Rapid Response

Omaha District's Technical Center of Expertise answers the call to Hurricane Maria

October 2017 to March 2019

The Omaha District's Rapid Response Technical Center of Expertise has the U.S. Army Corps of Engineers Headquarters authority to execute time-sensitive work when the impacted Major Subordinate Commands and local USACE Districts have insufficient capability to execute their program needs. While the RR-TCX has that authority, it has always been able execute by garnering support and concurrence through the Rapid Response board of directors, of which the impacted MSC and geographic district are a part.

The RR-TCX provides support to all federal agencies who meet program criteria. Time-sensitive work includes infrastructure repairs under Rapid Disaster Infrastructure program and Hazardous Waste Recovery actions within the Rapid Response Program.

Established in 1987, RR-TCX personnel bring the contracting tools and project management expertise needed to rapidly execute time sensitive missions across the U.S. and around the globe. This Tiger Team has executed more than $2.5 billion in contract actions on a variety of mission assignments. RR-TCX personnel are subject matter experts in managing cost reimbursable contracts and have the expertise needed for near real-time decision making required for work in ambiguous and rapidly evolving environments.

Rapid Response work is planned and executed expeditiously, but always to the required standards of quality and safety. All RR-TCX missions are planned and executed in collaboration with all stakeholders to ensure expectations are appropriately managed and contracts meet their specific needs and technical requirements.

Flexibility and cost-reimbursement contract execution ensures cost efficiency to the government on time-sensitive, oftentimes unique project requirements.

The value of the Rapid Response Team was never more evident than following the devastation caused to Puerto Rico by Hurricane Maria in September 2017, which wiped out the entire power grid, plunging the island into darkness. The Rapid Response team was called in to support the Puerto Rico Electric Power Authority to ensure adequate interim electrical generation was available for two of Puerto Rico's primary power plants, Palo Seco and Yabucoa, as the U.S. territory worked to restore its power grid.

Col. John Hudson

The RR-TCX received its mission assignment to Puerto Rico on Oct. 4, 2017, and within 28 days had two temporary 25-megawatt generators transported, installed, and operationalized in the community of Palo Seco – a herculean effort by any standard. The final mission tasker was completed in March 2019, nearly 18 months after the original request for support.

The success of the program resides in leveraging a highly skilled and experienced team of professionals with the right contract tools who are ready and able to rapidly respond to a vast array of time sensitive needs regardless of location in service to our Nation.

Site Prep at Palo Seco just before equipment arrived

Just as the sun would have been rising on the Commonwealth of Puerto Rico on Sept. 20, 2017, Hurricane Maria, a Category 4 storm, swept from one end of the island to the other, engulfing everyone, and everything in her fury.

Just weeks earlier, Hurricane Irma had brushed the northern edge of the island leaving one million U.S. citizens without power.

Maria, the most damaging storm to hit the U.S. territory in more than 80 years, made landfall near the Yabucoa municipality in the southeastern part of the island and worked her way westward.

When Maria plowed across the island with sustained winds of 155 mph, she uprooted trees, downed weather stations and cell towers, ripped roofs off of homes, and took down the entire power grid, plunging the island into total darkness.

Two of the most important power plants for Puerto Rico, the Palo Seco Power Plant just outside of the capitol of San Juan, and the Yabucoa Power Plant were severely damaged. Both needed outside help to provide electricity as power lines were restored, and repairs were made to make both plants fully operational.

Under the leadership of FEMA, the U.S. Army Corps of Engineers was called in. USACE headquarters turned to the Omaha District, and its Rapid Response-Technical Center of Expertise to solve the problem.

RR-TCX working with FEMA and the Puerto Rico Electric Power Authority, executed a $35.1 million Rapid Disaster Infrastructure Multiple Award Task Order Contract (later to total $223 million) expediting a full and open contract solicitation to select a prime contractor to install and provide two 25-megawatt generators at the Palo Seco Plant.

The contract was competitively awarded and notice to proceed provided to Weston Solutions on Oct. 8, 2017, only five days after USACE received the power restoration mission assignment.

