnership Craft
7. Engineer Awards Breakfast Location
8. The Third R (With 8 Down)
9. Featured Agency
12. World's Most Complicated Interchange Town
13. 2009 Continuing Promise Craft
14. EPAC Newsletter Editor
15. PHS Engineer of the Year
17. BSF Comfortnaut
18. 2010 Continuing Promise Craft
19. Site Leader and Comfortnaut

Down
1. With R Number 1 from 8 Down
2. Comfort Destination
3. Chair of the EPAC
4. Engineering For Life
5. Chief Engineer Officer
6. Federal Engineer of the Year
8. One of the CEO's Three R's
10. Other BSF Comfortnaut (With 17 Across)
11. EPAC Member and Shellback
16. Someone Who Has Never Crossed the Equator

.

According to the Guinness Book of World Records, this is the most complicated interchange. Do you know where it is?



Answer can be found at the bottom of Page 23

Continuing Promise 2009 (CP09): USPHS Engineer Experiences Aboard the USNS Comfort (T-AH-20)

LCDR Steven K. Sauer, P.E.
Indian Health Service
CP09 Role: Preventative Medicine Engineer

I was the U.S. Public Health Service Engineer on the first leg on the Continuing Promise 2009 (CP09) mission which visited the countries of Haiti and the Dominican Republic. As far as engineering related topics go, my portion of the mission was filled with the expected sanitary surveys and water sampling. However, what I would like to share is that, as an officer, you are looked upon to be a leader.

On missions such as CP09, USPHS officers are often tasked to serve as a site leader. I had such a privilege one day when a group of six of us went ashore to visit a water reservoir in the Dominican Republic. As the only officer in the group, I was responsible for getting the various forms of communications and supplies, making sure those supplies went ashore, ensuring force protection was arranged, ensuring our force protection stayed alert, directing the driver to the site, ensuring the hourly communications check was conducted, keeping the group on task, resolving any issues as they come up (and they do), and making sure everyone makes it back to the ship.

I was fortunate that most of the issues I faced were relatively small and quickly resolved. The force protection liaison (a Navy petty officer) on my team needed constant reminders to pay attention and keep the Dominican soldier (our actual force protection) doing his job. The tensest moment came when we got back to the ship and I took a head count. I found that a team member was missing and, as coincidence would have it, it was my force protection liaison. I knew he was at the landing zone so I wasn't too worried, but I did have to wait around for the next helicopter to make sure he made it back to the ship. As it turns out he was pulled from our helicopter due to a broken cranial (helmet).

My experiences that day will be with me for a long time. The look of disgust on a senior airman's face when I decided that we would walk the last 1.5 km to reservoir was priceless. Enlisted service men and women look to officers for correct and decisive decisions and even as role models. As an officer, leadership is something that should be second nature but often isn't. Officers from most other services go through leadership and survival trainings which help prepare them as leaders. USPHS officers need to be prepared and should seek any leadership training available to better serve hand in hand with our military counterparts. I encourage all officers to continue training for leadership roles because you never know when you will be placed into a position of leadership.

(Continued on page 19)

My experiences that day will be with me for a long time. The look of disgust on a senior airman's face when I decided that we would walk the last 1.5 km to reservoir was priceless. I encourage all officers to continue training for leadership roles because you never know when you will be placed into a position of leadership.

LT Kimberly Love
Food & Drug Administration
CP09 Role: Preventative Medicine Engineer

I was on the third leg of CP09 aboard the USNS COMFORT (T-AH 20). During my leg we visited the country of Colombia and I worked with the Preventative Medicine Department to complete numerous site surveys of hospitals, communities, and hotel accommodations. While my assessment experiences in Colombia were both rewarding and memorable, what I'd like to discuss is a once in a lifetime shipboard experience.

