

**REPORT TO THE
TWENTIETH LEGISLATURE
STATE OF HAWAII**

2000

**IN COMPLIANCE WITH HAWAII REVISED STATUTES
CHAPTERS 128D AND 128E
ON THE ACTIVITIES OF THE DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH ADMINISTRATION
OFFICE OF HAZARD EVALUATION AND EMERGENCY
RESPONSE
AND USE OF THE ENVIRONMENTAL RESPONSE REVOLVING
FUND**

**PREPARED BY:
DEPARTMENT OF HEALTH
STATE OF HAWAII**

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Appendix A DOH Release Notification Log 1999

Appendix B State Site List 1999

GLOSSARY

AFB	Air Force Base
AGI	Airport Group International
AOC	Area of Concern
ARARs	Applicable Relevant and Appropriate Requirements
AST	Above Ground Storage Tank
ATSDR	Strausbaugh at Agency for Toxic Substances and Disease Registry
AVGAS	Aviation Gas
BETX	Benzene, Toluene, Ethyl Benzene, Xylene
bgs	Below Ground Surface
BRAC	Base Realignment and Closure
CA	Cooperative Agreement
CAB	Clean Air Branch
CCA	Copper Chromium Arsenate
CDC	Center for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIC	Clean Islands Council
CIP	Campbell Industrial Park
CLEAN	Campbell Local Emergency Action Network
COC	Contaminant of Concern
CSM	Conceptual Site Model
CWB	Clean Water Branch
DAGS	Department of Accounting and General Services
DERP	Defense Environmental Restoration Program
DLNR	Department of Land and Natural Resources
DOFAW	Division of Forestry and Wildlife
DOD	Department of Defense
DOH	Department of Health
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DSMOA	Department of Defense/State Memorandum of Agreement
EA	Environmental Area
EE/CA	Engineering Evaluation/Cost Analysis
EGIS	Environmental Geographic Information System
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
EPO	Environmental Planning Office
ERO	Environmental Resources Office
ERRF	Environmental Response Revolving Fund
ESI	Expanded site inspection

FS	Feasibility study
FSAs	Fuel Storage Annexes
GIS	Geographic Information System
H ₂ S	Hydrogen sulfide
HAR	Hawaii Administrative Rules
HARC	Hawaii Agriculture Research Center
HAZMAT	Hazardous Material (also a Unit in the Fire Department)
HCCPD	Hexachlorocyclopentadiene
HCDA	Hawaii Community Development Authority
HEER	Office of Hazard Evaluation and Emergency Response
HEPCRA	Hawaii Emergency Planning and Community Right-to-Know Act
HERL	Hawaii Environmental Response Law
HIARNG	Hawaii Air National Guard
HPD	Hawaii Fire Department
HRS	Hawaii Revised Statutes
HSERC	Hawaii State Emergency Response Commission
HSPA	Hawaiian Sugar Planter's Association
ICE	Crystal Methamphetamine
IRP	Installation Restoration Project
ISST	Initial Site Screening Team
IT	Industrial Technology
LEPC	Local Emergency Planning Committee's
MOA	Memorandum of Agreement
MCL	Maximum Contaminant Level
MOGAS	Motor gas
MSO	The U.S. Coast Guard Marine Safety Office
NAS	Naval Air Station
NCTAMS	Naval Computer and Telecommunications Area Master Station
NEESA	Naval Energy and Environmental Support Activity
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NPDES	National pollution discharge and elimination system
NPL	National Priority List
NRTF	Naval Radio Transmitting Facility
NRDA	Natural Resource Damage Assessment
OPA 90	The Oil Pollution Act of 1990
OSWM	Office of Solid Waste Management
OWSG	An Oiled Wildlife Steering Group
PA	Preliminary Assessment
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene also known as PERC
PCP	Pentachlorophenol
PENCO	Pacific Environmental Corporation
PGV	Puna Geothermal Venture
POL	Petroleum Oil and Lubricant

PRGs	Preliminary Remediation Goals
PRP	Potential Responsible Party
QA/QC	quality assurance/quality control
QEQC	Hawaii State Office of Environmental Quality Control
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RPM	State Remedial Project Manager
SDAR	Site Discovery Assessment and Remediation Section
SDWB	Safe Drinking Water Branch
SERC	State Emergency Response Commission
SHWB	Solid and Hazardous Waste Branch
SI	Site Investigation
SITE	Superfund Innovative Technology Evaluation
SOSC	State On Scene Coordinator
SPA	State Program Approval
SPCC	Spill Prevention Control and Countermeasures
SVOC	Semi-volatile organic compounds
SWTR	Surface Water Treatment Requirements
TAMC	Tripler Army Medical Center
TCE	Trichloroethylene
TBCs	To Be Considered Requirements
TPH	Total Petroleum Hydrocarbon
TSCA	Toxic Substance Control Act
UIC	Underground Injection Control
VOC	Volatile Organic Compound
VRP	Voluntary Response Program
WWTP	Wastewater treatment plant

HAZARD EVALUATION AND EMERGENCY RESPONSE (HEER)
OFFICE
FISCAL YEAR 1999 ACTIVITIES
(7/1/98 - 6/30/99)

EXECUTIVE SUMMARY

This report complies with Chapters 128D and 128E, HRS, that requires the Department of Health (DOH) to prepare an annual report for the State Legislature. In addition, this report provides an overview of the function and activities of the Hazard Evaluation and Emergency Response (HEER) Office during Fiscal Year (FY) 1999.