The generators were installed on Oct. 15, and provided load stabilization to the Palo Seco plant starting on Oct. 29, by preventing rolling blackouts, thus allowing for an additional 602 megawatts of electrical power to be generated to meet the customer demands in the greater San Juan area.

On Nov. 6, 2017, Omaha District awarded an RDI MATOC contract to APTIM Federal Services, LLC, to provide a 25-megawatt generator to provide power and load balancing to the Yabucoa Power Plant starting on Dec. 9.

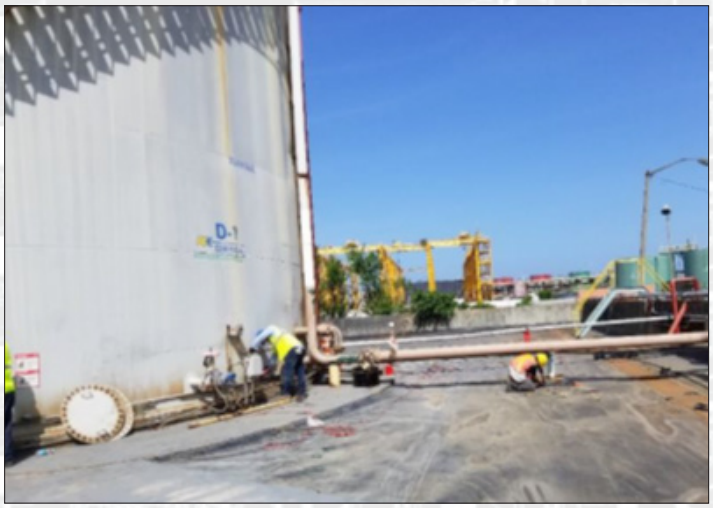
The Yabucoa generator not only created clean sustainable power for the grid, it stabilized the economy — without it business threatened to leave the area.

It was removed from service in July 2018.

The Palo Seco generators were taken offline on March 8, 2019, signalling the end of the Rapid Response team's mission in Puerto Rico.

KEY STATS:

- $233 million contract utilizing the Rapid Disaster Infrastructure MATOC> The Omaha District was able to put in place a contract to deliver temporary power generation at Palo Seco, in a timely manner. This was one of the fastest mobilizations and set up of fully operational temporary power generation units ever conducted, being fully operational in less than 24 days. The two generators installed at Palo Seco provided an average of 55 megawatts of power from Oct. 29, 2017, through March 8, 2019.



- Consumed more than 44 million gallons of fuel without any spills. Diesel tank No. 1 using ultra-low sulfur (<15 ppm) diesel fuel #2 to supply generators. Tank required minor repairs prior to use.

- Produced approximatley 600K megawatts of power. A generator set consists primarily of three modules. Turbine, generator modules, and control modules.

- Worked approximately 100K man hours without a lost time incident.

- Approximately 97% efficiency operating time (including all scheduled and unscheduled outages).

KEY STATS:

- **$57.4 million dollar contract value. Utilizing the Rapid Disaster Infrastructure MATOC, the Omaha District was able to put in place a contract to deliver temporary power generation at Yabucoa, Puerto Rico, in a timely manner in order to stabilize the power grid and reduce outages on the east side of the island. The generator installed at Yabucoa provided a daily dose of 20 to 28 megawatts of power from Dec. 9, 2017, through July 18, 2018.**

- **Consumed more than nine million gallons of fuel without any spills.**
- **Produced more than 120,000 megawatts of power.**
- **Worked approximately 51,000 man hours without a lost time incident (more than 288 days).**
- **Provided an approximately previously unheard of 98.5% efficiency operating time (including all scheduled and unscheduled outages).**

PALO SECO TIMELINE

9/20/17
Hurricane Maria Makes Landfall

10/4/17
Rapid Disaster Infrastructure Mission Assignment

10/8/17
Contract Awarded

10/9/17
Team Mobilized

10/15/17
Equipment On Site

10/29/17
Generators Operational

Eleven contract modifications and extensions

3/08/19
Operations Complete

3/22/19
Demobilization Complete

The two generators installed at the Palo Seco Power Plant provided a combined 50 megawatts of power from Oct. 29, 2017, through March 8, 2019.