It all began one evening while we were underway at sea when an announcement came over the loudspeaker ordering all slimy Pollywogs to their cabins. I asked myself what or who is a Pollywog? A slimy Pollywog is a nickname for those who are about to cross the equator for the first time. I was informed that tomorrow during our indoctrination we would be at the mercy of the trusty Shellbacks who are often referred to as Sons of Neptune. Our merciful Shellbacks were our fellow crew members who have already crossed the Equator. During the Equator

(Continued on page 20)

Crossing, also known as the Line Ceremony, rank does not matter. We were instructed to identify ourselves as Pollywogs and to wear our clothes inside out. My cabin mates, Naval Nurses, and I prepared for the next day's ceremony by decorating and designing t-shirts that we didn't mind if they got ruined (Picture Previous Page). We had a hard time falling asleep that night while trying to memorize all the words to *Anchors Aweigh* and facts about King Neptune, which we would be quizzed on the next day. A correct answer may enable you to bypass a particularly disgusting task while gaining a Shellbacks' mercy during the ceremony.

Our wake up call came early the next morning with the sounds of pots and pans banging together. We were corralled and told to crawl on our hands and knees, thus began our indoctrination. As Pollywogs we underwent a number of increasingly "challenging" ordeals including having the pleasure of using soy sauce shampoo and an egg and flour based conditioner. We also have the privilege of listening to the glorious sounds of our own voices singing rounds and rounds of *Row, Row, Row Your Boat* and *I'm a Little Teapot*. Physical activities including group sit-ups and push-ups were also enjoyed by all and by all I mean mostly by our trusty Shellbacks. We were allowed to eat breakfast; however, we were told Pollywogs don't have hands and therefore must attempt to eat green eggs and ham without utensils. Once breakfast was either on the floor or mashed into our hair we were then blindfolded and crawled through small tunnels filled with what can only be described as mushy, smelly stuff (Picture Below Right).

Then our trusty Shellbacks told us we needed to be bathed to rid ourselves of the Pollywog stench. So we obliged and were bathed in bright green sea dye (fluorescent sodium salt) and soaked by salt water pumped through firehouses. Once we were "clean," we were then coerced into kissing the Royal Baby's belly which was coated in a nice thick layer of Crisco grease. Finally, we were brought to bow down at King Neptune's feet (Picture Below Left). Some Pollywogs we not worthy yet and had to return to be bathed yet again.

Fortunately, I was deemed worthy the first go around and was sent on my way to get an actual shower with real soap and water.

Despite the fact that it took five more showers to get the scent of soy sauce out of my hair, the Line Ceremony was truly one of the most amazing and memorable experiences I will

(Continued on page 21)

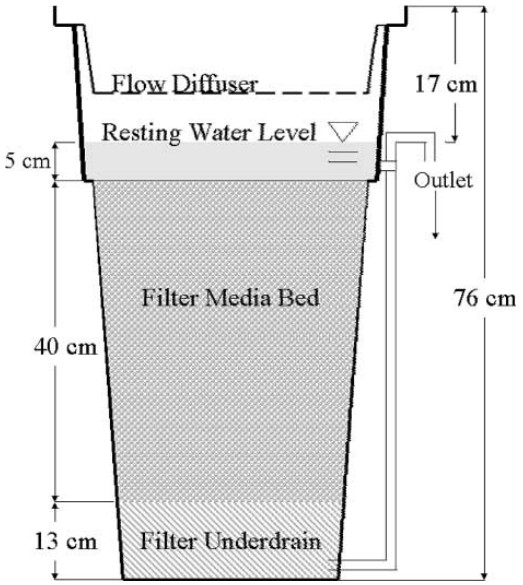
every have. I have a new found appreciation for Navy traditions and I was honored that the Navy allowed me to participate in the ceremony. After my leg aboard CP09 I can officially say that I am no longer a slimy Pollywog but a trusty Shellback and I have the certificate to prove it.

LCDR Ryan Costello
ATSDR Liaison Office to EPA Headquarters
CP09 Role: Preventative Medicine Engineer

LT Kurt Kesteloot, P.E.
Indian Health Service
CP09 Role: Preventative Medicine Engineer

The final leg of the Continuing Promise mission, 21 June – 14 July 2009, was conducted in El Salvador and Nicaragua. LT Kurt Kesteloot and LCDR Ryan Costello were the PHS engineers deployed aboard the USNS Comfort to support the Preventative Medicine Department during this period. Working in partnership with a non-governmental organization called Aqua Viva which is dedicated to bringing clean water to communities in need, we set up 11 biosand filter (BSF) units which are used for filtering drinking water. The BSFs were installed in ten individual family homes and one school and will benefit approximately 154 people in the rural community of Codigo outside of San Alejo, El Salvador.

