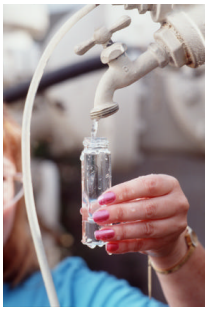
Environmental Leadership Program

McClellan Air Force Base

Environmental Management System

Deliverable 3

June 1996



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About McClellan

McClellan is the largest industrial employer in Northern California and has been an active industrial facility since 1936. McClellan is an installation of the Air Force Material Command and employs approximately 12,000 military and civilian personnel. In 1995, the Base Realignment and Closure Committee decided to close McClellan Air Force Base. The base will close by the year 2001.

The Mission

McClellan repairs and maintains aircraft, space and communication equipment. Other responsibilities include high technology missions such as advanced electronics, fiber optics, advanced composites and neutron radiography.

These missions require large volumes of hazardous materials, such as solvents, caustic cleaners, electroplating chemicals, heavy metals, low level radioactive wastes, and a variety of fuel oils and lubricants. Industrial processes include:

- parts cleaning
- painting and coating
- sealing and desealing
- equipment coolant replacement
- instrument repair
- chemical laboratory operations
- surface finishing (electroplating)
- paint stripping
- bonding and debonding (adhesive removal)
- draining and replenishing aircraft fuel
- metal fabrication and machining operations
- portable equipment maintenance

Scope of Environmental Impacts

McClellan manages more than 500 waste streams, 250 hazardous waste generation points, 43 accumulation sites, and a RCRA permitted storage facility. The base also manages 19 tiered and RCRA permits.

Despite this way array of industrial activities, the base received no enforcement actions from regulatory inspections in 1995 and none from the 1994 California EPA hazardous waste inspection.

Clean Air Leadership

Vehicle traffic from more than 12,000 employees commuting to the base contributes to the Sacramento area's air pollution problems. Sacramento is a nonattainment area for ozone. McClellan voluntarily established an Alternative Fuels Vehicle Program that is now a national leader in the development and demonstration of electric vehicles. McClellan is one of six consortiums in the country to further the development and use of electric vehicles. Electric vehicle technologies impact national security through enhanced military capabilities, energy independence, clean and healthy environment and economic growth.

A Recognized Environmental Leader

McClellan's environmental efforts have been recognized as exemplary and most recently honored with awards such as:

- American Lung Association Clean Air Award, 1995, 1994 and 1986
- The Air Force Environmental Compliance Award, 1995
- President's Council for Management Improvement Award, 1993
- Central Valley Association for Commuter Transportation Employer of the Year Award, 1993
- Air Force Material Command Compliance Award, 1993
- US EPA Pollution Prevention Award 1992
- International Association of Business Communicator's Crystal Award, 1991
- AF General Thomas D. White Environmental Planning Award, 1991
- AF Environmental Pollution Prevention Award, 1991
- California Governor's Award for Historic Preservation, 1991

- US EPA Region 9 Pollution Prevention Achievement Award, 1991
- Renew America - Environmental Achievement Award, 1990
- AF General Thomas D. White Environmental Quality Award, 1988 and 1979
- SECDEF Environmental Quality Award, Honorable Mention, 1988

List of McClellan's Environmental Management System features:

- Dedicated Environmental Team
- Strong Environmental Ethic and Vision
- Direct Link to Top Commander
- Corporate Member Status
- Cultivation of Green Thinking
- Pollution Prevention Program
- Pollution Prevention Integrated with Compliance for Savings
- Computerized Information Management Systems
  - — Hazardous Substance Management System
  - — Hazardous Material Pharmacy
  - — Hazardous Waste Container Tracking System
  - — Pollution Prevention Tracking Tools
- Standard Operating Procedures for Hazardous Waste Management
- Performance Measures to Track Progress
- Environmental Process Improvement Center Partnership
- Close Regulatory Ties
- Environmental Training and Multi Agency Educational Partnerships
- Unit Environmental Coordinators and Forums
- Community Involvement

List of Multi-Media Environmental Self Auditing practices:

- External Environmental Compliance Assessment and Management Program (ECAMP), a Department of Defense program for environmental self assessment
- Internal Environmental Compliance Assessment and Management (ECAMP) Program
- Air Compliance Inspections
- Environmental Compliance Inspections
- Underground Storage Tank Program
- Asbestos Management Program
- Radon Testing
- PCB Storage, Inspection and Removal
- Wastewater Discharge Monitoring and Treatment
- Environmental Impact Analysis
- Fix It Tickets
- No Notice Inspections with the Vice Commander
- Program Management Reviews and Corporate Staff Briefings on the status of environmental performance

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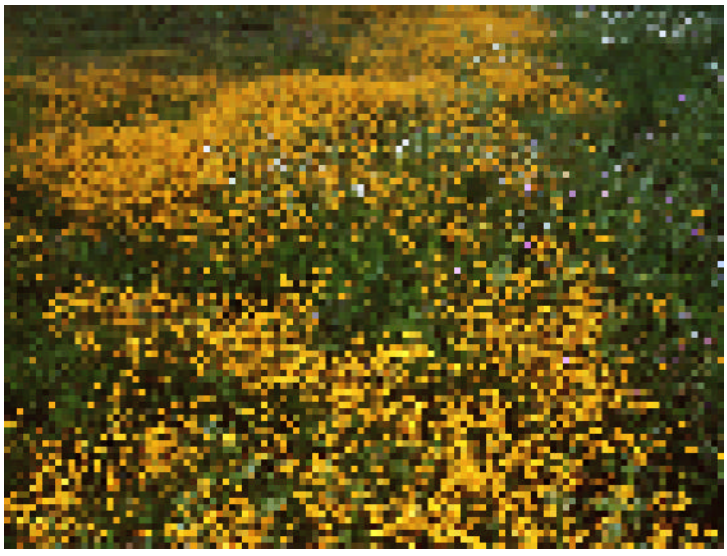
McClellan EMS



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McClellan's Environmental Management System

Dedicated Environmental Team

The Environmental Management Directorate at McClellan employs a staff of more than 100 people. They plan, execute and oversee all actions to keep McClellan a good steward of the environment.

History

In the early 1980s, McClellan's leadership realized the base needed a new approach to environmental management. At the time, only a few people were working on environmental problems. There was no central office for managing efforts. Then the base discovered widespread groundwater contamination and faced a fearful, outraged public. The crisis forced change. Today our environmental cleanup program is considered a leader by regulators and was highlighted by the Western Governors' Association in 1992 as an ideal national example of effective environmental management.

The base, on its own initiative, established the first Environmental Management Directorate in the Department of Defense. EM has the responsibility of bringing together all people necessary to run an environmentally sound industrial complex.

In 1985, the newly-created EM conducted a thorough audit of the base's environmental problems. It also identified areas of potential concern. Each organization on base with potential to cause environmental harm provided funds for EM's operation.

To help guarantee its efficiency, EM was given direct access to top officials, reporting to the installation commander, a two star general.

Current Organizational Structure

Today, the EM staff includes a Pollution Prevention Division, a Restoration Division, contracting experts, public affairs specialists, and two environmental attorneys (See Figure 1). A Compliance Branch, located within the Pollution Prevention Division inspects facilities, provides training, and works closely with regulatory agencies. They continually seek process improvements to eliminate root causes of violations.

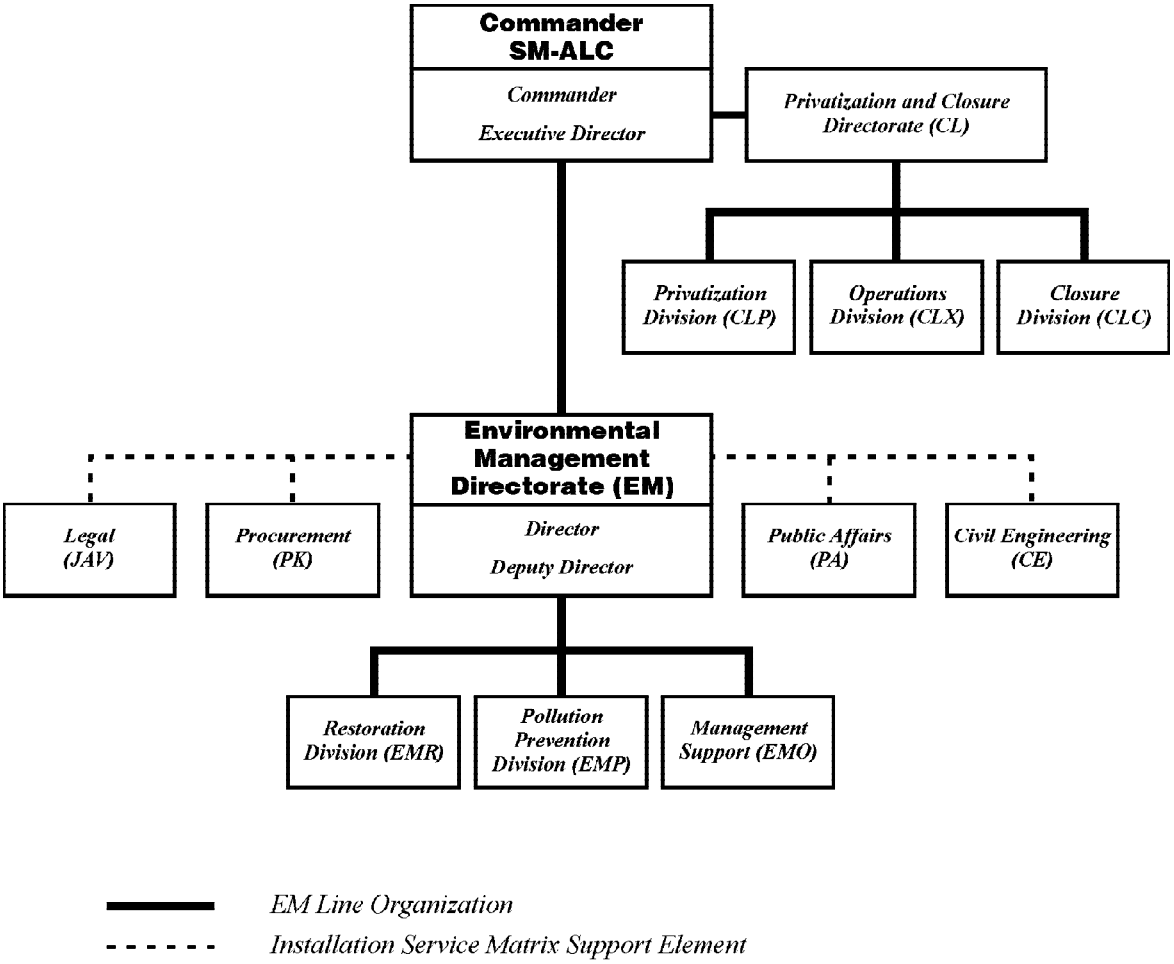


Figure 1. The Environmental Management Directorate (included is the Privatization and Closure Directorate).

