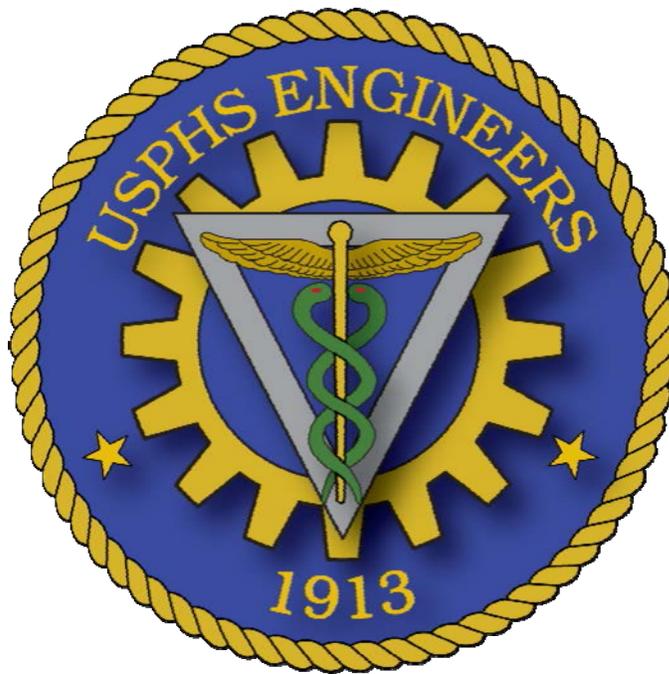


**EPAC READINESS SUBCOMMITTEE
ENGINEERING BOOKLET
DEPLOYED ENGINEERS IN ACTION**



December 2017

Dear EPAC,

The Readiness Subcommittee would like to present our Engineering Deployment Booklet. The idea is to create a booklet that captures short stories/reflections from engineers that have been on deployment along with deployment photos. As such, for 2017, we have been able to collect stories and photos from nine officers in the following order of receipt:

1. LCDR George Ngatha, Food and Drug Administration
2. LCDR Shane Decker, Indian Health Service
3. CDR Varsha Savalia, Food and Drug Administration
4. CDR Frank Chua, Indian Health Service
5. LCDR Diana Wong, Center for Medicare and Medicaid Service
6. CDR Leo Angelo Gumapas, National Institutes of Health
7. CDR Kurt Kesteloot, National Park Service
8. CAPT John Longstaff, Indian Health Service
9. LCDR QuynhNhu Nguyen, Food and Drug Administration

Our subcommittee is hopeful that EPAC can share these stories with other officers in EPAC as well as new call to active duty officers so that they can have insights in terms of what deployments can look like and what to prepare for when they go on deployments.

Thank you.

Sincerely,

QuynhNhu Nguyen

QuynhNhu Nguyen, MS
Lieutenant Commander, U.S. Public Health Service
2017 Chair, Readiness Subcommittee
Engineering Professional Advisory Committee
Associate Director for Human Factors
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LCDR George Ngatha, Food and Drug Administration



LCDR George K. Ngatha with Facilities Staff at the Rosebud Indian Health Hospital, South Dakota



LCDR George K. Ngatha, a Chemical Engineer at FDA/CDRH/Office of Compliance, Silver Spring Maryland, was deployed to the Rosebud Indian Health Service Unit in South Dakota for 30-days (9/10/16-10/9/16) as the acting Facilities Manager/Engineer. The deployment was to provide much needed relief to the health care facilities in the IHS Great Plains region.

Deployment duties included:

- Assisting with the implementation of the Hospital's Quality System improvement plan to address corrective actions for CMS violations.
- Overseeing the maintenance of vital hospital facilities equipment such as the hospital's clean water treatment unit, electrical generation equipment and backup generators and vital the medical equipment sterilization unit
- Ensuring adequate environmental controls in vital clinical care areas such as the hospital's operating rooms and the emergency room.

LCDR Shane Deckert, Indian Health Service

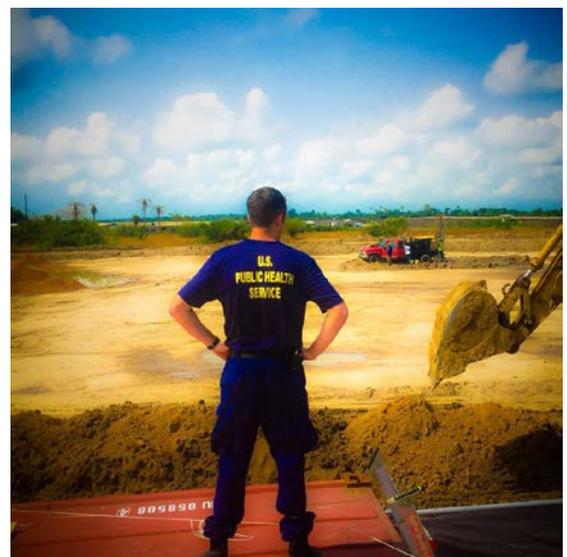


LCDR Shane Deckert, a Civil Engineer at the Indian Health Service, California Area Office, was deployed for the 2014-2015 Ebola Support Mission with the Monrovia Medical Unit Team 1 in Monrovia, Liberia for 3 months (10/19/14-1/19/2015) as the lead facilities engineer.

