

## **INTRODUCTION**

U.S. Naval Ship Repair Facility and Japan Regional Maintenance Center (SRF-JRMC) is the primary naval ship repair facility in the Far East, and provides the full range of ship repair, modernization and support services to the 19 home ported ships of the Forward Deployed Naval Forces serving the U.S. SEVENTH Fleet (7<sup>th</sup> Fleet), as well as voyage repairs to visiting U.S. and foreign ships. SRF-JRMC has been called the Linchpin of the Pacific because our mission is to “Keep the SEVENTH Fleet Operationally Ready” and our personnel performing the major industrial ship repair activities help ensure the capability of our forces in the region. The SRF-JRMC Yokosuka facility has been in existence since 1947 and played a vital role in maintenance and repair of the 7<sup>th</sup> Fleet during the Korean War and Vietnam War. It now proudly services the USS BLUE RIDGE, the flagship of the 7<sup>th</sup> Fleet, the first and only forward-deployed U.S. Navy nuclear-powered aircraft carrier USS GEORGE WASHINGTON, and the operating forces of Commander Destroyer Squadron 15, the U.S. Navy’s largest destroyer squadron. The SRF-JRMC Detachment, Sasebo facility was officially established in 1984 and proudly services the U.S. Navy’s only forward-deployed Amphibious Ready Group, anchored by the USS BONHOMME RICHARD along with four Avenger-class mine countermeasures ships. SRF-JRMC established an Environmental Management System (EMS) independent from our host installations (Commander, Fleet Activities Yokosuka and Commander, Fleet Activities Sasebo) because the industrial work processes at SRF-JRMC are distinct from the primarily non-industrial activities of the other tenant commands on the installations. SRF-JRMC is included on the list of Navy Appropriate Facilities and maintains a fully functioning EMS.

SRF-JRMC continues to uphold its vital function in the U.S. Navy’s strategic focus on the Pacific. We employ over 350 U.S. Navy and U.S. civilian personnel as well as over 2,000 full-time Japanese National employees, making for a rich and multicultural workforce. Facilities at SRF-JRMC Yokosuka support dry docking of most U.S. Navy ships. These facilities include six dry docks with a combined displacement of 530,000 tons, 19 wet berth locations, 10 industrial buildings with combined workshop space of 730,000 square feet, and 15,300 combined feet of pier to support maintenance and repair activities. At Detachment Sasebo, SRF-JRMC personnel perform ship maintenance and repair activities and also perform oversight functions of production work contracted to many local contractors. SRF-JRMC has developed strong partnerships with its host installations, its customers (7<sup>th</sup> Fleet ships), and with the Japan Maritime Self-Defense Force, the naval branch of the Japan Self-Defense Forces.

SRF-JRMC conducts depot-level Chief of Naval Operations (CNO) Selected Restricted Availabilities (SRAs), Docking Selected Restricted Availabilities (DSRAs), and Continuous Maintenance Availabilities (CMAVs) to keep the ships of the 7<sup>th</sup> Fleet operationally ready. The ship maintenance and repair activities conducted by SRF-JRMC involve the use of hazardous materials and generate hazardous and industrial waste, as much as over one million pounds per year. The hazardous materials and the subsequent hazardous waste generated have the potential for significant environmental impacts on the environment of Japan. Potential uncontrolled releases of hazardous substances (spills), and the generation and disposal of wastewater also pose significant environmental impacts. With industrial work conducted on the waterfronts of Yokosuka and Sasebo, SRF-JRMC is committed to mission readiness and environmental stewardship of the natural resources of Japan associated with shipyard activities. In its recent history, SRF-JRMC has been awarded the FY11 CNO Environmental Award for Sustainability,

Industrial Installation; the 2011 Secretary of the Navy (SECNAV) Safety Excellence Award for mid-sized Industrial Activities Category for OCONUS and CONUS; the 2011 CNO Shore Safety Award for OCONUS Industrial Category; and SECNAV Voluntary Protection Program (VPP) Star Site Recognition for both SRF-JRMC Yokosuka and Detachment Sasebo.