Goals

McClellan's environmental goals focus on compliance with laws and regulations, including:

- Clean Air Act
- Safe Drinking Water Act
- Resource Conservation and Recovery Act
- Comprehensive Environmental Response, Compensation and Liability Act
- Solid Waste Disposal Act
- Pollution Prevention Act

Results:

EM has the ability to execute actions from cradle to grave without hand-offs to other offices. For example, the EM organization conceives cleanup strategies, plans and designs concepts and implements them in the field. This ability to execute complete actions allows us to implement actions quickly.

Proactive measures are possible versus crisis management. For example, by having a dedicated, trained EM staff, we are able to apply resources to problems before they reach a crisis. Pollution Prevention is a good example. We have a team of engineers seeking replacements for hazardous chemicals and processes. Innovative technology development and partnering with outside agencies receive top management support along with regulatory compliance.

Strong Ethic and Vision

McClellan's environmental vision and community ethic defines its approach to sound management. Its corporate environmental approach is implemented in accordance with all Air Force directives and policies.

"...federal facilities will set the example for the rest of the country and become the leader in applying pollution prevention to daily operations, purchasing decisions and policies."

President Clinton
Executive Order #12856
3 August 1993

"We must continue to be leaders in environmental stewardship, and search for new ways to further reduce our dependence on hazardous materials, reduce our waste streams, and reuse or recycle the waste that we do generate... Together we can support our national defense while creating a cleaner, healthier environment for our people today and for future generations."

Ronald R. Fogelman
General USAF
Chief of Staff
Sheila E. Widnall
Secretary of the Air Force

> The Air Force will . . . "effectively promote pollution prevention by minimizing or eliminating the use of hazardous materials and the release of pollution to the environment"... and will..."meet or exceed regulatory requirements through the use of education, training and awareness programs, health-based risk assessments, acquisition practices, contract management, energy conservation, and innovative pollution prevention technologies."
>
> Vision Statement
> Air Force Pollution
> Prevention Strategy
> 24 July 1995

A major impetus behind McClellan's program is the Air Force Pollution Prevention Program Action Plan. It establishes a strategic goal of preventing future pollution at Air Force bases and installations by reducing hazardous material use and the release of pollutants to the environmental to as near zero as possible. Installations are required to establish baselines, to characterize releases to the air, water, groundwater, and soil, and to inventory all existing processes and systems that use hazardous materials or generate wastes.

Each installation must implement quantitative pollution prevention goals and schedules as follows:

- By the end of 1993:
  Reduce municipal solid waste (MSW) disposal by 10 percent from the 1992 baseline

  Ensure that at least 10 percent of all nonpaper products and 50 percent of all paper products procured contain recycled material
- By the end of 1996:
  Reduce purchases of EPA 17 Industrial Toxics Project (EPA 17) Chemicals by 50 percent from the 1992 baseline

  Reduce hazardous waste disposal by 25 percent from the 1992 baseline

  Reduce MSW disposal by 30 percent from the 1992 baseline
- By the end of 1997:
  Reduce MSW disposal by 50 percent from the 1992 baseline
- By the end of 1999:
  Reduce hazardous waste disposal by 50 percent from the 1992 baseline

  Reduce volatile air emissions by 50 percent from the 1993 baseline

McClellan established a set of goals that at a minimum meet all of the objectives of these Air Force goals. In many cases, the McClellan goals are more

ambitious than the corresponding Air Force goal, either by encouraging additional reductions or by shortening the compliance timeframe.

McClellan's Environmental Vision:

To infuse environmental concepts into the Air Force mission and find a better way to do business. To do this, we will attack pollution on three fronts; the past, the present, and the future. We will restore our contaminated soil and ground water. We will prevent future pollution by reducing the use of hazardous material and release of pollutants to as near zero as possible. We will evaluate and improve operations to ensure compliance. We will preserve our natural resources and historic buildings. To measure our success, we will actively seek feedback from our customers—the community, the media, regulatory agencies and fellow environmentalists.

Community Ethic:

- Be Open
- Maintain credibility
- Press to solve the problem quickly
- Involve the community
- Be responsive to community needs
- Be happy with fair media coverage

Results:

- Clear direction and purpose.
- Improved credibility with regulators and public, as evidenced by their rally to keep McClellan open during Base Realignment and Closure hearings.
- Local political support for the McClellan environmental program.

"I don't think there's an example anywhere in the country where we've had more involvement from the community and the officials, than we've seen here at McClellan Air Force Base.

This has been a prime example of how you can solve the problem of toxic and hazardous waste, with community involvement an integral part of that solution."

Congressman Vic Fazio

Direct Link to Top Commander

McClellan's environmental office established direct access to the top. Environmental Management is organizationally located at the corporate board level with a direct line to the installation commander, a two star general. Prior to this, environmental issues were four levels of management below the commander.

Results:

- High level attention and support resolves issues quickly. When EM is buried too deep, issues are filtered or not adequately addressed.

Corporate Member Status

The EM Director is a member of the McClellan corporate staff and sits on multiple Mission Element Boards established to address specific areas of concern, such as industrial operations, base operations, and program management. EM ensures that these boards focus on a variety of environmental issues such as use of hazardous materials, life cycle pollution prevention concerns and management of the base's cleanup program.

Results:

- Ability to infuse environmental concepts into top level decisions.
- Environmental objectives built into corporate strategic plan.
- Environmental progress reports briefed quarterly to corporate board members.
- Environmental issues and results showcased when high level visitors tour base (including Presidential visits).

Cultivating green thinking

- McClellan institutionalized environmental compliance into its corporate culture by:
  - hiring staff in the EM office to solely work compliance issues.
  - setting, tracking, and reviewing stringent compliance goals.
  - implementing a "Pharmacy" concept to control the use of hazardous materials.

Results:

- EM compliance staff works full time to infuse environmental concerns into the industrial mission.
- Eighty two Unit Environmental Coordinators are personally responsible for the environmental issues in their shops. Caring for the environment and complying with rules and regulations are considered to be the responsibilities of every employee on base.
- The Commodities Directorate hosted a one-day environmental workshop. They invited workers from throughout the base to share environmental successes and discuss common problems. Commodities took on this responsibility voluntarily, proving their commitment to environmental issues.
- Strict control of all ordering, issuing and use of hazardous materials. Substitutes are mandated by the pharmacy.

Pollution Prevention Program

McClellan's pollution prevention program includes more 150 projects identified to reduce the use of hazardous materials and the release of hazardous and nonhazardous pollutants into the environment.

McClellan's pollution prevention program has grown significantly since 1985, when the base began an aggressive hazardous waste minimization program. In recent years, the base has spent an average of $4 million dollars annually. Projects funded include a variety of measures to reduce the use of hazardous materials and the release of hazardous and nonhazardous pollutants into the environment. Projects vary in cost, size, purpose, scope and effectiveness. Types of projects implemented include:

- Preliminary feasibility studies and opportunity assessments
- Process changes and modifications
- Raw material substitutions
- Sampling and monitoring of processes and waste streams
- Non-process equipment (i.e. balers, front end loaders, sampling equipment)
- Additional staffing
- Training

The program is managed according to the base's Pollution Prevention Program Management Action Plan (MAP3). MAP3 presents a management strategy and a set of management tools for the program. The Pollution Prevention Division is responsible for oversight and management of the program. MAP3 establishes baselines and goals for achieving major chemical and air emissions reductions. It outlines an approach for conducting opportunity assessments. A sample of a Pollution Prevention Users Tool Information is shown at Figure 2. Because McClellan's program is so large, MAP 3 uses a set of integrated management tools to prioritize projects competing for limited funds. The tools also track the progress of projects, and graphically display how projects contribute to the achievement of goals. To allocate resources, we rely on the following set of management tools to run our MAP3:

- Economic and Evaluation Comparison Model
- Prioritization Model
- Users Tracking Tool System
- Road Maps

Results:

- Hazardous waste generation reduction of 77% since 1985 (a 3,822 ton reduction).
- Solid waste reduction, land filling 62% of McClellan's total solid waste generated, (the state on the average is land filling approximately 73%). Actions to further reduce solid waste disposal include:

  Increasing containers and staff to meet increased recycling demands

  Composting. In one quarter, "land farming" on base green waste resulted in a 70.6 ton reduction. This can reduce solid waste by 350 tons per year.

  Curbside recycling at military family housing reduces solid waste by 200 tons per year.

Date: 2/7/95 FM Validated: Yes

Installation: McClellan AFB, CA /TLAB Executable: 1995

Project Title: POWDER COATING EQUIPMENT

Project Number: PRJY911606 A/S Priority Level: P - I Base Priority: 81

Current Process Description:
The Manufacturing Services paint shops apply approximately 6000 gallons of liquid paint annually, using HVLP application equipment. Several liquid coating primer / top-coat systems currently used in these shops are considered viable for conversion to powder coating. Work-loads considered for powder coating are: Ground Support Equipment (GSE), Communication Electronics (CE), Mobile Shelters & Radar components and selected aircraft components.

New Process Description: Process/Use: Surface Finishing
Currently SM-ALC is the only ALC pursuing the implementation of a Powder Coating Development Facility. The new process involves electrostatic spray application of dry powder, organic coating materials. Coatings are then cured at temperatures of 250 to 425 F for an average of 15 minutes. Powder coating materials designed to meet specific and appropriate requirements of the above listed paint systems will be used. Note, in many cases one application of powder coating can replace both primer and top-coat. Further process development on specific workloads requires the purchase and installation of a batch size, "development/pilot production" powder coating system.

Environmental Benefits:
Use of powder coatings will minimize use of solvent borne coatings restricted by environmental regulation, i.e., air pollution VOC limits, hazardous waste disposal, etc. This process will reduce air pollution, hazardous material use, hazardous waste disposal, and worker exposure to toxic chemicals.

Environmental Benefits Categories: Primary: 2 Secondary: 8

Objective/Subobjective Code: 3-13
3-13, Reduce hazardous waste disposal by 25% by 1996

	Quantity (lbs)	Percent of Baseline
ODC Reduction:	0 released	0.00%
HAZMAT/EPA 17 Reduction:	1381 purchased	0.26%
HAZWASTE Reduced:	4000 generated	0.17%
Solid Waste Reduced:	0 disposed	0.00%

Maintenance Reliability Benefits:
Powder Coated materials have improved mechanical properties over liquid coatings. Increased coating performance reduces maintenance requirements. Powder coating process can replace both primer and top-coats with a single coat, thus saving labor and materials.

Mission Impacts:
Improves depot coating capability. Provides quality finishes on commodities. Makes SM-ALC more competitive.