The biosand filter (BSF) is a low cost water treatment system that can be used in individual households to provide cleaner drinking water to populations all over the world that lack access to safe drinking water. It has a simple design and can be constructed with materials that are readily available. Water from an unprotected source is poured into the BSF and gravity forces the water through an active biological layer, fine sand, crushed gravel, and course gravel media. Biological and physical processes naturally remove disease-causing organisms and other impurities from the water in order to make it safer for human consumption. The level of removal is dependent on the retention time of the water in the filter medium and the total amount of water that has passed through the media since start-up (Stauber et al. 2006).



Example Cross Section of a BSF (Stauber et al. 2006)

(Continued on page 22)

The units we installed were simple pre-cast concrete containers with encased PVC piping through which the filtered water flowed out of the unit. Each unit was installed with a base course gravel layer and crushed gravel layer, or filter underdrain, of approximately 13 centimeters in depth and a layer of sand (the filter media bed) of approximately 40 centimeters in depth (Stauber et al. 2006). The uniformity coefficient of the particles for each media layer was 3 or less. Water from local wells was supplied throughout the implementation process in order to ensure each layer was saturated. We were careful to ensure that the sand layer was at least five centimeters below the top of the PVC pipe outlet in order to maintain a resting water level. A diffuser plate was placed several inches above the top layer over which well water was to be poured into the BSF units.

LCDR Costello and LT Kesteloot Unloading a BSF Unit

The BSF uses both biological and physical processes to remove contaminants including fecal coliforms, turbidity and some limited chemical contamination. The biological layer that forms on top of the sand layer is an active biomass called the schmutzdecke containing bacteria, algae, protists and macroinvertebrates (McNair et al. 1987) which forms within approximately one to three weeks. It breaks down organic matter and kills disease-causing microorganisms in the water.

There is still much unknown regarding the processes within the biological layer that are responsible for pathogen destruction. Several studies have been conducted to determine the effectiveness of reduction of microbial contamination in the filtered water. The research to date suggests that the BSFs are successful, to some degree, at removing *Escherichia coli* contamination. Some studies have shown over 90 percent removal efficiency (Stauber et al. 2006). Further studies are necessary and are currently underway to better characterize the microbial removal efficiency of the BSF. Additionally, as with most sand filters, the retention time of the water in the medium is a concern. Studies have concluded that the ideal retention time, media depth, and effective size need further analysis.

(Continued on page 23)

The biosand filtration unit is a unique version of slow sand filter technology. Its simple design and low cost enable it to be utilized in individual households lacking access to safe, clean drinking water. The extent of the BSF's ability to remove pathogens from water has yet to be fully investigated and studies are on-going to determine it's efficacy at eliminating exposure to waterborne disease-causing organisms. However, one thing is certain the BSF is providing higher quality drinking water and helping to improve the overall health of this small community in El Salvador.

Installation of BSF Unit in Codigo

Works Cited

Stauber, C. E., Elliott, M. A., Koksal, F., Ortiz, G. M., DiGiano, F. A., & Sobsey, M. D. (2006). Characterization of the biosand filter for E. coli reductions from household drinking water under controlled laboratory and field use conditions. *Water Science and Technology*, 54, 3, 1-7.

McNair, D.R., Sims, R.C., Sorensen, D.L., Hulbert, M., 1987. Scumutzdecke Characterization of Clinoptilolite-amended Slow Sand Filtration. *Jour. AWWA*, 79, 12, 74.