## **BACKGROUND**

The date, 11MARI11, marked a watershed event in the history of Japan and the U.S.-Japan alliance. The Tōhoku 9.0 magnitude earthquake, subsequent tsunami, and the resulting Fukushima nuclear crisis brought together Team SRF-JRMC (U.S. Navy, U.S. civilian, and Japanese National employees) to participate in *Operation Tomodachi* (Operation Friendship). Strict energy conservation measures in support of all of the people of Japan were implemented at the SRF-JRMC Command. The badly damaged Fukushima nuclear plant released a radioactive plume that contaminated air and water. In the aftermath of the Fukushima nuclear power plant release, radiation precautions were taken for 7<sup>th</sup> Fleet ships to leave port after radioactive particulate fallout from Fukushima was detected in Yokosuka. Team SRF-JRMC conducted an SRA-at-Sea for the USS GEORGE WASHINGTON (CVN-73), an SRA at Detachment Sasebo for the USS LASSEN (DDG-82), and the Port Visit (PVST) at Yokosuka for the USS CURTIS WILBUR (DDG-54) during the uncertain and challenging period in 2011. During the SRA-at-Sea, there was zero environmental or safety violations or mishaps. The unprecedented SRA-at-Sea assured sustained readiness for the 7<sup>th</sup> Fleet in its mission in the Pacific.

In the face of the continuing challenges due to 11MARI11, the dedicated SRF-JRMC Team sustains a robust environmental management program that is in full conformance with the International Organization of Standards (ISO) 14001 EMS requirements. Environmental personnel comprised of both U.S. civilian and Japanese National employees at SRF-JRMC Yokosuka and Detachment Sasebo help to implement the EMS and environmental media programs to ensure compliance with the Japan Environmental Governing Standards and Navy directives. The SRF-JRMC EMS is the model for the region. SRF-JRMC promotes EMS resource-sharing and training, to include host installations and other activities, in the EMS Plan-Do-Check-Act execution. In August 2012, SRF-JRMC hosted Naval Civil Engineer Corps Officers School (CECOS) sponsored training on Integrated EMS and Compliance Auditing and personnel from other EMS-Appropriate facilities were invited, and attended the training. Through these efforts, other activities throughout the Far East have implemented the EMS quality management system approach created at SRF-JRMC. Another resource-sharing effort is that SRF-JRMC leveraged our EMS to implement the Voluntary Protection Program (VPP), which is structured on the contents of Occupational Health & Safety Standard (OHSAS) 18001. SRF-JRMC was successfully recognized with VPP Star Site Recognition in Feb 2012, becoming the first Navy activity outside of the U.S. to achieve this status.

## **ACCOMPLISHMENTS**

### **Environmental Management System Conformance and Noteworthy Practices**

SRF-JRMC has implemented an EMS in full conformance with ISO 14001 and OPNAVINST 5090.1C. In May 2009, an external EMS audit team from NAVSEA found zero non-conformance findings during the first audit upon implementation of the EMS at SRF-JRMC. In April 2012, Naval Facilities Engineering Command (NAVFAC) Pacific conducted the second external EMS external audit for SRF-JRMC and for the second consecutive audit, the team found

zero non-conformance findings. The NAVFAC Pacific auditors cited three Noteworthy Practices at SRF-JRMC: the development of standard operating procedures (SOPs) to insure continuity and consistency in the administering and managing of environmental media programs; implementing the "Energy Conservation Passport" described in a later section; and our proactive stance in providing environmental awareness briefings to shipboard personnel. The outstanding record of zero non-conformance findings in two consecutive external audits may be attributed to thorough application of the fundamental requirements of ISO 14001: top management engagement during EMS management reviews; an environmental quality management document system including procedures (such as SOPs) that are followed and implemented; an internal audit process that is carried out by Navy-qualified EMS auditors; and regular communication and training programs on environmental topics. The EMS document system includes the EMS Manual, and four types of SOPs: one type to implement the 18 ISO 14001 elements; a second type to implement environmental media programs; a third type to implement specific process monitoring requirements conducted by production personnel such as pH monitoring and underground storage tank leak monitoring; and a fourth type to implement an environmental quality sampling program. The sustainment and continuous improvement of our outstanding EMS has been supported by the SRF-JRMC Commanding Officer and all SRF-JRMC personnel in regards to the Command's commitment to environmental compliance and continual improvement. The following paragraphs provide more features of our EMS.