Economics: Initial Investment	Annual Savings	Payback (yrs)	Annual Return (%)
$483.36	$84.03	5.8	17.4%

Functional Area: L

Technology Transfer: US Navy
Private Industry

Figure 2. Example of a One-Page Pollution Prevention Users Tool Information Sheet.

- Enhancements to the solid waste and recycling contract are expected to reduce solid waste by 250 tons per year.
- Elimination of Ozone Depleting Chemicals. We achieved an 89% reduction in their purchase since we began efforts to eliminate their use. This represents a 31 ton reduction.
- EPA 17 Chemical use reduction of 75% since 1992.

Pollution Prevention Integrated with Compliance for Savings

We view Pollution Prevention as our best approach to compliance, and are organized McClellan's Pollution Prevention Division Organizational Chart is shown at Figure 3.

Integrating pollution prevention with compliance has enabled us to improve our compliance record and industrial operations simultaneously.

For example, painting and depainting industrial operations at McClellan have changed significantly over the past ten years. Major process improvements have eliminated hazardous material and hazardous waste. This eliminates or reduces the potential for non-compliance. For example, bead blasting, using tiny plastic beads has replaced chemical stripping for most aircraft and parts. Paint booths now use dry filters in place of waterfall paints booths.

Pollution Prevention
Functional Responsibilities

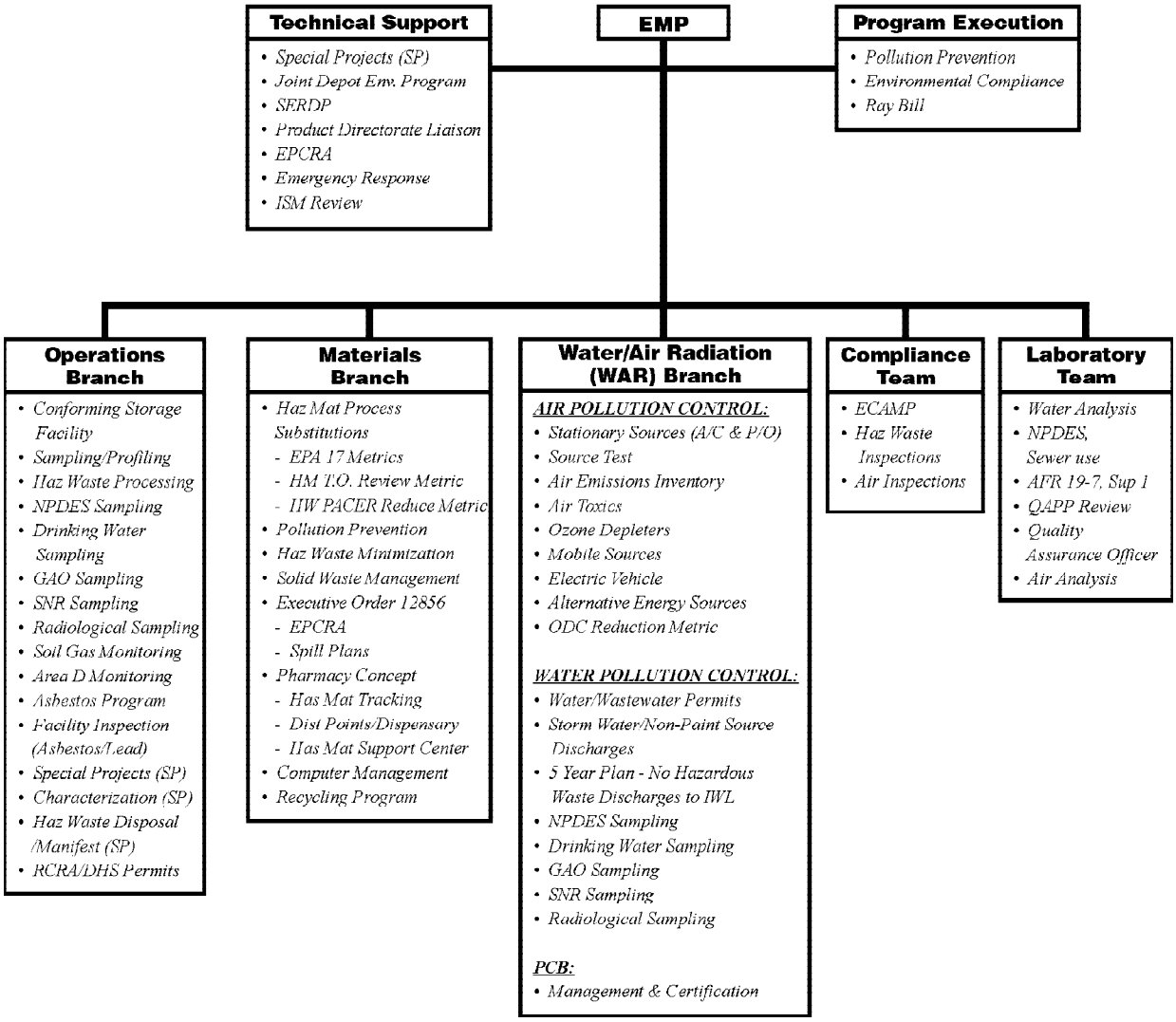


Figure 3. McClellan AFB Pollution Prevention Division Organizational Chart.

Results:

- One Enforcement Action received in 1994 and none in 1995.
- Seamless approach to eliminate pollution. It is everyone's responsibility.
- Major EPA 17 and ODC reductions (see above).
- Hazardous and Solid Waste reductions (see above).

Hazardous Substance Management System (HSMS)

Accurate and current tracking of hazardous material and waste is an essential part of a successful pollution prevention program. The information helps establish baselines, identify opportunities for pollution prevention, monitor progress toward meeting goals, and prepare reports used to develop management strategies.

McClellan installed an environmental management information system called HSMS to perform this critical role. It is a commercial software package that tracks and helps control the ordering, licensing, issuing, and disposal of hazardous materials and waste. The system operates using the base Ethernet Local Area Network and provides daily accounting of the disposition of hazardous materials.

The software consists of modules to track hazardous materials inventory, Material Safety Data Sheets, shop licenses, distribution of hazardous materials, hazardous waste disposal data, air emissions information, and permit data.

A long term goal is to integrate the system with Integraph workstations. This will enable the development of site specific spill and emergency response plans. In cases of an accident or spill, the user can quickly identify what materials and wastes are stored at a given location. Information can be provided to fire fighters to expedite cleanup. Simulation models will be developed for spill plumes.

Hazardous Material Tracking System Features

- Controls licenses
- Controls issues and uses
- Controls disposal
- Provides data for:
  - — Metrics or performance measures
  - — Regulatory reports (Executive Order 12856)

Pharmacy

Functions of the Hazardous Material Pharmacy include:

- One stop shopping for hazardous materials
- Licenses hazardous materials to shop
- Establishes HSMS tracking systems

The pharmacy concept is designed to improve ordering, issuing and tracking of chemicals. Much like a pharmacist issues and controls prescription medications, McClellan controls hazardous materials. When shop supervisors need a hazardous chemical, they initiate a request for a license. Production planners certify the need. The shop environmental coordinator identifies the ultimate fate of the chemical. The license request is sent to the base's Hazardous Material Support Center (or drug store) for approval.

Approved licenses are entered in the HSMS data base. Materials are dispensed from central distribution points and tracked at the constituent level. Since the system became operational in 1993, it has entered more than 26,500 licenses. Also since opening, the pharmacy has entered 13,367 Material Safety Data Sheets.

Hazardous Material Support Center

The Hazardous Material Support Center (HMSC) consists of a team of individuals staffed by EM, bioenvironmental engineering (SGB), contracting, and distribution employees. The team manages, coordinates and controls the issuing and requisitioning of hazardous material. The team ensures all issues are pre-approved by SGB and EM before processing requests for hazardous material. The team ensures all new items are pre-approved and assigned application codes for tracking. The HMSC is the sole source of supply for hazardous materials issued to base organizations. The HMSC has access to all organization's inventories. This prevents build up of excess materials. Use patterns are monitored and the HMSC determines when additional material is required. The HMSC team maintains open communication with all base organizations using hazardous materials and reacts to changing needs, investigating unusual material use patterns. The goal is Just in Time supply support that prevents unnecessary hazardous quantities on hand in the warehouse and in the shops.

Just in Time Contracts

The Hazardous Material Support Center established 50 "just in time" contracts that provide the exact quantity of material, eliminating the requirement to mix or decant. The needed quantities are delivered directly to repair shops as needed. Price of hazardous materiel has been reduced up to 75% by converting several local purchase items to centrally procured sources of supply. These insure that only the needed quantity of a hazardous material is delivered to the user at the needed time. The result is reduced excess that ends up needing disposal as hazardous waste. Dollar savings have been great. For example, a single just in time contract for sealant saved McClellan $133,800 in material costs and 970 man hours. Another contract for the delivery of magnetic rubber saved $17,000 per year in hazardous waste disposal costs.

Results:

- Dollar savings resulting from use of this system total over $300,000 per year, primarily realized through just in time ordering.
- Hazardous material reductions are enhanced. Use of this system has enabled McClellan to reduce use of EPA 17 chemicals by 75% since 1992 baseline.
- Compliance assurance has also been enhanced. By reducing the amount of hazardous material on the shop floor (the limit is one week's supply), the potential for accidental spills and compliance problems is reduced.

Hazardous Waste Container Tracking System

McClellan uses a computer system to track hazardous waste containers from the time they are issued for use until they are turned in for disposal. Every hazardous waste stream generated on base is characterized and issued a unique number. All information about the waste is entered into a computer database and can be accessed with the specific number. Numbers also allow generators to obtain pre-labeled containers. The labels are based on the information in the computer. The database is also used to track accumulation times for drums once they are issued. This allows management of the drums within time limits set by State regulations.

Results:

- Since 1989, all containers being tracked by this computerized system have maintained compliance 100%.
- Construction of an advanced, permitted Conforming Storage Facility for hazardous waste resulted in removal of 95% of all waste within 90 days.

Air Force Materiel Command Standard Operating Procedures for Hazardous Waste Management

To eliminate enforcement actions associated with administrative type errors in hazardous waste management, an Air Force Material Command developed a standard method for handling hazardous waste.

This method consists of several major processes:

- Hazardous Waste (HW) Planning and Administration
- Initial Accumulation Point Management
- Accumulation Site Management
- Container Movement

These processes are divided into sub-processes. Ownership of the sub-processes and collateral responsibilities are assigned. Controls are placed on each sub-process to ensure the proper handling of hazardous waste in compliance with the Resource Conservation and Recovery Act (RCRA) as enforced under the Federal Facilities Compliance Act (FFCA). A sample matrix from the Standard Operating Procedures is shown at Figure 4.

These procedures reflect the results of a command-wide workshop, held November 1994 and attended by each Air Logistic Center's hazardous waste compliance expert. The goal of these standard procedures is to eliminate root-causes of administrative enforcement actions by establishing well-defined management controls of hazardous waste processes and accountability of generators.