10/30/17
Rapid Disaster Infrastructure Mission Assignment

11/6/17
Contract Awarded

11/17/17
Equipment On Site

12/09/17
Generators Operational

Five contract modifications and extensions

7/18/18
Operations Complete

8/23/18
Demobilization Complete

Utilizing the Rapid Disaster Infrastructure MATOC, the U.S. Army Corps of Engineers-Omaha District was able to put in place a contract to deliver temporary power generation at Yabucoa, Puerto Rico, in a timely manner in order to stabilize the power grid and reduce outages on the east side of the island.

YABUCOA TIMELINE

Rapid Response Technical Center of Expertise Program Manager Tim Gouger talks with USACE South Atlantic Division Commander Brig. Gen. Diana Holland onsite at the Palo Seco Power Power Plant about the plan to install two 25-megawatt generators to provide temporary power until the plant is back up and running at full capacity following Hurricane Maria.

First developed in 1987, the current form of the Omaha District's Rapid Response Technical Center of Expertise has morphed over time.

In the early years, Rapid Response was used for everything, including numerous work categories under Disaster Recovery Services (debris, temporary housing), Infrastructure Repairs (embassy upgrades), Security Systems repairs, and hazardous waste recovery. As needs changed, so did the program.

"Over time, there was a need to create other contract tools and programs to support the work originally performed under Rapid Response to include the Fuels System Repairs under the fuels program, embassy upgrades under the TRSS (Tenant Renovation of Secured Spaces), Security Disaster Infrastructure Repairs under SDIC (Security, Disaster, Infrastructure Construction), and Infrastructure repairs under Rapid Disaster Infrastructure," said Tim Gouger, RR-TCX program manager.

Since its humble beginnings, the program has morphed into two separate programs, the Rapid Disaster Infrastructure Program and the Rapid Response Program; both falling under the Rapid Response Technical Center of Expertise.

"Omaha has developed a culture for cost reimbursable contracting across and within the executive office, contracting, program management, construction and engineering," Gouger explained. "That culture sustains a flexible business model to adjust to incessant changes and manage expectations throughout. It requires government representatives to be part of, and proactively participate, in the daily decision making for planning and execution with the contractor in order to maintain reasonable approaches and execution, even when as much does not meet the contractors' financial expectations."

Having that flexibility allows the RR-TCX to execute quickly, even under the most adverse conditions.

"At Palo Seco we went from being given a mission assignment to transporting, installing and commissioning power generation within 28 calendar days, a world record according to our subcontractor APR who does this type of work all around the globe, " Gouger exclaimed.

He went on to explain that the RR-TCX's cost reimbursable culture is a paradigm shift compared to firm-fixed contracts, which is the norm throughout the USACE enterprise.

RAPID RESPONSE PROGRAM

The Rapid Response Program is a Single Award Task Order Contract for which task orders are awarded under an unrestricted business capacity of up to $80 million and 8A program capacity of up to $95 million. Projects can occur anywhere in the world.

RRP deals with time–critical hazardous waste recovery actions and has undergone five generations of contracts. RRP focuses on time-critical infrastructure repairs and has cycled through two generations of contracts.

When natural disasters such as Hurricane Maria strike, the SATOC requires the Omaha District's Rapid Response Team to be boots on the ground to start assessing the damage within 72 hours (24 hours in the case of Anthrax work) of receiving funding.

It provides full-response hazardous waste recovery service in situations where rapid or immediate response action is necessary to protect human life, public health or the environment for projects such as:

- Aircraft crash cleanup
- Tank spill response
- Hydrant system repair/spill response; drum
- Asbestos, sediment and soil removal actions
- Design/build landfill cover systems
- Mine tailings removal and remediation under the Abandoned Mine Lands Program
- Drum removal and underground/aboveground storage tank spill response support
- House Hold Hazardous Waste

The RR-TCX provides support to all Federal Agencies who meet program criteria. Flexibility and cost-reimbursement contracts ensure cost efficiency to the government.

