



CHRIMP



EXECUTIVE SUMMARY



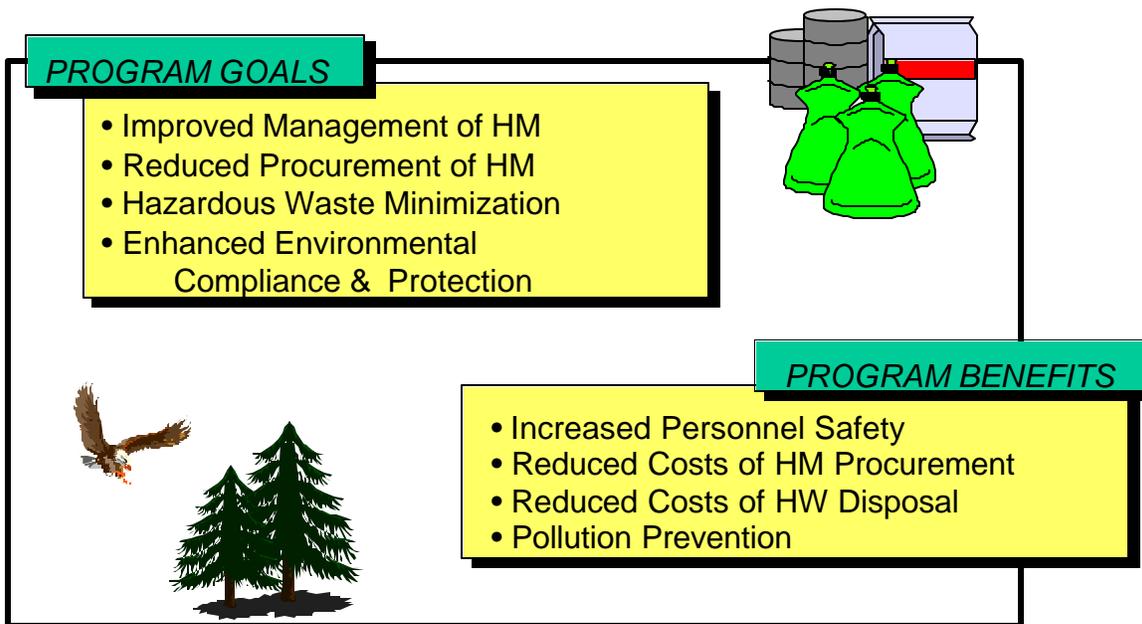
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INTRODUCTION

In the Early 1990's the U.S. Navy was facing an Executive Order that would require all Federal organizations to comply with the Emergency Planning and Community Right to Know Act (EPCRA). Compliance would require an extraordinary task of accounting for well in excess of 35,000 products, by their chemical constituents, in nationwide jurisdictions. Previously Navy, and in fact all Department of Defense (DOD), supply systems only accounted for this material by unit of issue, e.g., a box, a can, a tube, etc. EPCRA brought about the necessity of the Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). This business practice, spawned for environmental and safety reasons, serves as a fundamental element of the Navy's life-cycle control and management of Hazardous Materials (HM). The first program of its type in the DoD, CHRIMP promotes compliance with the broad range of Federal, State, and local environmental rules and regulations. It mandates procedures to control and track, and reduce the variety and quantity of hazardous material in use. CHRIMP requires a certain realignment and consolidation of responsibilities throughout an installation. CHRIMP involves the establishment of



an organizational structure devoted to the management of HM. Since its inception, this program has resulted in significant reductions in HM procurement through exquisite identification of inventory requirements and redistribution of excesses. A further result was the greater use of material before shelf life expiration, and elimination of excess materials going to disposal. The outcome of both of the features significantly reduced the HW disposal cost to the Navy operating budgets.

Prior to 1990, the Navy managed HM on a local basis with each activity, and indeed work center, requisitioning its HM requirements. Each activity also established individual safety stock levels, and procured without visibility of what may be in excess at another work center or within the fence line. This process was fraught with unnecessary expenditures for both material procurement and HAZWASTE disposal. The concept of designing and implementing an installation wide HM program took shape at the Naval Air Weapons Station (NAWS), Point Mugu, CA. This was the

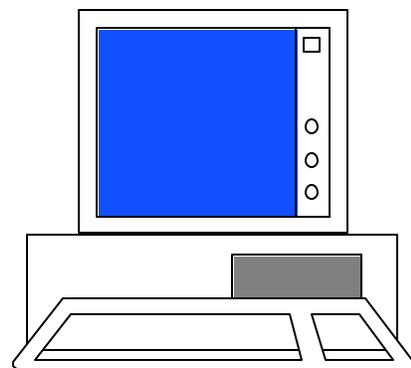
birthplace of the CHRIMP concept. The Naval Supply Systems Command was tasked by the Chief of Naval Operations with standardizing and institutionalizing CHRIMP across the Navy, both afloat and ashore.