Hazardous Waste Planning and Administration

Process							
Sub-Process	Submit regulatory reports	Perform HW characterization	Maintain a central HW container tracking system	Manage abandoned waste	Use of HW disposal agents other than Defense Reutilization and Marketing Office (DRMO)	Submit Permit applications and changes	Turn-in of Hazardous Material (HN)
When	As Required	Waste stream established or changed	Tracking number assigned when container is assigned for use as a hazardous waste	Whenever abandoned waste is discovered	Installation commanders determine if it is in the best interest of AF and MAJCOM approves	When new permit is sought, permit change is necessary	When HM is determined to be excess and meets requirements of DoD 4160.21M
Where	Where hazardous waste is generated, treated stored or disposed of on or off base	General site	Central HW container log maintained in EM	Discovery anywhere on base	Any installation	Installations with ISDF	On-base, any organization including tenants
Who (ORP)	EM	Environmental Management (EM)	EM	Discoverer/EM	EM	EM	HM pharmacy. User's HM manager
OCRs	DRMO	BEE, generators	IAM and ACCS HW managers	Office of Special Investigation	MAJCOM	DRMO	DRMO, EM
OCRs	Generator	DRMO, labs	Unit Environmental Coordinators				
Controls	EM responsible to ensure timeliness	Characterization performed IAW installation HWAP, Copy of HW profile, kept by generator and EM. EM audits waste streams annually. VEC audits quarterly. HW Site inspection team inspects biweekly. Supervisor checklist item.	EM ensures that HW container tracking log is established at each IAP and ACCS. EM randomly audits IAP and ACCS tracking logs to ensure container numbers are properly recorded and reported in timely manner to EM central container tracking.	Managed IAW MazMat Emergency Response Plan and procedures in HW Management Plan. EM involves OSI when ownership cannot be determined	MAJCOM approves	EM annual audit	HM pharmacy conducts inventory to usage checks. User charged for material improperly turned in resulting in HW disposal
Controls (cont'd)			HWSIT inspects monthly				
Driver	40 CFR 262.41, 264.75 and 265.75 and State regs	40 CFR 262.11	Air Force Material Command (AFMC) Policy	Air Force Material Command (AFMC) Policy	AFI 32-7042, AFMC Policy	49 CFR 270	AFI 32-7024

Figure 4. Hazardous Waste Matrix from command guidance.

Results:

- Although McClellan just began following the Standard Operating Procedure guidelines, the base has been implementing most of the procedures for a long time.

Performance Measures—Tracking Progress

Metrics, McClellan's performance measures are an effective tool for assessing trends and measuring compliance with policies and goals. Environmental engineers working in the Environmental Management Directorate at McClellan take primary responsibility for gathering data to track these measures. Processes measured include: reduction of hazardous waste, solid waste, ozone depleting chemicals, and EPA 17 chemicals. EM also measures the effectiveness of its self assessment program and it's cleanup program. Data is collected and validated by EM managers. Trend charts are used to develop strategies for improvement. Every quarter, environmental managers brief these trends to the highest ranking leaders on base. Environmental performance measures used by McClellan are shown at Figure 5-1 through 5-5.

Results:

- Better environmental decisions are possible with quantifiable information. For example, by tracking EPA 17 chemical use, EM was able to identify processes and shops using the most hazardous chemicals. With this information, they developed shop-specific strategies for reduction.

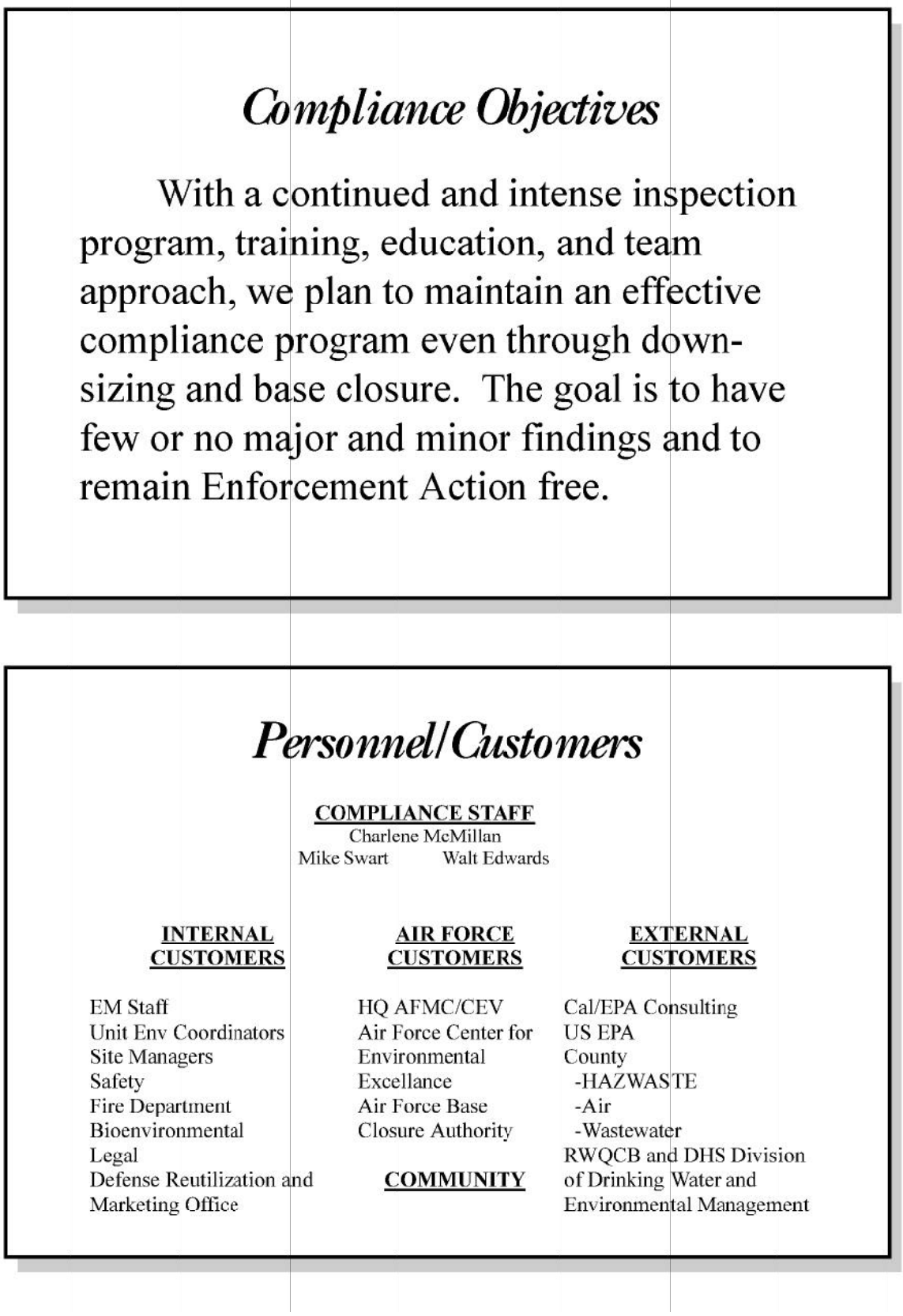


Figure 5-1. Performance indicators include a goal statement and a link to customer satisfaction.

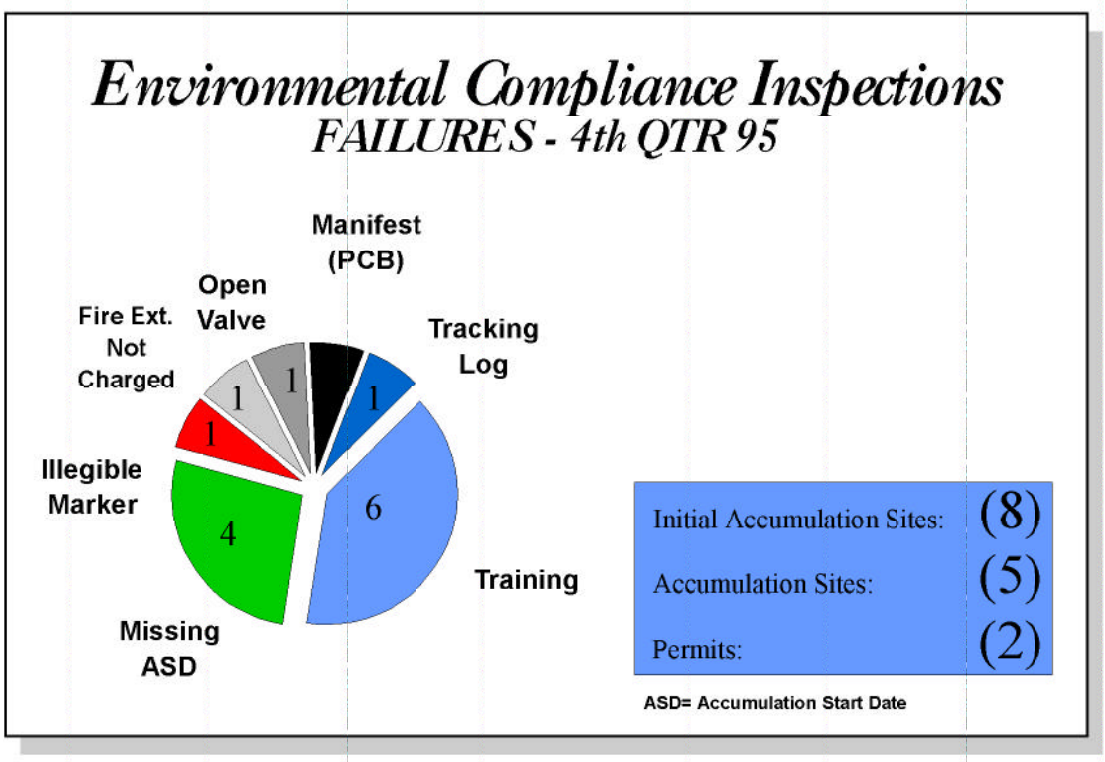


Figure 5-2. These are one of many types of internal inspections conducted by McClellan environmental staff to ensure compliance.

Environmental Compliance Assessment & Management Program PROTOCOLS

- Air Emissions
- Cultural Resources
- Hazardous Materials
- Hazardous Waste
- Natural Resources
- Other Environmental Issues
  - Environmental Impacts
  - Environmental Noise
  - IRP
  - Pollution Prevention
- Pesticide POL
- Solid Waste
- Storage Tanks
- Toxic Substances
  - PCB
  - Asbestos
  - Radon
  - Lead Based Paint
- Waste Water Management
- Water Quality Management

Finding Definitions

- **Significant**
  - Requires immediate action
  - Poses immediate threat to health, safety, environment
- **Major**
  - Regulatory in nature
  - Result in NOV
- **Minor**
  - Procedural
  - Administrative

Figure 5-3. ECAMP is the Air Force self assessment program for environmental compliance.

