

**2020 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD
ENVIRONMENTAL QUALITY – INDIVIDUAL
MARINE CORPS BASE HAWAII**

BACKGROUND.

Nominee: He Xu-Sadri

Position: Environmental Engineer (GS-11)

Location: U.S. Marine Corps, Marine Corps Base Hawaii (MCBH)

Organization: S-4, Environmental Compliance & Protection Division (ECPD)



He Xu-Sadri, GS-11 Environmental Engineer, conducts a Storm Water Pollution Prevention Best Management Practices (BMPs) inspection at an ocean side construction site near North Beach aboard Marine Corps Base Hawaii (MCBH). Storm Water BMP inspections are conducted regularly on MCBH. The inspections ensure compliance while actively preventing pollution, thereby protecting human health and the environment.

POSITION DESCRIPTION.

Ms. He Xu-Sadri provides guidance and interpretation of environmental engineering policy directives and programs to ensure MCBH has consistent compliance with Federal, State and local environmental regulations. She maintains compliance in accordance with State of Hawaii Department of Health (HDOH) permits, including a NPDES Storm Water Permit and a Non-Covered Source Air Permit with all associated rules and regulations under the Clean Air Act, Clean Water Act, and Safe Drinking Water Act. Ms. Xu-Sadri also reviews facilities project plans/designs to ensure environmental standards and concerns are properly addressed. She develops and promotes professional working relationships with base program managers and facilities staff, contractors, consultants, and DOH permitting and compliance staff.

CONTEXT. MCBH occupies the entire Mokapu Peninsula along the eastern shore of the island of Oahu, Hawaii. The Base encompasses a total land area of approximately 2,951 acres. It is bordered on the north by the Pacific Ocean, on the east by Kailua Bay, and on the west and southwest by Kaneohe Bay. It is connected with Oahu Island, yet surrounded by State waters. The unique geographic features of MCBH create a lot of challenges when it comes to compliance management.



MCBH Kaneohe Bay. In the foreground, Ulupa'u Crater Live Fire Range; Kaneohe Bay lies in the background separating the MCBH peninsula from the city of Kaneohe.

ACCOMPLISHMENTS.

MCBH Storm Water Program Manager

As the Storm Water Program Manager, He Xu-Sadri is responsible for all aspects of the MCBH NPDES Permit and associated Storm Water Pollution Prevention Plan (SWPPP). Immediately upon joining the Environmental Compliance and Protection Division (ECPD), an evaluation of the MCBH Permit and SWPPP was initiated to determine whether or not all requirements were being met. At the same time, an audit of the requirements was conducted to determine where inefficiencies may have been built into the previous management approach. Inefficiencies were identified where the MCBH SWPPP directed unnecessary or over-complicated action that was more than the permit required. He Xu-Sadri proceeded to implement corrective actions and modifications to remove inefficiencies and non-compliance, simplifying the approach where appropriate. This allowed several mentionable things to happen, including the significant program improvements and cost savings described below.

❖ Stormwater Sampling Plan Review and Approach

He Xu-Sadri modified our storm water sampling plan to make it more efficient, reducing storm water sampling requirements by 40 percent and saving nearly \$45K in contract sampling costs. In FY19, He Xu-Sadri initiated an evaluation of our monitoring program to determine whether internal resources are adequate to conduct storm water monitoring without contracted assistance. A shift to more of a watershed approach to our sampling plan has been initiated; meetings with DOH regulators have met with positive feedback. A transition to internal sampling is planned to begin in FY21. In addition, we conduct semi-annual illicit connection surveys and facility inspections, inspect construction sites to ensure use of best management practices (BMPs), and draft and submit annual reports.

❖ Overhaul of Construction Site Inspection Program

Completed using in-house resources, Ms. Xu-Sadri reorganized the storm water (SW) construction inspection record keeping practices and scheduling and created a new SW Inspection Database at zero additional cost. These improvements better meet permit requirements and generates efficiencies that helped allow a reduction in contracted support required for the Water Quality Program by 50 percent, saving \$150K annually.



He Xu-Sadri, GS-11 Environmental Engineer, installed a check dam to improve discharge water quality at the North Beach outfall aboard Marine Corps Base Hawai'i (MCBH) with SEABEE support. Storm water from a nearby construction site flows through a drainage system towards the ocean. The dam helps prevent pollution by absorbing contaminants, conserves natural resources in the nearshore and marine environments, and protects human health.