Training and Communication Practices: The EMS has been useful for improving training at SRF-JRMC. A gap in training that involved a lack of knowledge in hazardous material (HM) compatibility was identified in the hazard communication (HAZCOM) training program for SRF-JRMC personnel. To close the gap, the FY11 EMS Team developed and provided training on HM incompatibility and storage to over 1,300 employees in production shops and support codes over a four month period. In FY12, the HM incompatibility training was incorporated into the annual HAZCOM training program to ensure the training is consistently provided to all production shops and applicable support codes. SRF-JRMC has trained over 2,500 employees on EMS awareness since the beginning of EMS program implementation in 2007. To maintain a 100% completion rate for EMS awareness training, the environmental division established two types of training methods: web-based to capture employees with access to a work computer and classroom training to capture employees without ready access to a workplace computer due to the nature of their job. The use of two different training methods and incorporation of the environmental division in the training process has ensured that SRF-JRMC maintains a high training success rate. The training is provided in English or in Japanese, as appropriate, for our employees. In FY11 and FY12, 220 new personnel completed EMS awareness training. To continuously communicate and increase awareness of EMS and environmental related issues, the environmental offices at SRF-JRMC Yokosuka and Detachment Sasebo develop and distribute monthly environmental newsletters to all shops and codes. Additionally, the awareness efforts include proactively providing nine articles in FY11 and FY12 which were published in the Yokosuka installation newspaper (Seahawk), as well as having the SRF-JRMC Environmental Policy Statement posted on bulletin boards throughout the command. To enhance the ability of the environmental staff to perform internal audits and increase the quality of our audits, 14 out of 20 personnel in the environmental offices at both Yokosuka and Detachment Sasebo have completed the Integrated EMS and Compliance Auditing training provided by CECOS.

Additionally, while undergoing ship repair and maintenance at SRF-JRMC, the activities of the afloat forces (ship personnel) can have potentially significant impacts on the environment. To engage this potential impact, SRF-JRMC has taken a leading role in being close partners with ship's force. The command provides presentations to ship's force prior to ship availabilities to inform them of spill prevention, pollution prevention, waste disposal, and recycling in accordance with U.S. Navy and local environmental standards. On a routine basis, SRF-JRMC environmental team members participate in environmental safety briefs before ship refueling and defueling evolutions, ensure proper spill prevention measures are in place, and provide surveillance of the harbor waters during these operations to prevent and respond to spills. Environmental personnel participated in over 120 environmental safety briefs in FY11 and FY12 related to ship refueling and defueling evolutions.

Cross-Functional Teams: SRF-JRMC establishes EMS Aspect Teams each year with team members drawn from a cross section of the shops and codes at SRF-JRMC related to the EMS Aspect. This diversity in personnel helps bring new ideas and approaches and production shop perspectives to improve environmental compliance and prevent pollution while keeping the 7<sup>th</sup> Fleet operationally ready. Team members have, for the past four years, successfully identified and documented SRF-JRMC significant aspects and impacts to the environment; established long term EMS Objectives and short term EMS Targets for achieving environmental compliance and pollution prevention; and identified processes and resources needed to achieve measurable performance goals. In FY11 and FY12, in addition to environmental office personnel, cross-functional team members included personnel from the Service Shop Group, the Boiler/Fitting Shop Group, the Shop Division, and the Safety office.

Management Review: Updates on EMS and environmental compliance are presented to SRF-JRMC top management at EMS Management Reviews on a quarterly basis, exceeding the minimum requirements of OPNAVINST 5090.1C. The quarterly reviews are attended by the SRF-JRMC Commanding Officer, department heads and production group masters and provide a regular forum for executive management to be informed about EMS activities, environmental trends, and events and projects targeted at improving our environmental performance. The frequency is helpful to keep compliance concerns in the spotlight and also allows timely discussions on current topics. An example of a timely discussion is the discussion that occurred during a FY12 second quarter EMS management review about an increasing trend that was identified for steam usage in the first quarter. The discussion led to a refocusing of the target for the FY12 Energy Usage significant aspect to include steam usage. The 2012 external EMS audit team from NAVFAC Pacific made a Positive Observation finding: that the quarterly management reviews with SRF-JRMC senior management demonstrates the commitment and engagement of senior management to successfully implement our EMS.

The quality of our environmental program is further demonstrated by the following aspect/impact success stories.

### **Waste Reduction and Waste Management.**

Recycling and Waste Reduction. The SRF-JRMC Commanding Officer's Environmental Policy Statement promotes and requires everyone at SRF-JRMC to reduce, reuse and recycle resources, and to purchase recycled materials wherever feasible. SRF-JRMC is the largest contributor of

scrap metal to the Yokosuka installation Qualified Recycling Program (QRP), and also regularly recycles paper, cardboard, batteries, used oil and empty containers. In addition, SRF-JRMC has worked closely with the personnel of the QRP office to proactively support the solid waste/recycling program. SRF-JRMC took the initiative to plan and execute solid waste recycling events in FY11 and FY12 and coordinated with the QRP office to support the events. The first Recycle Day event conducted in FY11 resulted in the successful collection of over 8,000 pounds of recyclable material from SRF-JRMC shops and codes turned over to the QRP. This successful diversion of items that could have entered the solid waste stream was exceeded the following year. In FY12, over 13,000 pounds of recyclable material was collected, including furniture, metal cabinets, old equipment, and even old bicycles. In addition to the recycling aspect, the recycling events were used to increase awareness of proper waste disposal procedures and to prevent improper disposal of waste. Pre-event screening by environmental personnel of material scheduled to be turned in was conducted, and handouts were distributed to all shops and codes participating in the events. The frequency of improper waste disposal findings such as recyclable metal material abandoned near general trash dumpsters has shown year to year decreases, with the largest reduction coming in FY11 (63% reduction compared to the baseline of FY09).