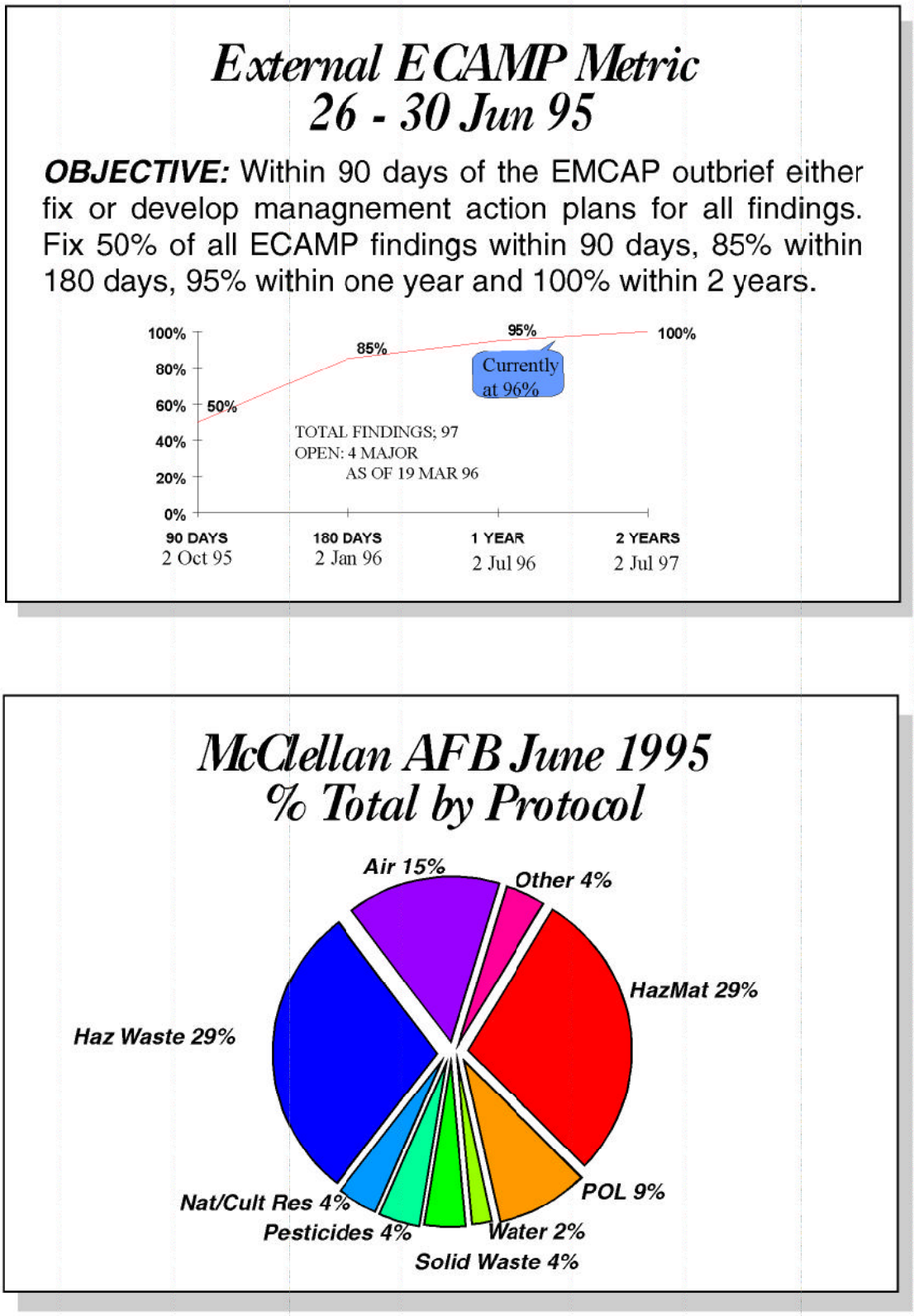
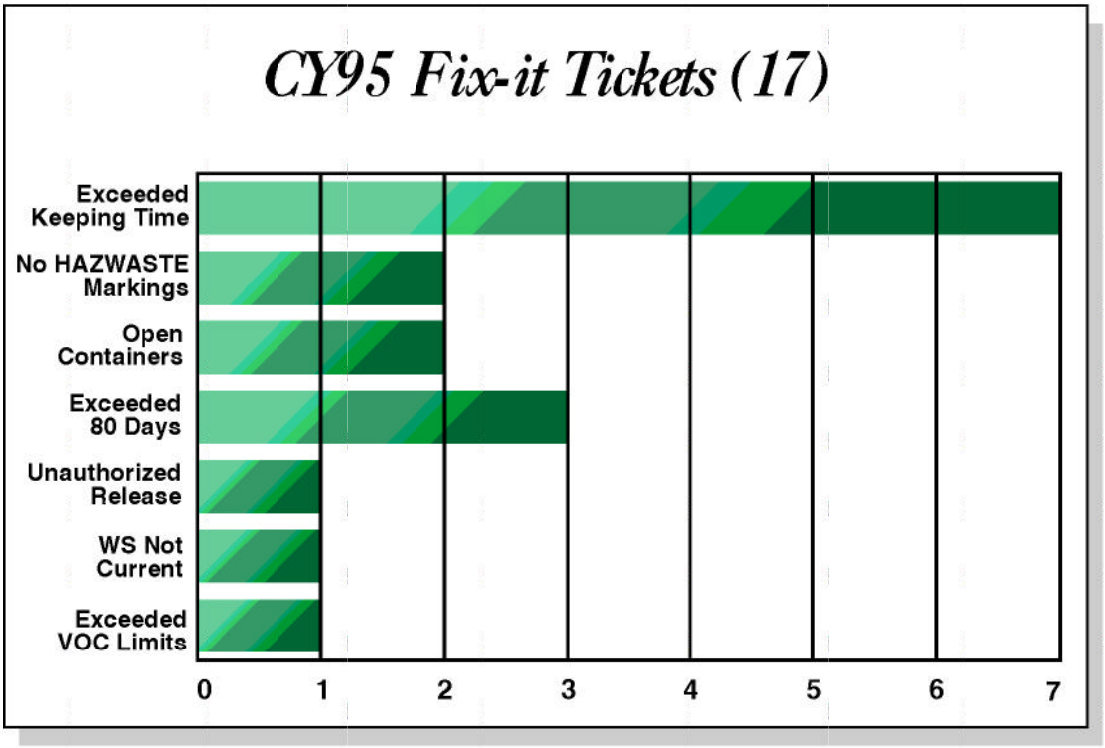


Figure 5-4. McClellan tracks its ECAMP findings to note trends and identify areas for improvement.



1995 Regulatory Inspections

Media	Agency	Visits	EA
Air	Sacramento Air Quality Mgmt Dist	11	No
Air	Yolo-Solano Air Quality Mgmt Dist	1	No
Water	Sac Cnty Publicly Owned Trtmt Works	1	No
Water	Regional Water Quality Control Board	1	No
Natural Cultural Resources	State Historical Preservation Society	1	No
Underground Storage Tanks	County Haz Mat	2	No

Figure 5-5. Fix-it Tickets provide a quick way to bring immediate attention to out of compliance areas. They help improve regulatory inspection outcomes.

EPIC Partnership

In 1991, Sacramento ALC (SM-ALC/EM), US Environmental Protection Agency Region 9 (EPA), and California EPA voluntarily formed a partnership called the Environmental Process Improvement Center (EPIC). EPIC forms the hub for a myriad of other beneficial environmental alliances called the EPIC Partnership Alliance. Partnerships are shown at Figure 6.

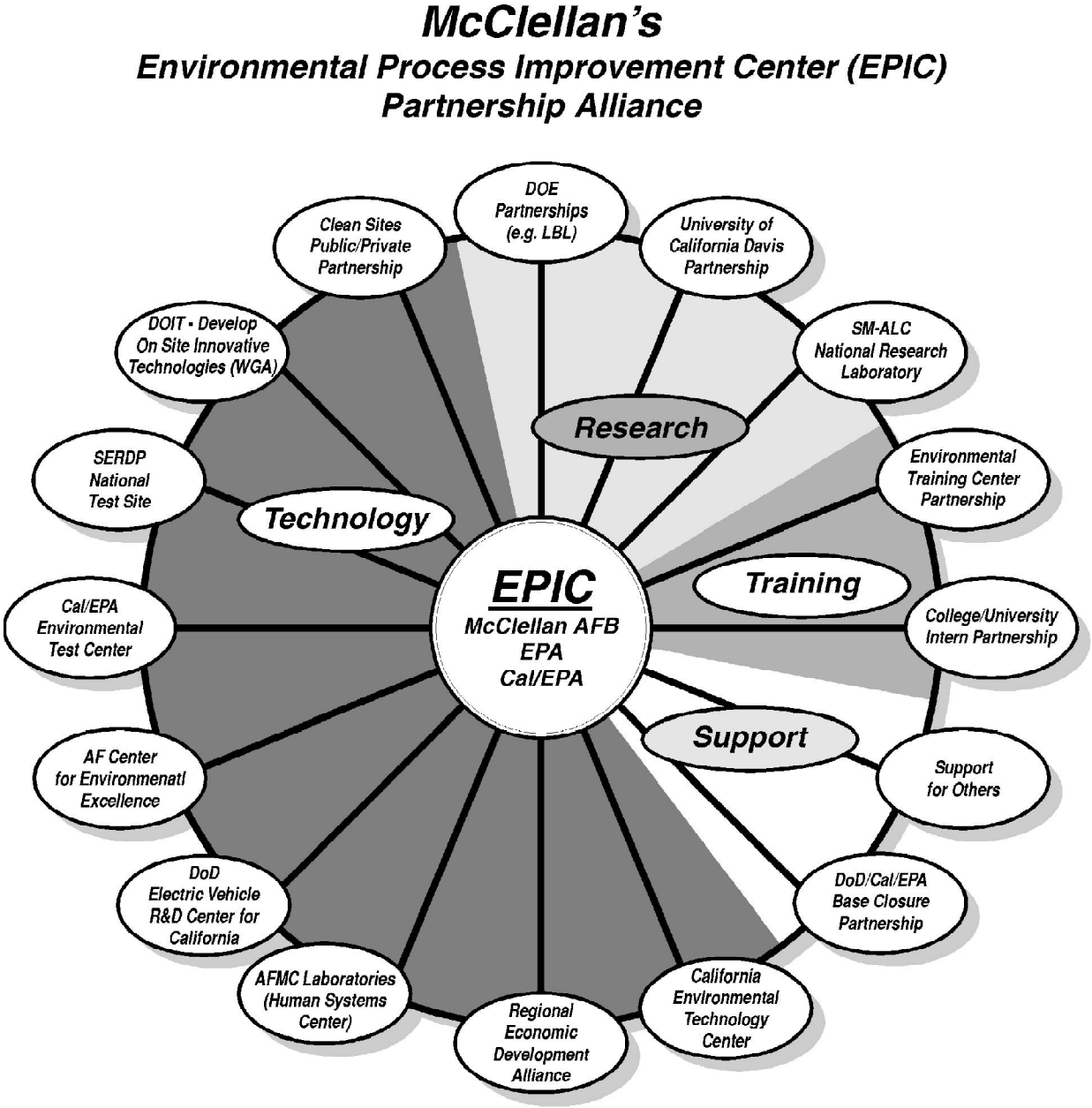


Figure 6. Environmental Process Improvement Center (EPIC). This shows McClellan's environmental alliances with private industry, the public, and regulatory agencies. Goals include conducting projects using each partner's resources to improve the environment. McClellan is a large industrial complex with challenging pollution prevention and Superfund cleanup programs. These offer numerous environmental improvement opportunities and enhance McClellan's attractiveness as an environmental partner.