In FY18, MCBH paid \$180K to a contractor for construction site inspections. After Ms. Xu-Sadri inherited the storm water program, she took over the construction site BMP inspection. She works closely with other departments including Planning and Engineering to identify the potential impacts on storm water and promote key projects that can resolve environmental issues. She makes recommendations to address technical, compliance and community issues before construction starts. This helps to minimize the impact that construction would bring to the surrounding environment. It also minimizes delays in project completion allowing faster mission accomplishment. Removing contract support for the inspections reduces annual cost another \$180K.

Since March 2019, Ms. Xu-Sadri and her team has completed over 60 inspections at 15 construction sites on MCBH, including formal inspection and rainfall events inspection.

❖ Storm Drain Marking Program Improvement



Ms. Xu-Sadri, GS-11 Environmental Engineer, applies a stencil to the side walk just above a storm drain inlet in the industrial and maintenance area of Marine Corps Base Hawai'i that reads, "No Dumping...Drains to Ocean."

MCBH's Storm Water NPDES permit with HDOH requires the base to mark at least 50 storm drains annually. Ms. Xu-Sadri examined the previous storm drain marking program carefully and found out there were significant gaps. High cost: Each storm drain placard costs \$25 with an annual minimum of 50 placards totaling \$1,250. This cost does not include replacement costs or tool rental costs. For the five-year permit term, the placards alone would cost \$6,250. Also, they are difficult & time consuming to install; the placards were made of two thermoplastic layers (blue on the bottom, white on top), which needed to be applied separately with a commercial grade propane torch, a time-consuming process. The personnel performing the installation also needed to be specially trained before using a commercial grade torch. Short-lived, the placards were not durable, often failing during install.

Ms. Xu-Sadri determined that the previous decision to use double-layer thermoplastic placards for storm drain marking were inefficient, ineffective, and a poor fit for MCBH. The drawbacks listed above resulted in a very slow rate of storm drain marking, which resulted in a permit noncompliance issue because not enough storm drains were being marked. Ms. Xu-Sadri decided to use a paint stencil on the storm drain inlets instead. After management approval, Ms. Xu-Sadri ordered an aluminum custom-made storm drain stencil for \$202. This durable light weight stencil can be applied easily by one person

at approximately \$0.20 per marking. 125 storm drains can now be marked for the cost of a single marker, at a much higher rate of storm drain marking. Over the five-year permit period, savings on markers alone equal at least \$6,200.

In FY18, due to the staff turn-over and slow rate of storm drain marking, there were only 14 storm drains marked which could have led to non-compliance with a permit stipulation. Ms. Xu-Sadri solicited assistance from the MCBH Boy Scouts Troop 425 for participation. On June 1, 2019, total of 18 Troop 425 Boy Scouts successfully marked 124 storm drain inlets. With another 73 storm drain inlets marked by Xu-Sadri on MCBH in FY19, a total of 197 storm drains were marked. The additional markers made up for the shortfall in previous years.



He Xu-Sadri, GS-11 Environmental Engineer, giving a safety brief before MCBH Boy Scouts Troop 425 members go out for Storm Drain marking on June 1st, 2019. The program enhances community awareness of storm water runoff and non-point source pollutions.

❖ Drying Bed Project

For clogged storm drains, a vacuum truck is needed to remove all the debris from the drain. On MCBH, due to the limited space available for debris storage and processing, storm drains have not been cleaned. After Ms. Xu-Sadri became aware of this issue, she worked with MCBH Facilities to formulate a long-term solution – to build a debris processing drying bed pad. It is scheduled to be completed using in-house resources thanks to the Seabees. Once the drying bed is built, it will significantly improve the current storm drain maintenance situation and improve drainage in locations that tend to flood during heavy rain events.

❖ Improved Storm Water Outreach Program

The MCBH Storm Water Outreach Program was not fully developed. There was a lack of informational hand-out materials or hands-on demonstrations. Ms. Xu-Sadri proactively contacted DOH Clean Water Branch and City & County of Honolulu Board of Water Supply, acquiring Clean Water related hand-out materials at no cost. In FY19, Ms. Xu-Sadri received a total of 550 storm water coloring books for kids and informational clean water hand-outs from those agencies. More than 400 handouts were distributed during FY19 outreach events.