OVERVIEW OF THE CHRIMP CONCEPT

CHRIMP requires participating commands (both ashore and afloat) to centrally manage HM and to issue it only to persons properly trained in its handling and use. The CHRIMP concept establishes Hazardous Minimization Centers (HAZMINCEN) that serve as inventory control centers for HM for an entire installation. It also serves as an authoritative source for the Authorized User List (AUL)...a list that identifies authorized HM users by individual commands, departments or work center. All departments, tenant commands, and work centers must procure HM from the HAZMINCEN where the request is screened against the AUL and issued first, from any available excess (free issue) and secondly, from a funded inventory. Work centers that have appropriate storage capability may carry up to a seven-day supply that they routinely use. HAZMINCEN personnel may issue material in quantities less than the standard unit of issue (if desired), thereby reducing the chances that left over material will be disposed of as HW. When the customer is finished with an item, any remaining material (or the empty container) must be returned to the HAZMINCEN. Personnel at the HAZMINCEN examine the “turn-ins” and determine if any HM can be reused or recycled, or whether it must be disposed of as waste. The objective is to completely use up a container of HM before opening a new one, e.g., several work centers may use a single can of the lubricant WD-40 for occasional use rather than each work center having their own supply of this and other occasionally used items. Again, reuse material is issued first, whenever possible. This level of control facilitates a very accurate EPCRA report.

Hazardous waste processing is not a part of this operation; that function is performed for the Navy through the local Public Works Center (PWC) or the Defense Reutilization and Marketing Office (DRMO).

CHRIMP operations are facilitated by a software system designed for inventory control and tracking and by their chemical constituents. Resident in these systems is the activity AUL. Two systems predominate within the Navy shore community – the Hazardous Substance Management System (HSMS), which is a standalone second-generation software and Regional Hazardous Inventory Control System (RHICS). RHICS is a web-based application that allows local management of inventory and global HM visibility. It is a financial accountable system that enables it to manage and financially support a wholesale inventory. Both systems (HSMS and RHICS) have hazardous substance “cradle to grave” tracking that identifies the disposition of constituent chemicals as they are consumed in processes, released to the environment, or captured as waste. Both systems



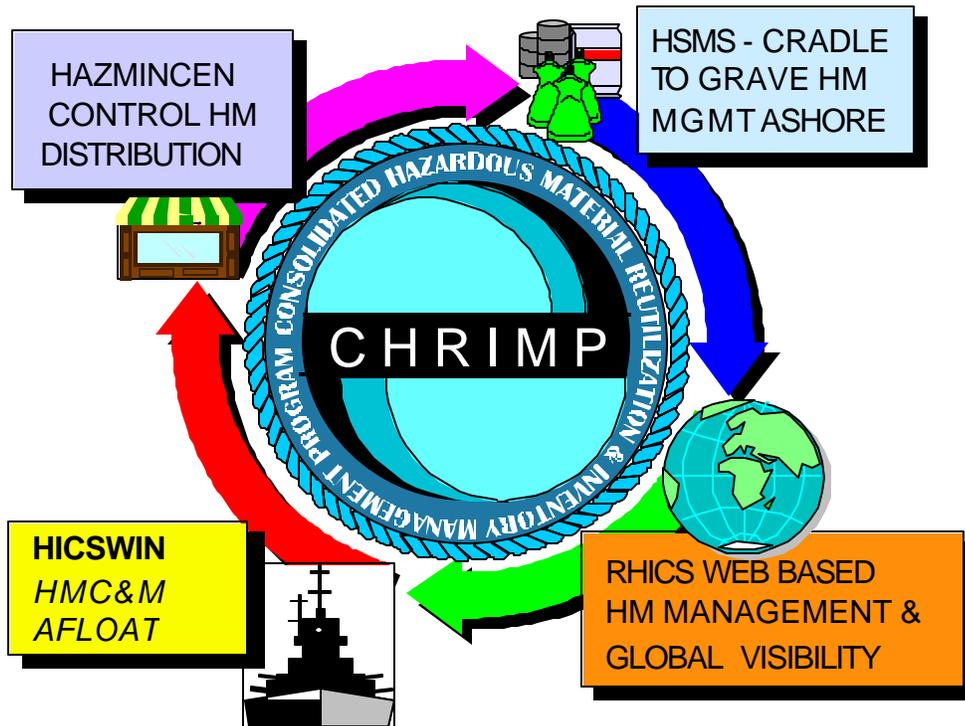
manage HM through the complete life cycle of material ordering, use, and disposal; as well as inventory tracking, environmental reporting, and pollution prevention purposes.