Improved Wastewater Management. SRF-JRMC Yokosuka owns and operates its own industrial wastewater treatment facilities, which can remove heavy metal contaminants and suspended solids from wastewater. Bilge oily wastewater, compensating water and tank cleaning water generated during ship repair and maintenance work is treated at our SRF-JRMC intermediate treatment facility, and the treated wastewater is then sent to a NAVFAC sewage treatment facility for final treatment. Improvements in the wastewater handling and treatment process have been the focus of an EMS Aspect Team from FY10 through FY12, and Objectives and Targets were determined each year. Three projects related to these objectives and targets for reducing SRF-JRMC environmental impact from wastewater *go beyond simply meeting regulatory requirements*:

1) The FY11 EMS Aspect Team, following up on efforts from FY10, established a target goal of reducing the disposal cost of received oily wastewater by 25% compared to FY10. The Team was comprised of the operators of the treatment facility and environmental personnel. The efforts of the FY10 EMS Aspect Team had led to an understanding that high levels of suspended solids (SS) was the primary factor determining the suitability of treating the oily wastewater, that is, high levels of SS made the wastewater unsuited for the treatment facility and led to untreated wastewater having to be contracted out for disposal. The Team, with the cooperation of the project management team assigned to a ship repair project, proceeded to "pre-treat" 10,000 gallons of wastewater with high levels of SS using a pre-treatment filtering system provided by a locally contracted Japanese company. This effort resulted in diverting much of the high SS wastewater back to the treatment facility and an estimated 80% reduction in the volume of wastewater that was contracted out for disposal without treatment. Subsequently, the Team used the "super filter" in conjunction with the SRF-JRMC bilge and oily wastewater treatment system (BOWTS) to treat wastewater from five additional ship repair projects. The improvements from these activities included increased utilization of the treatment facility, the associated reduction in the volume and cost of disposed wastewater, and faster removal of wastewater from its storage barge. The Team's efforts resulted in "reclaiming" an estimated 42,000 gallons of wastewater

that would otherwise have been sent to a contractor for disposal, saved in excess of an estimated \$140,000 in avoided waste disposal cost and which meant increased dollars for the maintenance of 7<sup>th</sup> Fleet ships, and a 26% reduction in disposal cost for the year.

2) SRF-JRMC initiated an "Advanced Biological Process" pilot project to demonstrate the use of "dissolved oxygen augmentation" through a partnership with NAVSEA and Naval Surface Warfare Center Carderock Division. The environmental office obtained over \$100,000 from the QRP fund for the project, and staged the project equipment at our facility. The project goal was to utilize technology to degrade hydrocarbon compounds in oily wastewater generated during ship repair operations, and it was carried out in Oct and Nov 2010. The pilot test results showed that four regulated contaminants (biological oxygen demand, total suspended solids, mineral oil, and animal and vegetable fat) were reduced greater than 90% by the process, and chemical oxygen demand was reduced by 75%. The project also greatly enhanced the knowledge and skill set of our wastewater program managers and production shop BOWTS operators, and provided a working level view of an alternative treatment process for oily wastewater. It also resulted in a cost avoidance of approximately \$11,000, as the wastewater was treated prior to the use of the "super filter" and was judged to be the type with high levels of suspended solids that would have been disposed of by a contractor instead of being treated by the BOWTS.

3) In FY11, the EMS Aspect Team partnered with NAVFAC Hawaii and learned about best practices for wastewater treatment of bilge and oily wastewater as well as of industrial process wastewater. In FY12, the Team followed up by performing initial testing on two types of industrial process wastewater to determine the feasibility of increasing the types of wastewater treated in-house by SRF-JRMC. For dyed chill water removed from ship systems as wastewater, laboratory analyses and jar tests were performed by a local contractor and the results indicated that with the proper use of readily available material and the facilities on hand at SRF-JRMC, this type of wastewater can be treated in house. A second type of wastewater generated during surface preparation of a ship's exterior hull was also evaluated and shown to be suitable for treatment by the BOWTS facility. Preliminary case analyses have been completed for the treatment of these wastewaters, and more complete analyses will be performed to allow SRF-JRMC to decide if it makes environmental, economic and social sense to treat them in house or continue to turn them over to contractors.