ANSWER TO PHOTO QUIZ: Interstate 10 Highway Interchange, Houston, Texas

Humanitarian Missions 2010

CDR Ed Dieser

The U.S. Public Health Service (USPHS) Commissioned Corps continues to support inter-service, interagency Health Diplomacy initiatives by participating in missions designed to increase the operational capacity of U.S. Government personnel to deliver humanitarian assistance, perform public health assessments, conduct public health infrastructure repair, and provide health care training of indigenous health care workers. In this regard, the USPHS Commissioned Corps has been specifically requested to participate, along with our uniformed colleagues in the Department of Defense (DOD), in two shipboard missions in 2010 which will further these goals.

Pacific Partnership 2010 (PP10) is a U.S. Navy ship-based training mission scheduled to begin in early May and run through August of 2010. PP10 will utilize the hospital ship USNS Mercy (T-AH-19) which will conduct direct care and public health activities in the Western Pacific. The USPHS has been tasked with providing three consecutive 17-person teams on each of the mission's three legs. These teams will each include an engineer, environmental health officer and industrial hygienist as well as clinical providers.

USNS Mercy (T-AH-19)

Continuing Promise 2010 (CP10) is a U.S. Navy ship-based training mission scheduled to begin in July and run through November 2010. CP10 will utilize a U.S. Navy amphibious ship (USS Iwo Jima) and conduct direct care and public health missions in Latin America and the Caribbean. The USPHS will field four consecutive teams to each of CP10's four rotations. Team composition will be determined in the near future, as planning for this mission has been impacted by response activities in Haiti. USPHS engineers, environmental health officers, and other public health professionals will be deployed in support of CP10.

(Continued on page 25)

In addition to these annually recurring ship-based missions, the Office of Force Readiness and Deployment is also engaged in collaboration with interagency and inter-governmental partners in humanitarian and civic assistance activities in Africa and Latin America. It is anticipated that several successive missions will be forthcoming which will utilize USPHS officers afield for health-related, infrastructure development.

Water Systems Assessments

2010 EPAC Members

CAPT Dave Apanian U.S. EPA Region 4, Atlanta, GA. Dave works in the Water Protection Division and is responsible for coordinating Homeland Security and Emergency Response activities for the water sector (drinking water and lumpy water infrastructures).

CDR Edward Dieser CDC, Atlanta, GA. As a member of the Environmental Protection Section, Ed focuses on improving the stewardship and sustainability of CDC. Job one outside the office is being a good husband and father of two great kids. He enjoys skiing and SCUBA diving, and is an avid student of leadership.

LCDR Nathan Epling National Park Service, Blue Ridge Parkway, Asheville, NC. Nate conducts program/ project management and engineering services for water, wastewater, dam safety and groundwater remediation systems at the Parkway. In his spare time, he enjoys camping, hiking, fishing, gardening, kayaking, local festivals, volunteering, spending time with friends and family.

LCDR Duane Hammond CDC/NIOSH, Alice Hamilton Laboratory, Cincinnati, OH. Duane is a mechanical engineer who conducts laboratory and field studies to prevent exposures to chemical, biological, radiological, and physical hazards among workers. In his spare time, he enjoys playing soccer and snowboarding.

(Continued on page 27)

LT Nazmul Hassan FDA/Office of Regulatory Affairs, New York, NY. Naz is a Compliance Officer working on drugs that are coming through the port of New York and New Jersey. He determines the violation and make the final admissibility decision for these products after it has been found presumably violative (FD&C Act) by investigations group. Naz spends his free time with his two kids, 2 yrs and 9 months old.

CAPT John Longstaff IHS, Rockville, MD. He served as the EPAC Chair in 2009, and is currently the Chief of Logistics for the PHS Rapid Deployment Force (RDF-1). John has been with IHS for 17 years (six of them at HQ), this following four years of service in the US Air Force. In his spare time he enjoys flying small airplanes, SCUBA, reading, and spending time with his adorable wife and troublesome daughter, when she comes home to visit the empty nest.

CDR Michael MarcAurele Alaska Native Tribal Health Consortium, Anchorage, AK. He is a Senior Design Engineer in the Engineering Services Department where he manages and mentors junior engineers and produces plans for construction of sanitary facilities in Native Alaskan Communities. When not spending time with his kids, he plays hockey and racquetball year round. Rumor has it that he's been seen chasing a fish or two during the warmer periods.