Afloat, CHRIMP operations use the Hazardous Inventory Control System-Windows (HICSWIN) software to control AUL and to track HM inventory and produce various management reports. It also has the capability to utilize barcode technology.

While this paper discusses Navy operations, other military services have adopted the CHRIMP concept and have named it Pharmacy. The Navy is taking its concept of operation and tools to the Defense Logistics Agency and applying them to its Hazardous Material Control and Management (HMC&M) program called Joint Environmental Material Management Service (JEMMS). The JEMMS program will service the entire island of Okinawa, Japan that encompasses some 14 geographically dispersed sites. It too will incorporate a centralized distribution center at Camp Kinser and involve regular HM replenishments to lockers, similar to a vending machine operation. RHICS will be the inventory management system.

The CHRIMP concept is important today, both afloat and ashore, because it provides optimum oversight of HM use, reutilization, and inventory control. The benefits of using CHRIMP afloat include personnel safety, improved shipboard damage control response, environmental protection, an accurate historical record of HM usage, a refined and visible inventory record, and in terms of maintenance support - no degradation of operational readiness.

CHRIMP Tools... HSMS, RHICS, HICSWIN



CHRIMP IMPLEMENTATION ASHORE

CHRIMP implementation ashore begins with the establishment of a HAZMINCEN, the installation of an inventory control system (RHICS or HSMS), maintenance of the installation wide AUL, establishing inventory high and low limits, pulling back to the HAZMINCEN all inventory in excess of a seven day supply, and providing the appropriate MSDS. Once this has been performed all future HM requirements for the entire installation are provided from the HAZMINCEN. This allows accountability of chemicals within a fence line in terms of location, quantity and usage. After this has been accomplished the Regional HM manager, usually located at the Fleet Industrial Supply Center (FISC), working with the installation manager, monitors inventories and provides HM as required between partnered installations. The Regional Inventory Manager first moves any excesses at one site and procures only new requirements through various sources.

The HAZMINCEN. The ultimate goal of CHRIMP operations ashore is to manage HM throughout its life cycle. To accomplish this goal, shore activities establish a HAZMINCEN for the centralized management of HM. Material is issued according to the AUL and to maintenance or cleaning process. The HAZMINCEN is sized according to estimated HM requirements, and constructed to meet appropriate federal, state and local safety requirements for storage of HM. HAZMINCEN operations vary from location to location; however, they generally follow those described in this section. A HAZMIN Center staff may be composed of military, civilian or contractor personnel with expertise in HM control, distribution, handling, and storage. Staff size is dependent on the services provided, e.g., delivery and pick-up, and hours of operations.

Implementing an Inventory Control System. In order to centrally control HM, HAZMINCENs must use a system that provides on-line inventory visibility, requisition processing, inventory tracking (receipt and issue), disposition of chemical constituents, and internal/external reporting capabilities. The Navy sponsored two systems to facilitate the CHRIMP operations

ashore...Hazardous Substances Management System (HSMS) for large industrial operations and RHICS for smaller operations.



HSMS is a migratory Department of Defense system that was fielded in concert with the Defense Environmental Security Corporate Information Management (DESCIM) Program Office. It is currently in version 2.4 and used several Navy shore activities and extensively by U.S. Army elements. It is a Windows-compliant, menu-driven, relational database management system. HSMS was designed to provide a quick, secure, and accurate method for the receipt, distribution, and accounting of HM and component chemicals, as well as the accumulation and disposition of HW at an

installation. A “cradle to grave” tracking system, HSMS maintains an inventory of all hazardous chemicals and materials on an installation. HSMS ties chemicals to processes and to waste through the material ordering/use/disposal life cycle. It can produce both state and federal environmental reports as mandated by Executive Order 13148, the Pollution Prevention Act, and Tier I/Tier II/Form “R” reports. HSMS is a modular software system; HAZMINCENs use those modules that facilitate centralized HM control and management functions. HSMS can be networked so that its other capabilities, integrated with data generated by the HAZMINCENs, are utilized by the appropriate entities at the command, e.g., Safety, Environmental and HAZWASTE operations.