Energy Conservation. Energy use is another aspect that SRF-JRMC has sought to improve via EMS Aspect Teams. At the start of FY11, the EMS Energy Use Team at Yokosuka targeted activities that would help achieve electricity use reduction throughout the command: replacement of energy intensive mercury lamps with LED lamps; inefficient clothes dryer replacement, and personnel energy conservation actions. By the end of the fiscal year, SRF-JRMC had exceeded the Government of Japan's mandated electricity use reduction target of 15% for large industrial users in Eastern Japan by reducing electricity consumption by 24% for all of FY11 compared to FY10. The Government's 15% reduction target was established after 11MARI1 and the Fukushima nuclear crisis, and the EMS Team and SRF-JRMC personnel expanded energy conservation efforts in response for the remainder of FY11 and continued into FY12. In FY12, SRF-JRMC Yokosuka and Detachment Sasebo carried out an "Energy Conservation Passport" (ECP) campaign leading up to and continuing throughout the summer of 2012. The campaign was modeled after the successful VPP Passport campaign, and consisted of a printed, bilingual

Passport handbook composed of 15 items related to energy conservation, at least 10 of which needed to be completed by personnel. The ECP supported the overall goal of the SRF-JRMC EMS, and SECNAV and Department of Defense energy policy. In addition, the energy conservation activities also supported the saving of electricity in Sasebo in response to forecasted shortages of electricity supply in the summer of 2012. Of the approximately 2,800 personnel at SRF-JRMC, 91% (89% at Yokosuka and 100% at Detachment Sasebo) completed the ECP. An illustration of the interest of SRF-JRMC personnel in energy conservation is the fact that one ECP item, which was voluntary, asked personnel to provide an idea to promote further energy savings in SRF-JRMC. More than 600 personnel completed this item and the variety of suggestions included proven and also sensible ideas (e.g., changing to LED bulbs, green promotion, using motion sensors, reducing the use of vending machines, promoting bicycle use). At Detachment Sasebo, more energy efficient lighting was installed in a shop area and the calibration laboratory during FY12 utilizing QRP funding. In Yokosuka, another energy saving suggestion, use of solar panels, will be implemented in FY13 to power outdoor lighting at our main building. SRF-JRMC also actively partners with the Energy Programs on both CFAY and CFAS. The Building Energy Manager program is in place and operational at SRF-JRMC Yokosuka and Detachment Sasebo. Environmental personnel in Yokosuka have provided within the past two years valuable facility-related data to the energy program, such as the number of building emergency exits signs and the number of shower heads, that has been used in NAVFAC funded energy projects.

### **Community Involvement in Japan**

SRF-JRMC personnel are involved with the communities around Yokosuka and Sasebo in various ways, such as regular volunteer visits to a home for the mentally challenged and donations to charity. SRF-JRMC personnel also have contributed to our communities in environmental-related ways. One environmental office personnel participated in a project sponsored by Zushi City, near Yokosuka, in 2012, and along with local community residents and other U.S. personnel, picked up trash for a river cleanup. Two other environmental office personnel have made a total of six trips to the Tohoku area of Japan that was severely impacted by the earthquake and tsunami of 2011. The main purpose of the trips was to assist in the recovery and rebuilding efforts in various Tohoku communities. Both personnel assisted through volunteer groups helping with recovery efforts such as the removal of mud and debris that had fully clogged community storm water drain systems, a condition which led to rain water flooding streets and intruding into yards and other areas. One of the personnel also participated in a recycling research project in Fukushima prefecture, the area affected by the nuclear power plant. In these ways, SRF-JRMC personnel are helping to support our communities in Japan.

### **Continual Improvement and Environmental Quality**

SRF-JRMC is committed to the sustainability of the environment through environmental compliance as well as sustainability of the SRF-JRMC mission by mitigating environmental vulnerabilities. Our goal is to effectively communicate our strong environmental commitment and promote environmental awareness and stewardship. Our EMS allows us to realize continual improvement in environmental quality through the combined efforts of all of our personnel and stakeholders. These efforts have supported sustainment and strengthening of the U.S. - Japan Alliance. SRF-JRMC Team members are stewards of the environment for the next generation. As the SRF-JRMC motto goes, *Nan Demo Dekimasu - We Can Do Anything!*