Key facts

- SM-ALC has track record of aggressive and progressive environmental management. This led to the formation of EPIC.
- EPIC is established on the premise that the polluter and the regulator need not be at odds.
- EPIC partnership is touted as a model by Secretary of Defense for Environmental Security, Ms. Sherri Goodman.
- EPIC goals include accelerating site cleanup, preventing pollution, demonstrating and applying new technologies, and sharing lessons learned.
- EPIC Alliance partners include:
  - Department of Energy
  - Universities and Colleges
  - Western Governor's Association
  - Private Industry

Results:

- President Clinton recognized EPIC as a model for America during his visit to base in 1993.
- Development of innovative environmental technologies
  - SVE and 2 Phase Vacuum Extraction, Off gas treatment technologies
- Technical information crossfeed including:
  - Pollution Prevention Roundtable's and EPIC
  - Greensheets
- Cost per pound of contaminant removed lowered significantly by partnering to apply innovative technology. For example, in six weeks, Soil Vapor Extraction removed as many pounds of VOCs from the soil as traditional technology - pump and treat - removed from the groundwater in six years.

Regulatory Ties

Since 1991, McClellan has worked to strengthen regulatory ties. Examples include its EPIC Partnership, participation in the ELP, and close collaboration with regulatory agencies involved in McClellan's environmental program.

Over the years, the base has built credibility with the regulators by maintaining a healthy state of compliance and voluntarily seeking ways to exceed regulatory expectations. For example, McClellan signed a Memorandum of Understanding with California's Department of Toxic Substances Control consulting services. The MOU sets the ground rules for non-threatening discussions between the base and the State to clarify issues and receive recommendations. Issues worked include regulatory interpretations and vagueness of regulations. These are discussed without threat of enforcement. Once recommendations are made, the base acts quickly. Similarly, the base provides recommendations to the State on policy changes. As such, McClellan provides a voice for the regulated community.

Results:

- One example of how the consulting process works is evident in the base's tiered permitting area. A state consultant visited McClellan and reviewed all of its potentially permitable treatment processes. The consultant provided advice on how to bring permitted units into compliance. Another example is evident in visits by McClellan to other industrial facilities, such as Aerojet and Sacramento Metropolitan Airport. When an impasse is inevitable with the State, McClellan voluntarily calls on the State Ombudsman to assist with negotiations. This assistance results in keeping discussions open until a reasonable consensus is achieved.

Environmental Training

Training the McClellan Workforce

Compliance training at McClellan has grown rapidly over the past five years. The following is a breakdown of McClellan employees who received hazardous waste handling training.

1992:	500
1993:	750
1994:	1344
1995:	2473

Students receive training in the following subjects:

- Hazardous Waste Refresher Course
- Hazardous Waste Initial Course
- Asbestos
- Air Force Institute of Technology Environmental Courses
- 40 Hour Hazardous Waste Operations
- 8 Hour HAZWOPER
- HVAC
- HM-101
- Lead Abatement
- First Responder

In 1995, Air Force Material Command Standard Operation Procedures Hazardous Waste Management Training criteria established new training levels:

Expert
Operational
Awareness

The following courses fall under this guidance:

- Introduction to RCRA
- Identification of HW
- Accumulation Point Management
- Container Use, Marking and Labeling on and off base
- Waste Turn in Procedures
- Manifesting and Transportation of Waste
- Emergency Response
- Waste Reduction
- Personnel Safety
- Record Keeping and Tracking
- HAZWOPER Department of Transportation

Community Education

In addition to conventional classroom training, McClellan has several initiatives that bring environmental awareness to the community at large. These include:

College Intern Partnership

McClellan's partnership with local colleges and universities employs students in the base's environmental office as research assistants or interns. More than 30 college students each year gain college credit and income while working in McClellan's environmental office. Functions range from field research for environmental restoration to conducting pollution prevention assessments. McClellan received the "Outstanding Technical Cooperative Education Employer Award" for this partnership in 1995.

Academic Talent Search—Environmental Summer Academy

In partnership with three local elementary schools, McClellan participates in the Academic Talent Search for exceptionally bright students. Approximately 40 students in the fifth grade visit the base and learn about soil, air, water and biota.

Environmental Education Initiative Partners

This partnership includes Sacramento Museum of History, Science and Technology (Discovery Museum), City of Sacramento, and McClellan. Its purpose is to provide a dual use community resource for environmental education and training through technology. Another goal is to provide a hands on environmental compliance field training facility.

McClellan's contributions include an Environmental Broadcast Network (EBN). The EBN is an interactive two way audio visual broadcast network, allowing the base to broadcast environmental training courses to the base population, and soon to other Air Force installations. McClellan's Environmental Support Center plans to use the network to air compliance, pollution prevention, restoration and regulatory issues to a large audience simultaneously. Travis and Beale Air Force Base are potential recipients of McClellan broadcasts.

Pollution Prevention Grant Project with Community Colleges

In August 1995, Cosumnes River College was awarded a $108,000 grant from the Department of Defense to facilitate the transfer of pollution prevention technologies and processes to Sacramento area small businesses. Instructors from area colleges will work with McClellan's Environmental Process Improvement Center to produce case studies of waste minimization procedures used by the base's production units. Informational materials will be created to help Sacramento small businesses reduce their production of hazardous wastes

through an understanding of waste reduction techniques such as: feedstock substitution, product/service redesign, production process changes and recycling.

This project will identify the compliance needs of small businesses by conducting a needs assessment. Information gathered in the survey will be used to develop strategies for identifying the needs of local firms concerning workforce training, waste reduction applications and regulatory compliance. In addition, mutually supportive community partnerships will be developed between the College's Environmental Technology program, local Business Assistance and Development Centers, area Chambers of Commerce, the Training Source and McClellan AFB. Cosumnes River College instructors will participate in summer internships at McClellan where they will learn about pollution prevention practices. Instructional modules will be developed to communicate McClellan's waste reduction expertise to students, instructors, and community businesses. Other project results will be shared through workshops, forum, cable television, on line information and written reports.

Results:

- Increased community and employee awareness of McClellan's environmental efforts.
- Crossfeed and mentorship to community.
- Leveraging lessons learned at McClellan by sharing with others.

Environmental Coordinators and Forums

McClellan designated 82 individuals throughout the base to serve as Unit Environmental Coordinators. Each major office, or directorate, on base has at least one environmental coordinator to resolve issues and maintain compliance. This person is responsible for ensuring that resource control centers and shops are in compliance with all environmental regulations and that pollution prevention is regarded as a priority throughout the directorate. As the key advocate for McClellan's environmental ethic and vision, the environmental coordinator working with the production operators and supervisors, has the primary responsibility for identifying environmental management systems opportunities. This responsibility is based on their familiarity with the technical orders, the equipment operating constraints, the raw materials and their characteristics, the wastes generated, and end product specifications and limitations.

Environmental coordinators work with EM to identity pollution prevention projects and options. Together, they select preferred alternative processes and

estimate cost and benefits. If a project is selected and funded, the coordinator must prepare bid solicitations, help evaluate proposals, and track the project's progress through implementation.

McClellan's Environmental Management Directorate holds Unit Environmental Coordinator meetings every other month. Topics addressed include new rules and regulations, inspection trends, and crossfeed of issues and concerns.

Results:

- The use of environmental coordinators improves McClellan's ability to identify and resolve issues. This helps keep violations low. When violations are received, a system is in place for quick resolution. For example, a Spring 1993 regulatory inspection resulted in 10 violations. McClellan took action to close all of these within one month.
- The Commodities Directorate planned and executed a day-long environmental workshop to enhance awareness of environmental solutions among employees from different shops. Crossfeed ideas included solvent substitutions, new degreasing machines, and methods for maintaining compliance.
- Environmental requirements are written into many employees job descriptions.

Community Involvement

The mission of McClellan's community relations and public participation program is to provide information about environmental activities and promote involvement in McClellan's environmental program. Two public affairs specialists work in EM to encourage public participation. In 1994, the base expanded public representation on its Restoration Advisory Board from three community representatives to 19.

Other outreach efforts include community newsletters and interviews, newspaper articles, and involvement with the Agency for Toxic Substances and Disease Registry (ATSDR). Employees from the base's EM directorate speak at many conferences, community forums, and events. They also work with local schools to foster environmental awareness at all grade levels. Tours of McClellan's environmental site are very popular. Visitors include private industry, foreign countries, and local advisory boards.

Two local congressional representatives are involved in key decisions about environmental issues on base at McClellan. They attend major meetings, talk with base employees and the community, and review reports.

Another way we involve the community is through public meetings held each quarter. In 1995, McClellan augmented its public forums with a meeting held specifically to address compliance and pollution prevention issues. The purpose of the now bi-annual Environmental Compliance Forum is to inform neighbors and other interested parties about the daily environmental business conducted at the base. Pubic members learn about the base's environmental performance measures, results of internal and regulatory inspections and projects underway to achieve and maintain compliance.

Results:

- The same community that lobbied to shut the base down when contamination was first discovered wrote a letter to the Base Realignment and Closure panel in 1995 advocating that the base remain open because of their high level of confidence in McClellan's environmental program.
- Hosted 1995 Community Clean Air Week Event which drew 750 business and community leaders to McClellan.

Awareness

The environmental directorate at McClellan routinely promotes sound environmental stewardship. Methods to promote awareness include:

- News articles printed in the employee publication and sent to local media
- Articles published in trade journals and EPIC Greensheets are written to share technical lessons learned with an international audience
- Speaking and exhibiting at environmental conferences
- Monthly environmental management Director's call (informational meeting)
- Conducting tours of environmental efforts on base

Results:

- More than 13,000 base employees read the Spacemaker employee newspaper weekly. Last year over 25 separate stories detailing the importance of environmental management were printed.
- Trade journal articles covering McClellan's environmental efforts are published on the average of three per year. As vendors, contractors, and regulators read about McClellan, they become interested in helping the base to solve its problems. These articles also provide lessons learned for readers facing similar challenges.
- More than 100 employees each month learn about the vision and direction of the environmental management directorate from the director in person. Goals are clarified and progress is shared enlisting those attending to stay focused and productive and to show appreciation for outstanding efforts.
- Tours and Open Houses draw nationwide attendance and praise. An Innovative Technology Day in Oct 94 drew more than 300 participants interested in seeing advanced cleanup technologies in place at McClellan.
- McClellan was selected as one of two Air Force bases in the nation to host Ukrainians for a military to military exchange to help them solve major environmental problems. Two employees from McClellan traveled to the Ukraine for reciprocal tours.