The deployment's mission was to provide medical care to healthcare workers in Liberia who may have the Ebola virus disease.

Deployment duties included:

- Keeping the facility running while adhering to BSL-4 level virus conditions (in full PPE).
- Ensuring continuous operations of the two 100Kw generators, the chlorinated water supply/distribution, and all packaged HVAC units
- Constructing field solutions to facility issues using basic materials and tools
- Replacing entire "hot zone" floor in full protective gear (PPE) due to failing structure



CDR Varsha Savalia, Food and Drug Administration



CDR Varsha Savalia is IT Program Analyst within FDA.

Training mission in the field, celebration event, healthcare mission on the ship, or a national disaster, deployments are a special experience in one's career. Despite being away from family, friends and creature comforts, deployments are one of the most rewarding experiences in your life because you get sense of personal satisfaction of providing direct public health impact. Deployments are opportunities to meet your engineers colleagues that you have never met but only seen their name on paper or those you do not see because they are station with another agency or different duty station. It's a welcomed feeling of reuniting with old pals. You will realize during a deployment that you miss things that you never thought you would; like your significant other's ridiculous pet, door on hinges, peace and quiet, being alone in a room, driving, long hot shower, clean clothes daily, etc.



It tests your patients because of chaos and challenges. During Hurricane Katrina deployment, we lacked resources at every level imaginable: billeting, foods, sanitation, fuel, supplies, security, transportation, healthcare providers, etc. At Campus Bullis Training Site, the billeting is four walls made from wood without dry walls and a roof without any heating or cooling system. We were lucky enough to have our barrack right next to the bathroom to smell the aroma in the hot Texas weather. The shower was one room with six shower heads without dividers. The bathroom was 4-6 toilets in a row and with another 4-6 toilets facing each other WITHOUT a door or a curtain. Most deployments, you sleep co-ed in a very large room that is either very hot or very cold. For Operation, Lone Star Mission, people lined up two hours before we opened the clinic. PHS provided healthcare services free to anyone who could not afford it in





Brownsville, TX where majority of the population only speaks Spanish. We figured out a way to communicate despite the language barrier.

As an Engineer, you can do ANYTHING during a deployment and you will probably do everything at some parts of your career. You may wear multiple hats during deployments. No matter what your rank or title is during a deployment, it's a team effort and we all pitch in to get the job done and look out for another. Sometimes, this means you assist the overworked nurses to see if you can help tend to basic needs of a patient by helping them sit up to eat, or it can mean to take the trash out if it's full, or see if the pharmacy needs a list of medication very patient is taking to help them order and maintain supplies as need. Engineers may be assigned the role of incident commander, public information officer, safety officer, liaison, be part of operations, planning logistics, as well as finance/admin. Always have a go-bag packed. None of my ten deployments were the standard two weeks. They ranged from longest of two months straight for a hurricane to two days for celebration at the National Mall in DC.



Regardless how many deployments one was tasked in the past, there is also something that is a challenge. No system is perfect. Be flexible. Make the best of your deployment. Pack an extra charger and recharger battery pack, sandwich Ziploc bags for your phone and wallet, shower shoes and swim suit if you are shy, and an eye mask along ear plugs if you do not want to hear the free symphony while you sleep. At the end of your deployment, you will miss your teammates until the next deployments.



CDR Frank Chua, Indian Health Service

San Juan Airport 10/15/2017



L to R: CDR Kris Neset (APHT 2 – ENG), LCDR Onieka Carpenter (APHT2 – HSO), CDR Frank Chua (RDF 4 – ENG)

Centro Medico Menonita de Caye



L to R: SPC Torres (USAR – Interpreter), CDR Kris Neset, CDR Frank Chua, SSG Son (A Co, 249th BN Electrician)

Hospital Pavia Arecibo



L to R: SGT Taffner (A Co, 249th BN Electrician, SPC Reveron (PRNG – Interpreter), SPC Nieves (PRNG – Interpreter), CDR Frank Chua, SFC Grundwald (B Co, 249th BN Electrician, CDR Kris Neset

APHT2 Critical Infrastructure Assessment Team

Members:

- CDR Kris Neset, PE, Tribal Utility Consultant, IHS stationed in Minot, ND.
- LCDR Onieka Carpenter, Consumer Safety Officer, FDA stationed in New York.
- CDR Frank Chua, PE, Health Facilities Engineer, IHS stationed in Sacramento, CA.