RHICS is a web application to be accessed via NETSCAPE 4.76/Internet Explorer 5.5 browser through a centralized web server and incorporates Public key Infrastructure (PKI) certification while being DOD Information Technology Security Certification and Accreditation Process (DITSCAP) compliant. It accesses a centralized Oracle 8i database. A user will logon to the application using his/her standard personal computer via their web browser. Once on, the user

may perform issue, receipt, container return, inventory functions, reports, maintain user profiles and site profiles and update the AUL. The user can perform asset visibility checks for reusable material at other HAZMINCENs within their region or other global regions. RHICS also utilizes barcode technology and generates barcode labels.

HAZMINCEN Operations - Material Issue. When a work center or activity customer requires HM, he or she may phone, fax or walk an order to the HAZMINCEN, requesting delivery or issue of the material. The HAZMINCEN personnel will screen the request as described below, and if the request passes the screening; it will be delivered to the customer's work site or picked up by the customer.

Upon receipt of a request for HM, HAZMINCEN personnel enter the appropriate information into HSMS/RHICS to identify the transaction and to determine if the requested material is available. Each request is then screened to ensure:

- ⇒ The material is listed on the AUL,
- ⇒ The individual requesting it is authorized to receive the specific HM per the AUL, and
- ⇒ That all prior issues of the same material to the same customer are accounted for.

If the above criteria are met and the HM is available then it will be released to the customer after:

- ◇ First reviewing any "free issue", secondly from a procurement action
- ◇ The HM is packaged in the required amount,
- ◇ HSMS/RHICS generates a delivery order and bar coded labels, and the labels are affixed to the HM container,
- ◇ Any required Material Safety Data Sheet is attached to the container,
- ◇ HSMS/RHICS adjusts the on-hand inventory levels in its databases, generates a receipt document, and calculates applicable charges to the customer; material is issued to the customer.

If the screening fails, HAZMINCEN personnel will attempt to obtain a suitable substitute material and/or authorization for issue of the requested material according to locally developed procedures. If the request passes the screening, but the material is not in stock, HAZMINCEN personnel will attempt to locate the material at other HAZMINCENs in the region, rather than generate a new procurement. Required purchases will be placed with the least expensive source, which may be within an in-house inventory, third party provider or direct vendor delivery.

HAZMINCEN Operations - Material Return. When the customer finishes a task using HM, or at the end of a workday, the customer returns the unused portion of the HM (and its container) to the HAZMINCEN if they do not have an approved storage locker. If the material can be used again, it will be repackaged as necessary and returned to storage. This transaction will be entered into HSMS or RHICS to adjust the work center inventory level. If the material or container cannot be used again, it will be processed appropriately. If a customer needs HM for more than one workday and authorized storage facilities exist at the work site, the HM may be retained at the work site until the task is finished. Up to a seven day supply of regularly used HM may be retained in the work center providing appropriate storage is available.



Inventory Management. At the HAZMINCEN, inventory levels and shelf life are monitored and managed by the HAZMINCEN manager. The HAZMINCEN manager maintains a dynamic interaction with customers to ensure that he/she maintains inventory sufficient to meet operational requirements without overstocking. Shore HAZMINCEN managers with RHICS communicate with other HAZMINCENs in the region and view assets available at other locations.

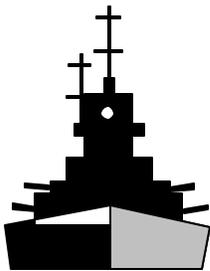
Afloat HAZMINCEN supervisors are strongly encouraged to interact with the shore HAZMINCEN to ascertain availability of excess HM aboard other ships or at the FISC. This provides a mechanism for moving material from one HAZMINCEN to another, in lieu of creating a new procurement to restock. Regional inventory area to optimize inventory levels, prevent over/under stocking of materials, and redistribute manager's work closely with several HAZMINCENs located in the same geographic material as necessary.

On a regional level, a regional inventory manager uses RHICS to monitor aggregate HM inventory levels and demand among HAZMINCENs. From this information, RHICS generates recommended replenishment and redistribution quantities within the region.

Together, replenishment and redistribution facilitate optimum inventory levels at individual HAZMINCENs as well as within the region as a whole. The transactions necessary to fill a requisition or implement redistribution of HM assets among HAZMINCENs are completed in concert with HAZMINCEN managers to prevent negative impact on commands and customers.