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Multi-Media Environmental Self Auditing practices

Multi-Media Environmental Self Auditing

McClellan attributes its good compliance history to its rigorous self inspection program McClellan's compliance activities are carried out by compliance specialists and environmental coordinators who work in shops located throughout the base. The base manages more than 500 waste streams, 250 hazardous waste generation points, 43 accumulation sites, and a RCRA permitted storage facility. No enforcement actions were received during the 1994 California EPA hazardous waste inspection.

At McClellan, Compliance and Pollution Prevention are also an integral part of the environmental restoration program. Every cleanup activity must comply with applicable health, safety, and environmental protection requirements. Pollution Prevention and compliance activities at McClellan address underground storage tanks, management of hazardous materials and wastes, closure of active storage facilities, air quality management, wastewater discharges, and other issues. The status of these activities is outlined below and summarized in Figure 7.

We have a rigorous self auditing program that includes the following:

- Internal ECAMP
- External ECAMP
- ACIs
- ECIs
- Fix It Tickets
- No Notice Inspections with the Two Star General
- Program Management Reviews with the Environmental Management Director and other offices on base
- Briefings to the McClellan corporate staff on our overall environmental performance

ECAMP

A key to McClellan's compliance success is the Environmental Compliance Assessment and Management Program (ECAMP). The goal of this comprehensive self-evaluation program is to achieve, maintain, and monitor compliance. External ECAMPs are conducted every three years.

Pollution Prevention/Compliance Projects

Project	Status	Regulatory Program
Underground Storage Tanks	· USTs in use (FY96): 34 · USTs scheduled for removal in FY96: 9 · New, state-of-the-art USTs in use (FY97-99): 16 · USTs removed: 182	California RCRA Program, Sacramento County
Hazardous Materials/Waste Management	· McClellan AFB SARA Title III Coordinator represents DoD installations in planning local Emergency Planning Committee · Voluntary compliance with EPCRA · New storage facility (DRMO) completed and fully operational September 1994 · In process of permitting of oil/water separators · Currently reviewing various treatment units under DTSC Tiered Permitting program · Internal ECAMP June 1995; no significant findings. · New comprehensive tracking, usage, and reporting system operational in January 1994	RCRA, OSHA, EPCRA
Closure of Active RCRA Units	· Closure of DRMO Lot 3 · New storage facility completed in 1994	California RCRA Program
Air Quality Management	· 335 permits · One Notice of Violation (NOV) · Four Notices to Correct (NOCs) · Emission credits to air quality bank account for NOX and Ozone precursors · AB 2588 Inventory in progress	CAA, Sacramento Metropolitan Air Quality District
Asbestos	· Basewide survey to be completed in FY96 · Asbestos Management Plan completed in FY95	TSCA
Radon Testing	· 34 sites tested in 1988, all found to be below action levels · Occupants notified of results, no further action required	OSHA
PCB Storage Inspection/ Removal	· Basewide survey completed in 1986 · New storage facility (DRMO) completed and fully operational September 1994 · Closure of old storage facility at Bldg. 624D · Two transformers removed from Building 252 in FY 95	TSCA
Wastewater Discharges	· Three permits, including GWTP, IWTP and storm sewers · Program to convert IWL to nonhazardous discharges in progress · NOV issued February 1994; repair completed March 1994	CWA, County Requirements

AB	Assembly Bill	NOV	Notice of Violation
CAA	Clean Air Act	NPDES	National Pollutant Discharge Elimination System
CWA	Clean Water Act	OSHA	Occupational Safety and Health Act
DRMO	Defense Reutilization and Marketing Office	RCRA	Resource Conservation and Recovery Act
DTSC	Department of Toxic Substances Control	TSCA	Toxic Substances Control Act
ECAMP	Environmental Compliance Assessment Management Program		
EPCRA	Emergency Planning and Community Right-to-Know Act		

Figure 7. Pollution Prevention/Compliance Projects

ECAMP evaluations address 13 compliance categories, or protocols.

Air Emissions
Water Quality
Waste Water Items
Hazardous Materials
Hazardous Waste
Cultural Resources Management
Pesticide Management
Petroleum, Oil, and Lubricants
Solid Waste
Toxic Substance Items
— Asbestos
— PCBs
Natural Resources Management
Other Environmental Issues
Storage Tanks

Each protocol identifies several items: key federal legislation, compliance concerns typical of State and local regulations, DOD and Air Force regulations, and best management practices and unregulated risk issues. There were no significant findings during McClellan's last external ECAMP evaluation June 95. Significant negative findings result from environmental releases posing a direct and immediate threat to human health, the environment, or the installation mission. They require immediate action.

Severity categories are:

- Significant (immediate threat to human health or the environment);
- Major (regulatory violation);
- Minor (Air Force Regulation or Base policy); or
- Good management practice (not a priority to compliance, but important to overall compliance performance).

Types of findings categories are:

- Regulatory,
- Procedural, or
- Management Practice.

Types are further broken down into these classifications:

- Discharge (spilling, leaking, pumping, etc.);
- Potential discharge (if not corrected, could be a discharge); or
- Administrative.

All findings are tracked until completely fixed and must be fixed as soon as possible within 2 years. Most findings are fixed immediately. EM develops and tracks the following timelines for every finding to ensure quick resolution:

- Develop a management action plan for each finding within 90 days of the inspection.
- Completely fix 50% of the findings within 90 days of the inspection.
- Completely fix 85% of the findings within 180 days of the inspection.
- Completely fix 95% of the findings within one year of the inspection.

McClellan submits monthly reports of its "fix rates" to its higher headquarters. McClellan also provides input on ways to improve the ECAMP. Protocols are reviewed and checklists are updated as regulations change. This program is a very effective auditing tool, providing a snapshot of McClellan's environmental programs.

Internal Inspections

Internal ECAMPs are similar to external ones, except they are conducted by McClellan compliance specialists every year that there is no external inspection. These inspections are as rigorous and comprehensive as external ECAMPs. They include multi-media areas such as air, water, waste water, hazardous material and waste, cultural resources management, pesticide management, petroleum, oil, and lubricants, solid waste, toxic substances (asbestos, PCBs), natural resource management, and storage tanks. Results of external and internal assessments help identify areas requiring additional attention in order to reach compliance. An example of how McClellan uses ECAMP information to adjust its self audit programs is in the area of hazardous waste management. During an internal ECAMP inspection, McClellan found recurring compliance issues at satellite accumulation points. EM expanded its internal inspections in these areas and discussed proper actions with the workers in these areas. Shortly thereafter, findings in these areas were reduced.

In addition to conducting internal inspections, McClellan representatives assist headquarters with external ECAMP inspections at other Air Force bases. This increases McClellan's ability to solve compliance issues and provides a forum for crossfeed.

McClellan developed two other self-auditing programs in addition to ECAMP inspections. The added inspections are geared to environmental regulations specific to McClellan and California. These inspections are called Environmental Compliance Inspections (ECIs) and Air Compliance Inspections (ACIs).

Environmental Compliance Inspections

ECIs focus on compliance with the Resource Conservation and Recovery Act and California Code of Regulations, Title 22. McClellan developed ECIs checklists for use in conducting these inspections. Approximately 150 hazardous waste satellite and accumulation points on base are inspected quarterly. After each inspection, a report is generated and sent to the organization that was scrutinized. All findings include a citing of the problem and a recommended corrective action.

Findings are rated using ECAMP criteria. Each area inspected is given an overall rating of pass or fail. A fail is given if anything is observed that falls in the "major" finding category. EM compliance representatives established this rating system to parallel regulation inspections, where facilities either meet compliance or fail. For each item not in compliance, a regulator may issue a violation. The pass/fail system was geared to expedite corrective action on potential regulatory violations. All reports with a rating of fail are sent to directors of the offending organization. A formal response is required to EM within two weeks. All fails are tracked to ensure findings are properly fixed. Each quarter, EM inspectors verify that previous findings are correct.

ECI results are entered in a database for tracking. Trend charts are produced to show recurring problems. Charts are sent to top management and briefed to McClellan's 82 Unit Environmental Coordinators during bimonthly meetings. Coordinators communicate trends to their work areas.

The ECI program is reviewed and expanded as new regulations are implemented. For example, McClellan is considering adding a new area for inspection as a result of the implementation of the Pharmacy concept.

ECIs conducted by McClellan compliance inspectors during the fourth quarter resulted in the following findings in 1995:

- 6 Training
- 4 Missing Accumulation Start Dates
- 1 Illegible Marker

- 1 Fire Extinguisher Not Charged
- 1 Open Valve
- 1 Manifest for PCB
- 1 Tracking Log

Air Compliance Inspections

Air Compliance Inspections focus on the Clean Air Act. McClellan developed checklists for ACIs in accordance with requirements of the Sacramento Air Quality Management District rules. These rules are specific for different types of permitted stationary sources. McClellan AFB has over 300 stationary sources inspected annually. The rating system and inspection process is similar to the ECI program

The Clean Air Act recently added requirements for state and federal implementation plans. Therefore, EM will review and possibly expand its ACI program in the near future.

McClellan compliance inspectors inspected 101 permits in 1995. Five failures were noted and corrective action was taken.

Underground Storage Tanks

Over 200 underground storage tanks (USTs) have been removed, abandoned in place, replaced, or are currently in use at McClellan AFB. Seventeen of these storage tanks are located at off-base properties under McClellan's jurisdiction. As of January 1996, 44 UST sites are in the process of being closed.

Air Quality Management

The air quality management program at McClellan maintains an "Air Quality Bank Account" of emissions credits for various criteria air pollutants. This tracking system helps ensure that future projects can operate within established emission limits. Pollutants include ozone precursors, volatile organic compounds, and NOx.

Under the Air Toxic "Hotspots" Information and Assessment Act of 1987 (AB 2588), McClellan and other facilities must quantify actual or potential air emissions form all points of release. Facilities designated by the Sacramento Metropolitan Air Quality Management District as "high priority" are required to

submit health risk assessments based on emissions data. McClellan submitted an inventories in 1989, 1991 and 1993.

Asbestos Management Program

In 1987, an initial basewide survey was conducted; however, the results of this survey were determined inconclusive and a new survey is being conducted in FY96. The survey includes all on-base and off-base buildings, except military family housing. The results are being integrated into a database for easy access to building information during construction operations. Revisions to the Asbestos Management Plan were completed in FY95.