He Xu-Sadri, GS-11 Environmental Engineer, setting up the Storm Water demonstration model and Storm Water informational material for the FY19 Earth Day Event at Riseley Field

During a time where funding is very limited, Ms. Xu-Sadri built a storm water demonstration model on her own and displayed it in various outreach events including the FY19 Earth Day Event. Later on, when funding was approved, Ms. Xu-Sadri purchased a hands-on, storm water model which was highly representative of MCBH’s geographic features. Feedback from students has been very positive, and it is now widely used in outreach events.

❖ Illicit Discharge Response

North Beach Cove at MCBH received repeated brown water discharges during rain events in FY19. While a nearby construction site was revising their BMPs, Ms. Xu-Sadri conducted several site investigations and designed a check dam for installation between the outfall and North Beach Cove to improve the discharge water quality. She worked closely with MCBH Facilities for check dam material purchasing and went on site for installation once the material arrived.

❖ Air Program Management

In the face of manning challenges, He Xu-Sadri volunteered to take on the duties as the Air Program Manager. She immediately jumped in, processing required Air Emissions Reports and putting together an in-house submittal of the Non-Covered Source Air Permit renewal application. By keeping the permit renewal in house, and by providing program coverage using existing staff, over \$175K was saved. At the same time, updates to emissions source inventory were started; at the end of the performance period, the inventory was approximately 70 percent completed.

❖ Other Accomplishments

Participated as subject matter expert and team leader during our most recent base-wide cleanup event “Malama Ka Aina.” The event was highly successful, removing 128 tons of solid waste and recyclables from the environment over the three-day event.

Improved communication with internal stakeholders for better compliance and greater efficiency. Initiated regular meetings with MCBH Facility & NAVFAC personnel regarding MCBH stormwater compliance and overall ECPD project management.

Conducted storm water modelling at MCBH’s Summer Fest Event during the summer of 2019, and gave out over 250 copies of storm water pollution prevention material and coloring books, promoting storm water pollution prevention concepts with students and parent participants.

Taught multiple ECPD Storm Water Pollution Prevention training courses, explaining Best Management Practices to base unit personnel and construction contractors.

Coordinated for Facility Maintenance Crews to clean up a 3rd Street gravel and soil spill, preventing soil pollution from reaching Kaneohe Bay.

Initiated MCBH storm water drainage system condition assessment with base Facility Planning Branch; successfully generated buy-in by explaining how it is important to have the Base’s storm drain assessed. Planning for the survey began in FY19; it will give a clear idea of which sections of the storm drain system on base need repair/replacement. The work will lead to cleaning actions and a reduction in soil pollution to the surrounding waters.



Community Service and Professional and Personal Affiliation

- Volunteered at “Banding Shearwaters” event, working with ENV Natural Resources personnel.
- Water Environment Federation (WEF), member since 2011
- Young Women’s Christian Association (YWCA), 2019
- Humane Society Food Service Volunteer
- Participated in American Cancer Society, “Relay for Life”
- Assisted and matched qualified candidates with Catholic Charities Hawai’i, Salvation Army, Helping Hands Hawai’i, and the Humane Society for temporary housing assistance

He Xu-Sadri, GS-11 Environmental Engineer, holding a Wedgetail Shearwater seabird, ready for banding at Fort Hase Beach, MCBH. Seabirds are released back to their original nest after banding is done. Base Environmental Division works in conjunction with University of Hawai’i to tag the federally protected birds, allowing them to track and monitor the species overall health and population.

CONCLUSION

The Marine Corps Base Hawai'i Environmental Compliance & Protection Division is dedicated to meeting and exceeding expectations; Ms. He Xu-Sadri models this dedication. She has been an excellent steward of the tax payers' money. The following table summarizes the new projects and improvements to existing programs that Ms. Xu-Sadri initiated and promoted resulting in significant cost savings.

Program	Cost Savings
Storm Drain Marking Program Improvement	\$6,200 (over 5 years)
In-House Air Permit Renewal	\$25,000
In-House Construction Site BMP Inspection	\$150,000
Storm Water Sampling Reductions	\$45,000
Environmental Services Budget Saving	\$180,000
Air Program Support & Permitting	\$175,000
TOTAL	\$581,200

Redistribution of savings allows for overall improved mission support. Funding aside, the time savings resulting from Xu-Sadri's efficiencies and increased effectiveness facilitate MCBH mission accomplishment. Going forward with improved, established communication networks and improved processes, our support of the mission will only get better. He Xu-Sadri is a big part of making that happen as her goal is the same as that of ECPD: *Continual Improvement in Pursuit of Excellence*.