When aggregate demand and inventory levels indicate that an item has been overstocked within the region, RHICS recommends redistribution outside the region. The regional inventory manager may then market the material to another region or another military service. If the redistribution involves an organization other than the Navy, the regional inventory manager coordinates with the Defense Reutilization and Marketing Office (DRMO) to execute the transaction.

CHRIMP OPERATIONS AFLOAT



Implementation of CHRIMP afloat provides processes that will help management reduce the quantity of HM ordered, stocked and used. The benefits of a successful CHRIMP include increased personnel safety, improved response to damage control incidents, environmental protection, and potential cost savings without degradation of operational readiness. Any afloat CHRIMP operation must interface closely with the shore HAZMIN Center. This is an important relationship for

the prevention of good HM from going into the waste stream...and to preclude the need for unnecessary procurements it has proven extremely effective is saving ships operating funds.

Aboard Navy ships, CHRIMP operations involve the same basic elements as an ashore operation: strict adherence to the Ships Hazardous Material List (SHML), use of AULs (as necessary) to restrict availability of HM, establishment of HAZMINCENs, implementation of an inventory control system, operational procedures for HM issue and return, and inventory management measures. Due to the operational nature of Navy ships, regional inventory management remains an initiative for shore establishment only.

Establishing HAZMINCENs. Aboard ship, the HAZMINCEN is established for the centralized distribution and reutilization of HM. In most ships a space has been identified for use as a HAZMINCEN in frigates and larger classes. Recommended space locations and requirements are contained in the NAVSUP P-722 CHRIMP Procedures Appendix II. In some ships an shipboard approved Mobile Reuse Center (MRC) may serve as a manned facility to conduct CHRIMP operations.

Implementing an Inventory Control System. In order to centrally control HM, afloat HAZMINCENs are equipped with a software system that provides inventory visibility, requisition and receipt processing, inventory tracking (issue and return), and internal/external reporting capabilities. This system is known as the Hazardous Inventory Control System-Windows (HICSWIN) and it incorporates the SHML. The Navy Inventory Control Point-Mechanicsburg, PA produces a SHML for each class of ship...known as a T-SHML, i.e., Type SHML. Inventory additions and deletion are made with a SHML Feedback Report...an essential ingredient to maintaining an accurate and viable inventory. The SHML is imported into the HICS-WIN database. HICSWIN has the capability to generate bar code labels for HM tracking.

HAZMINCEN Operations - Material Issue and Return. Shipboard material issue and return operations are similar to those ashore. HMs are issued based on location and shelf life date, bar-coded for tracking, and released to the requester after a signature is received on a printed receipt. When a department or work center finishes with the HM, or at the end of the workday, the unused portion of the HM (or the empty container) is returned to the

HAZMINCEN. Material that can be used again will be repackaged and returned to storage. If the material cannot be used again, it is stored until it can be properly off-loaded at a shore installation. A 7-day supply of HM is authorized to remain under the control and management of work centers provided an approved stowage locker (e.g., flammable liquid storage cabinets) is available.

Inventory Management. Inventory levels and shelf life are monitored and managed by the HAZMINCEN personnel using HICSWIN. They also use HICSWIN to generate reports needed to order new materials and aid in maintenance of appropriate inventory levels.

New Shipboard Initiatives. Removing workload from ships is an important goal of the Fleet Commanders. CHRIMP is a necessary burden on the work schedule of sailors. An immensely successful initiative has been performance of most of the CHRIMP functions from the shore side, i.e., procurement, delivery, storage and database entry of shipboard replenishments along with a negotiated inventory levels. This work is performed with contractor support. On the backside of that initiative, shore side support will remove any excess or prohibited items from the ship when it returns to port. Forward deployed contractor support to sustain this initiative is located in the Western Pacific at FISC in Yokosuka, Japan and in the Mediterranean at the Naval Air Station Sigonella, Italy.

CHRIMP SUCCESS STORIES

NAVSUP has reutilization and total procurement/disposal cost avoidance statistics that illustrate the positive results that are occurring throughout the Fleet and Industrial Supply Center (FISC) regions as a result of CHRIMP implementation. As anticipated, the total costs avoided decline in the out-years after CHRIMP implementation due to a decrease in the amount of excess inventories available for redistribution. The total costs avoided reported by all FISCs are:

<u>FY</u>	<u>\$ (M)</u>
• 94	\$19.8
• 95	23.5
• 96	22.9
• 97	17.5
• 98	15.9
• 99	13.3
• 00	10.0
• 01	8.8

8 Year Total \$131.7M