Radon Testing

A basewide survey was conducted in 1988 and found radon measurements below the 4 picocurie threshold level. No further testing is anticipated.

PCB Storage and Inspection Removal

A basewide survey was completed in 1986 and all transformers containing greater than 500 parts per million (ppm) of PCB have been removed. Almost all transformers with PCB contamination greater than 5 ppm have been removed or treated. A new PCB storage facility was constructed on base and is operational. The current PCB compliance program is responsible for inspecting, sampling, and disposing of equipment that contains PCBs.

Wastewater Discharges and Treatment Systems

Wastewater discharge and treatment is an integrated sampling and compliance program for base operations, cleanup projects and other activities. Efforts include a long range program to convert the Industrial Wastewater Treatment Plant (IWTP) to a facility which would only treat non-hazardous wastewater. This program will include design and construction of a new IWTP and installation of "upstream point source" treatment systems to ensure that discharges to the IWTP are at non-hazardous levels. The conceptual design of the IWTP was completed during FY94 with construction completion scheduled for FY98.

Environmental Impact Analysis Process

The Environmental Impact Analysis Process ensures that all projects conducted at the base are in compliance with the National Environmental Policy Act (NEPA). Documents are prepared and maintained on significant impacts that results during construction, facility repairs, operations, real estate transactions, and other major projects including cleanup projects.

Fix It Tickets

EM needed an additional compliance mechanism for problems found as a result of anonymous tips, non-routine inspections, or recurring compliance issues. The formal letter-writing process was too lengthy for these matters, as it takes a week or more. To expedite the process, McClellan's EM began using Fix-It Tickets. These citations are signed by EM inspectors under the authority of the EM director. A sample Fix It Ticket is shown at Figure 8. Tickets are presented to the offending organization on the day a problem is identified with a copy forwarded to EM, the organization's director and its unit environmental coordinator. A formal response is required within 10 days of the ticket issue date.

Tickets have proven to be a highly effective tool. They not only speed resolution of problems, but they also provide documentation of repeat offenses. An example of how tickets are used to correct a particular trend is in the accumulation time of hazardous waste drums. Under base policy, drums of hazardous waste must be turned in by the 80th day of accumulation. This is a conservative approach to meet the regulatory requirement of 90 days. A trend was developing showing that organizations were keeping the drums until the 84th day. As a result, EM began weekly reviews of drum accumulation times. If drums were past due for turn in, fix-it tickets were issued. After continually issuing tickets for this problem, the occurrence of outdated drums decreased rapidly.

Fix it Tickets issued:

- 14 in 1994
- 17 in 1995
- 1 in 1996

Results:

- McClellan's rigorous self inspection program has resulted in an outstanding compliance record. No enforcement actions were received

FIX-IT-TICKET

SM-ALC/EMPC
McCLELLAN AFB CA 95652
(916) 643-0228

TO: 77th Med Gp/SGSLF-H 19 May 95

EM CONTROL # : 95-009CM

VIOLATION DATE: 18 May 95 TIME: NA PERMIT #: NA PM #: NA

TYPE OF EQUIPMENT: Hazardous Waste Containers

VIOLATION LOCATION: McClellan AFB Hospital

ENVIRONMENTAL COORDINATOR/SYMBOL/PHONE: MSgt Sullivan/SGSLF-H /3-7253

SUPERVISOR/SYMBOL/PHONE: Capt Altland/SGL/3-8533

EMPLOYEE CONTACTED (NAME/SYMBOL/PHONE): Pete Spitzer/77CES/CEZFD /3-7327

DESCRIPTION OF VIOLATION: Two filled containers were kept at the IAP past the 72 hour keeping time allowed per CCR Title 22. Containers #E410238, fill date, 5-8-95 and #E410239, fill date, 3-18-95 were relocated to the CE Accumulation Site on 18 May 95. The waste stream involved is 2321, photo fixer solution.

VIOLATION REFERENCE: CCR Title 22, Section 66262.34 and EM Policy Ltr, 13 Mar 95, Mgt of Hazardous Waste at McClellan Hospital and Associated Civil Engineering Support building

** A FORMAL RESPONSE TO THIS VIOLATION IS REQUIRED TO BE SENT TO EMPC NLT 29 May 95. A COPY OF THIS VIOLATION WILL BE FORWARDED TO THE ORGANIZATIONAL DIRECTORATE.

POSSIBLE CORRECTION ACTION:
Utilize your daily/weekly Initial Accumulation Point (IAP) Checklist provided by your Unit Environmental Coordinator (UEC). This letter was also provided as an attachment to the 15 Feb 95 Fix-it-Ticket.

cc:
77th Med Gp/SG
77th Med Gp/SGG-C (Jim Anderson)
77 ABW/CC
77 SPTG/CC
77 CES/CERX

Figure 8. Fix-it Ticket

during McClellan's 1994 California EPA hazardous waste inspection that covered more than 500 waste streams, 250 hazardous waste generation points, 43 accumulation sites, and a RCRA permitted storage facility.

- The Sacramento Metropolitan Air Quality Management District inspects approximately 340 permitted pieces of equipment at McClellan annually. In 1992, there were two violations. In 1993, no violations were found. One was closed the same day, the other was closed within one month. In 1993, the Resource Conservation and Recovery Action inspection by the California Department of Toxic Substance Control resulted in an enforcement order for 10 violations. All violations were closed within one month of the inspection.
- County Hazardous Material Inspector dubbed McClellan the "Best Department of Defense" facility and said that the base serves as a model for others.

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ISO 14000

ISO 14000

ISO is the International Organization for Standardization in Geneva, Switzerland. The goal of ISO is to develop standards on a world-wide basis to allow commerce to transcend national boundaries without creating trade barriers. The foundation of ISO systems standards (9000 and 14000) is a total quality management approach, where systems and processes are critical, in turn resulting in the desired outcome. Because such standards are process-oriented, they do not establish goals or limits. Instead they establish management system guidelines that help an organization assure compliance with customer, industry or regulatory limits.

ISO 14000 is simply the number series designated by ISO to cover environmental management standards. It is being developed by a committee made up of approximately 50 participating countries. Work groups within these committees are creating individual standards documents for the following:

- Environmental Management Systems
- Environmental Auditing
- Environmental Performance Evaluations
- Environmental Labeling
- Terms and Definitions
- Life Cycle Assessment
- Environmental Aspects in Product Standards

ISO 14001 and McClellan

Currently, the only ISO standard which requires certification is the 14001 Environmental Management Standard. ISO 14001 allows companies to self-certify or to have third parties certify that their EMS meets the ISO specifications. Thus the ISO 14001 EMS standard is the one on which most companies are focused.

Elements of the ISO 14001 EMS Standard include:

- Environmental Commitment and Policy

  Facility establishes a commitment to documented and published policies supporting full implementation of an environmental management system and compliance assurance program.
- Planning

Facility implements components that are the most environmentally beneficial and economically feasible (i.e. minimizing the negative environmental impacts for maximum positive impacts). This includes management components (i.e., Pollution Prevention and source reduction), enhancement components (i.e., product stewardship, and energy conservation), and outreach (i.e., community programs).

- Implementation and Operation

  Structure, communication, training, and documentation. Structure requires commitment by all employees and management to ensure successful EMS implementation. Communication mechanisms allow interested parties to receive and deliver information relevant to the EMS. The foundation of an EMS is provided through proper training of management, operating personnel, and contractors. Documentation and reporting is necessary for organizing and tracking an EMS.

- Measurement and Corrective Action

  The facility institutes a program of regular and periodic review and evaluation of compliance and environmental performance of the system against stated objectives and develops procedures to process the resulting information.

- Review and Improvement

  The facility implements an approach toward continuous improvement that includes preventive and corrective actions, and system improvements.

McClellan has been developing and refining its Environmental Management System (EMS) since the Environmental Management Directorate was formed in 1985. Many elements of McClellan's EMS are similar to those required by ISO 14001.

McClellan EMS activities are compared to ISO 14001 reqirements on the matrix at Figure 9. They represent the majority of processes for identifying and implementing environmental protection.

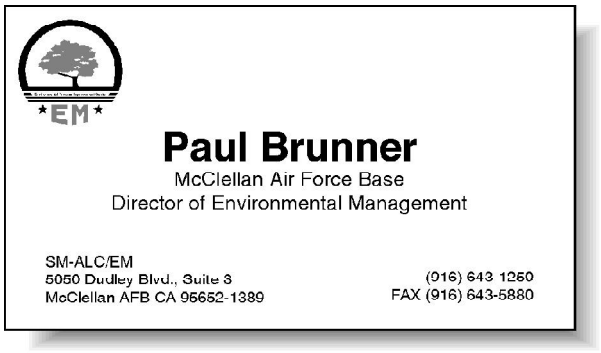
Matrix Comparing McClellan EMS with ISO 14001 EMS Principles and Elements

Principles	Major Elements	McClellan Activities
4.1 Commitment and Policy	Mission, vision, core values	Strong Ethic and Vision
4.2 Planning	Environmental Impact Analysis Pollution Prevention Legal Internal Performance Criteria Objectives (i.e. reduce waste) EM Organization	Dedicated Environmental Management Team Pollution Prevention Program Environmental Impact Analysis Program Performance Measures
4.3 Implementation	Resources - Human, Physical, Financial Aligned and Integrated Accountability and Responsibility Awareness and Motivation (Awards) Knowledge, Skills, Training Communication and Action EMS Documentation (Operational Instructions) Operational Control Emergency Preparedness and Response	Dedicated Environmental Management Team Direct Link to Top Commander Corporate Member Status Cultivation of Green Thinking P2 Aligned with Compliance for Savings Standard Operating Procedure for Hazardous Waste EPIC Partnerships Close Regulatory Ties Environmental Training and Multi-Agency Partnerships
4.4 Measurement and Corrective Action	Measure and Monitoring System Correction and Preventive Action EMS Record and Information Management EMS Audits	Computerized Information Management Systems Performance Measures to Track Progress External Environmental Compliance Assessment and Management Program (ECAMP) Internal ECAMP Air Compliance Inspections Environmental Compliance Inspections Fix it Tickets No Notice Inspections with Center Commander
4.5 Review and Improvement	EMS Review Continual Improvement	Program Management Reviews with EM Director and Other Staff Briefings to McClellan Corporate Staff on Environmental Performance

Note:
McClellan Environmental Management System (EMS) activities listed on this matrix represent the majority of processes for identifying and implementing environmental protection. They include major efforts at the base to achieve, maintain, and supersede environmental compliance. This matrix is a starting point to understand how McClellan measures up to ISO 14001.

Figure 9. Matrix comparing McClellan EMS with ISO 14001 EMS Principals and Elements.

MCCLELLAN CONTACTS



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