Other RR-TCX features include:

- Rapid Response PDT includes integration of local district, as possible
- Rapid Response Site "Start Up" and Transition to local District for long-term execution
- HQUSACE "Tiger Team" Support
- Cost Reimbursable Contract Management Training
- Site Support to USACE and all other Federal Agencies

RDI PROGRAM

The Rapid Disaster Infrastructure program is a Multiple Award Task Order Contract for which task orders are awarded under an unrestricted business capacity of up to $345 million. Projects can occur anywhere in the contiguous United States, including Alaska, Hawaii and U.S. territories such as Guam and Puerto Rico.

"RR TCX accepts work that requires an urgent need to recover from a surprise event in timeframes that preclude traditional contracting mechanisms," Gouger said. "There is a great need to perform construction repairs or disaster recovery services or hazardous waste recovery in the most timely manner possible."

RDI provides life-cycle project and construction management from concept to completion for federal agencies to reduce risks for such projects as:

- **Construction:** Repairs, renovation, construction, etc. to facilities, infrastructure, water and sanitation systems, electrical systems, natural gas and other energy systems, fences, lighting, and roads to support troop movements and other crucial military missions.
- **Flood Recovery:** Repairs, renovation, construction, etc. to flood control and water diversion structures, embankments, channel alignments and flood control structures.
- **Infrastructure Recovery:** Restoration, repair, and demolition of facilities, utilities, real property systems, and other infrastructure requirement that cannot be performed in required time frames with normal contract mechanisms to meet vital mission requirements.
- **Emergency Management:** Response actions such as unwatering missions, which require execution within hours of receiving funding and recovery actions such as debris recovery, temporary housing, etc, which require execution within days of receiving funding.

Palo Seco Challenges

Fuel tank repairs: Repairs of fuel tank No. 1were more extensive then initially anticipated. The RDI team was able to accomplish this additional work while the contract modification was being processed.

Port Delay: Critical equipment was delayed hours through the San Juan port until required clearance paperwork was received.

Commissioning: Commissioning was delayed 96 hours while the contractor completed required critical punch list items.

Logistical: Getting resources (equipment and people) to the job site in a timely manner. FEMA Logistics, Puerto Rico Port Authority, U.S. Customs and Border Protection were all instrumental in overcoming this hurdle.

Adapting to existing infrastructure - Omaha's RR-TCX installed state-of-the-art equipment into a power plant that was built 44 years ago. Repairing the out-of-service bulk storage fuel tank, constructing a fuel line, integrating the APR generator diagnostics to that of PREPA were all challenges that had to be overcome in order to allow PREPA to leverage the asset he RR-TCX installed.

Palo Seco Successes:

Rapid Disater and Infrastructure (RDI) Contracting tool and operating procedures: Omaha District RDI contracting tool allowed for a rapid award, mobilization, and execution of the project.

The Omaha RDI contractor was able to accomplish a record time installation of the generators in seven days, a task that normally takes 21 plus days.

Reuse/Adapt site: The RDI team was able to identify time-saving site adaptions that allowed for a quicker commissioning date.

Developing working relationships: The relationships between USACE and PREPA have become a force multiplier.

Photo: The two 25-mega watt generators at Palo Seco are prepped for demobilization

Yabucoa Overview

Under FEMA's financing, USACE contracted APTIM to install a mega generator at PREPA's existing Yabucoa switchyard for temporary emergency power.

On the commissioning date of Dec. 9, 2017, the mega generator provided much needed electrical power to the residents and businesses in the immediate area around Humacao, Puerto Rico.

After the electrical grids were restored, the mega generator was connected to the grid and contributed power, voltage, and frequency modulation to the Puerto Rico grid.

After grid problems were repaired and switched to droop mode, the generator produced more than 25 mega watts of power at not less than an average of 98.5% availability.

During the mobilization, operation, and demobilization, there were no lost time incidents in 51,127 work hours on site for more than 288 construction and operational days.

Over time, the Commonwealth of Puerto Rico sufficiently recovered from the effects of the hurricane, such that the Unified Command Group determined on June 18, 2018, that mobile power was no longer needed.

In response, USACE directed removal of the mega generator from operation at the Yabucoa switchyard. After 222 days of operation, the generator was shut down at midnight on July 18, 2018, and subsequently demobilized off the site on Aug. 23, 2018.

OMAHA'S RAPID RESPONSE

HURRICANE MARIA