CDR Peter T. Nachod IHS, Rockville, MD. Peter is a Sr. Engineer Consultant and the national program manager for all new IHS health-care construction in the Aberdeen, Nashville and Navajo Areas. He is rapidly approaching 19 years in the Commissioned Corps, all with IHS. In his spare time, he is usually shuttling his three children between various sports practices, school functions, and their friends' houses. He is also an avid numismatist, foodie and traveler.

LT Varsha Savalia FDA/Center for Device and Radiological Health, Silver Spring, MD. Varsha is in the group that regulates radiological health products that includes mammography, diagnostic x-rays, cell phones, CRT TV monitors, lasers, sunlamps and sunlamp products, cabinet x-rays, and microwaves. For fun, she likes to travel, shop, bake, and explore vegetarian restaurants.

(Continued on page 28)

CDR Hilda F. Scharen FDA/Center for Devices and Radiological Health, Silver Spring, MD. Hilda is a Regulatory Director for Postmarket Operations in the Office of the Center Director and is responsible for managing and coordinating postmarket adverse events across the Center for Neurology, Anesthesiology, and Respiratory devices. She loves outdoor activities including running, skiing, golfing and spending time with friends and family, as well as enjoys conducting experiments in the kitchen, traveling to France and is fluent in French.. Hilda is delighted to serve as your 2010 EPAC Chair!

CDR Eric Shih HHS/OS/OPHS/Office of Commissioned Corps Force Management, Rockville, MD. Eric is a Senior Policy Analyst for Information Technology and oversees Corps Human Resources Information Technology Systems, advises Corps leadership on Information Technology related issues and policies. Outside of work, he is a Certified Tennis Teaching Professional.

CDR Kenneth Sun Centers for Medicare and Medicaid Services, Denver, CO. As the Life Safety Code engineer for CMS's Western Consortium, Ken reviews, provides guidance and consults with State and Federal surveyors on code interpretation and application for hospitals, nursing homes and other providers of health care receiving Medicare payment. In his spare time, he likes to telemark ski, water ski, play hockey and have fun with his family.

The following officers are also members of EPAC, however a biography was not received prior to the publishing of this newsletter.

LCDR Roger Dahozy – IHS
CDR Charles Hayden - CDC
CDR Robert Hemberger – NPS
LT Kimberly Love – FDA
Mr. Vijay Nathan – NIH
LCDR Vivian Porter – IHS
LCDR Jennifer Proctor – IHS
CDR James Simpson – FDA

Dear Readers,

The *Machinatores Vitae* newsletter is a publication of the EPAC, but we need help in bringing you the stories you want to read. Please consider submitting an article for an upcoming issue or let us know when you or a colleague have reached a milestone, been recognized for an accomplishment, or have an experience to share. If you are an accomplished writer, send something along that is already polished. If you don't feel like a Hemingway or Dickinson, just send enough detail so the writing team can take hold of it and build the story for you.

The writing staff can only see a bit of the big world that is public health engineering. There are numerous accomplishments even within our readership that remain unknown except in the relatively small circles around you. If you have not presented at a national meeting, the likelihood is that no one outside of your agency, or possibly even Office, ever heard about your pet project that you nearly exhausted yourself completing. Here is your chance to shine!

All ideas are welcomed. Remember that we do not have to solely focus on work going on within the PHS. Let us know if you hear of new technologies or applications, or just find an interesting story from the outside world. The rule of thumb is that if you as an engineer are interested in it, then others will be too!

Send your thoughts, suggestions, or a brief synopsis of a proposed article to the newsletter editors at epac@usphsengineers.org.

Thank you,

CDR Jen Mosser
CDR Peter Nachod

The ***Machinatores Vitae*** is published quarterly and posted on the USPHS Engineer Professional Advisory Committee website. The next issue of the newsletter will be published in August 2010. The deadline for submitting articles is July 15, 2010.

If you have suggestions or comments about the newsletter, or would like to submit an article, please contact the editors at epac@usphsengineers.org.

Editor-in-Chief: CDR Jennifer Mosser
Managing Editor: CDR Peter Nachod
Copy Editor: CAPT James Ludington