Mission Summary:

- Completed critical infrastructure assessments for 14 priority hospitals identified by the Puerto Rico Department of Health
- Primary Assessment:
 - Electrical Power Stabilization and Redundancy.
 - Identified deficiencies and provided recommendations.
- Secondary Assessment:
 - Water, sewer, solid waste, food supply, medical gas, and staffing
- Teamed with USACE (Prime Power) – 249th Engineer Battalion electricians to conduct facility power stabilization and redundancy assessment.
- US Army Reserve and Puerto Rico National Guard soldiers served as interpreters.
- Reported deficiencies and provided recommendations to FEMA and PRDH.

LCDR Diana Wong, Center for Medicare and Medicaid Services

Hurricane Maria Response to Puerto Rico 2017

IRCT Logistics, Property Manager

Profile:

- LCDR Diana Wong, a Biomedical Engineer and Social Science Research Analyst at CMS/Center for Program Integrity/Data Analytics & Systems Group, Baltimore, MD.
- Deployed to the Hurricane Maria 2017 Response in San Juan, Puerto Rico (10/7/2017 – 11/7/2017).
- Served under HHS ASPR's Incident Response Coordination Team (IRCT) Logistics Section working as Property Manager. Other PHSO Engineers also deployed in different Logs roles.

Mission:

The purpose of PR IRCT Logs was to provide logistical services (e.g. medical supplies, personnel supplies, transportation, delivery, etc) to the Field Medical Stations or other temporary medical facilities in Puerto Rico.

Duties:

- Property management:
 - Maintained daily Hand Receipt Log, uploaded to ASPR's portal. Logged all hand receipts for all issued and returned property assets (e.g. communications, equipment/Rx cache).
 - Tracked personnel with issued property when chain of command needed to contact individuals.
 - Resource tracking/reconciliation across +10 sites in Puerto Rico with issued assets.
- Other duties as needed:
 - Delivered supplies to field locations.
 - Drive passengers when ground support had insufficient personnel.
 - Assisted other officers in the field to communicate with IRCT leadership.
 - Greet and guide new incoming officers.

IRCT Puerto Rico Command. Logistics Section (right half of work bench). LCDR Wong's regular duty station to support Property Management (standing, right).



On occasion, LCDR Wong serve as ground support to the field. Here is a delivery to the USNS Comfort's Base of Operations, a triage point (tent out of frame) staged at the docks in San Juan.



IRCT Logistics Section Team (~40 personnel).



Temporary sleeping quarters upon arrival at the San Juan Convention Center. Other lodgings included a ferry ship and hotel.



Example of a field Base of Operations (BOO) at Centro Medico Hospital, San Juan, used to augment services at the hospital.



Warehouse where Logistics' supplies are stored and staged for delivery by ground support.



Example of damage from Hurricane



CDR Leo Angelo Gumapas, National Institutes of Health



CDR Gumapas refueling a Reefer Truck in San Juan PR



CDR Gumapas fixing a belt on a 12 ton transportable HVAC in Aguadilla, PR BoO



CDR Gumapas and CDR Yang shutting off valves to prevent 90,000 gallons of water loss per day in Bayamon, PR



CDR Gumapas assessing a cooling tower in Bayamon, PR

CDR Leo Angelo Gumapas, an Environmental Engineer at the National Institutes of Health, Bethesda, MD was deployed for the Hurricane Irma/Maria Puerto Rico Response with Incident Response Command Team Logistics (IRCT-Logs) in San Juan, Puerto Rico (PR) for one (1) month (October 6, 2017 to November 6, 2017) as a Logistician.

The deployment mission was to provide ground support for Field Medical Stations (FMS) or Base of Operations (BoO) that provided healthcare to Puerto Ricans after Hurricane Irma and Maria struck Puerto Rico on September 8 and 20, respectively.

Deployment duties included:

- Filled tasker requests and delivered medical supplies to various FMS or BoO sites set up in Puerto Rico
- Conducted engineering assessments to evaluate potential sites to deploy a FMS
- Provided root causes analysis to improve heating, ventilation, and air condition (HVAC) utility consumption at FMS or BoO sites.
- Developed statements of works to provide wrap around services for FMS or BoO sites
- Conducted engineering assessments to provide operational utilities for hospital facilities in Puerto Rico



(L-R) LCDR Erickson, CDR Gumapas, and LCDR Mann performed a safety assessment for USN Comfort BoO in San Juan, PR

CDR Kurt Kesteloot, National Park Service

1. Hurricane Matthew 2016, (NPS Damage assessments/Repair Projects), October 10-18.
Experience:
 - a. Assessments of damaged facilities from the hurricane to develop cost estimates for repair. Utilized tablets to take photos and generator work orders.
 - b. Developed work orders, cost estimates, and generated projects in NPS facilities programs to repair hurricane damage and estimate total storm damage costs.
2. Hurricane Sandy 2012 (NPS Gateway National Recreation Area), 1NOV12-9NOV12.
Experience:
 - a. Public health and safety assessments at four locations with about 30 buildings total
 - b. Analysis and repair recommendations for a 280,000 gpd wastewater treatment plant that serves a USCG station, NOAA station, NPS housing, and a county school.
3. Hurricane Irene 2011 (NPS Cape Lookout National Seashore), 26AUG11-9SEP11.
Experience:
 - a. Public health and safety assessments at four locations with about 50 buildings total.
 - c. Use of NIMS and ICS national systems and forms (215A, 201, etc.)



NPS condition assessment team for Matthew

CAPT John Longstaff, Indian Health Service



CAPT Longstaff served as logistic lead for Hurricane Ike Deployment in 2008. With this role, CAPT Longstaff took lead on coordinating facility logistic and transportation for team members, ensuring adequate supplies to staff the Federal Medical Station.

Generally, for deployments, CAPT Longstaff indicated that once on site, it is important to establish the routine as soon as possible. In addition, create a burn rate tracking sheets for supplies so that any moment in time, you can view these sheets to get a snap shot of what supplies are available, and establish the burn rate for any supplies (i.e. how fast the supplies are being used and how soon we need to run out).

CAPT Longstaff's advice for deployments in generally is to:

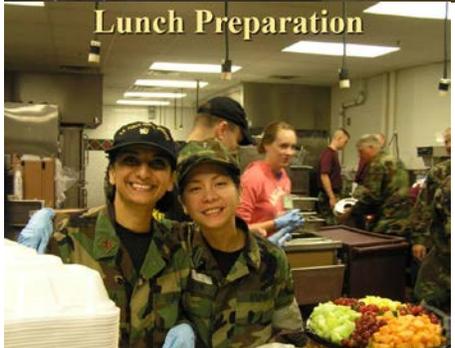
- Remain adaptable on deployment and ready to fill in any deployment role as needed
- Be creative and ready to solve problems that you run in during deployments
- Work collaboratively with team members and volunteers

LCDR QuynhNhu Nguyen, Food and Drug Administration



Hurricane Ike Deployment Timeline

- Sept 5 - Sept 9: Washington DC to Atlanta GA
 - Staging and planning for hurricane relief
- Sept 9: Atlanta GA to Dallas TX
 - Transitioning and getting ready to be mobilized to mission site where PHS Commissioned Corps set up Federal Medical Station (FMS)
- Sept 10: 4 Hour Bus Drive to College Station TX
 - Directive and mission were given to go to Texas A&M University
- Sept 10 – Sept 28: College Station TX
 - FMS was set up and maintained for 3 weeks at the Reed Arena Texas A&M University
 - 4 miles south of Dallas and ~140 miles from coastal line
- Set up Federal Medical Station with capabilities:
 - Special needs sheltering for displaced persons with chronic diseases, limited mobility, or behavioral health requirements
 - Inpatient care with sub-acute, non-traumatic, non-surgical treatment
 - Support to quarantine or isolate persons suspected of being exposed to or affected by a contagious disease
 - Provide foods, water, and clinical service to sheltered patients



L-R: LCDR Varsha Savalia and LCDR QuynhNhu Nguyen



- Roles in deployment
 - Ensured food safety
 - Collected and entered patient data
 - Transcribed patient prescriptions
 - Emptied soiled linens
 - Prepared and delivered food to patients
 - Hand-fed patients who couldn't eat by themselves
 - Kept kitchen clean at all time
 - Good infection control practices
- What to look for on deployments:
 - 17-day deployment period
 - Worked 14-16 hours shift, occasionally, worked 24 hours shift
 - Shared sleeping arena with all of other female officers (snorers and non-snorers)
 - Waited in line for taking shower daily (better showers at Read Building – another gymnasium)
 - Moved luggage back and forth depending on the assigned sleeping locations
- General thoughts:
 - Deployment is all about focusing on the mission at hand and providing service to others.
 - Deployment is a rewarding experience in helping special needs and other patients who really needed our help.
 - Deployment is about getting to know other officers in the Corps and working along side with them day in and day out.