Annual Report Requirements

Chapter 128D, HRS, Environmental Response Law, requires the DOH to include/address the following:

1. Budget to implement remedial action plans requiring funding by the Environmental Response Revolving Fund.
2. Identify sites eligible for remedial action under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), including a statement as to any appropriation that may be necessary to pay the State's share of the plan.
3. The Department shall publish and revise, at least annually, a listing of the sites subject to Chapter 128D and any de minis settlements made under this chapter.

These requirements are addressed in the HEER OFFICE BUDGET AND EXPENDITURES and STATE PRIORITY CLEANUP SITES sections of this report and in the Appendices A and B: Department of Health Release Notification Log and Department of Health State Site List, respectively.

Chapter 128E, HRS, Hawaii Emergency Planning and Community Right-To-Know Act (HEPCRA), requires the DOH to report the amount of Tier II filing fees collected for use by the local emergency planning committees (LEPC) and deposited into the Environmental Response Revolving Fund (ERRF) during FY

1999, the amount collected to date for FY 2000, and the amount to be collected in FY 2001.

During FY 1999 the HEER Office collected \$54,700 in fees for the calendar year 1998 reporting period. An additional \$8,100 in fees for the calendar year 1998 reporting period was collected and deposited into the ERRF in the First Quarter of FY 2000 for a total collection of \$62,800. This is a 28.8% reduction in fees from the \$88,200 collected for the 1997 reporting period. The number of facilities required to report and pay Tier II filing fees declined because the EPA Office of Chemical Emergency Preparedness and Prevention increased the reporting threshold for gasoline and diesel fuel facilities.

Collection for the calendar year 1999 HEPCRA Tier II filing fees are not due until March 1, 2000 with the bulk generally submitted during February. Similarly, collection of HEPCRA fees for the calendar year 2000 are not due until March 1, 2001. Collections for calendar years 1999 and 2000 should be consistent with the \$62,800 received for the 1998 reporting period.

Overview of HEER Function and Activities

In general, the function of the HEER Office is to plan for and respond to hazardous substance, pollutant, contaminant and oil releases to the environment. The HEER Office evaluates actual or potential impacts such releases may have on the public, environment and natural resources and mitigates them as needed. The HEER Office is staffed with professionals able to assess chemical risks, evaluate the extent of chemical contamination, formulate response plans, oversee remediation, and actually conduct response activities. In addition, the HEER Office coordinates statewide planning activities to prepare for and respond to chemical and oil spills in the environment.

During FY 1999, the HEER Office received 567 notifications of chemical or oil spills and responded to 265 of them. This is a 7.0% increase over the 530 spill notifications reported in FY 1998. Notable among the spill responses are the following:

- DOT Harbors Pier 2 oil leak
- Tesoro oil spill at Barbers Point and cleanup on Kauai
- Paradise Queen II grounding and breakup on Kure Atoll
- Pearl City bike path pipeline leak
- Van Loi grounding and breakup on Kauai

During FY 1999, the HEER Office concentrated on improving its programs and enhancing its capacities in the following priority areas:

- Improve enforcement of Chapters 128D and 128E, HRS.
- Improve emergency response preparedness.
- Improve oversight and response to contaminated sites.
- Improve usage of the Voluntary Response Program (VRP) and Brownfields programs.
- Improve office operations.
- Develop a Hawaii Chemical Accident Release Prevention Program.

During FY 1999, the HEER Office implemented the following legislation passed by the 1998 Legislature and received approval from the 1999 Legislature to raise the budget ceiling of the Environmental Response Revolving Fund for a number of program needs:

On July 20, 1998, the Governor approved Act 233 SLH 1998, which amended the existing Voluntary Response Program (VRP). The law enhances public notification of sites participating in the VRP; makes sites involving underground storage tanks eligible to be cleaned up under the VRP; and provides an exemption from future liability for subsequent purchasers of the property and clarifies that a prospective purchaser would be eligible for an exemption from liability, provided the prospective purchaser does not purchase the property prior to entering into a voluntary response agreement.

On July 2, 1998, Act 141 SLH 1998 was approved. It increased the maximum balance of the Environmental Response Revolving Fund from \$7,000,000 to \$20,000,000.

Act 116 SLH 1998 (budget bill) approved the purchase of an Airborne Dispersant Deliver System (ADDS) costing \$1,230,700. This new oil spill response capability was ordered in FY 1999 and will be implemented in FY 2000. It will allow the State and the Coast Guard to utilize chemical dispersant to fight offshore oil spills and to keep the oil from reaching Hawaii's beaches.

Act 91 SLH 1999 (budget bill) allocates \$972,167 from the Environmental Response Revolving Fund to annually fund the following:

- Distribution of HEPCRA filing fees to the LEPC (\$100,000)
- Provided operating funds for emergency preparedness and prevention (\$30,000)
- Established a permanent data manager position (\$42,317)
- Established a temporary exempt toxicologist position \$76,302)
- Established a temporary exempt ecological risk assessor position (\$76,302)

- Increased the funding ceiling for emergency response actions (\$500,000)
- Provided funds for the operation of the Voluntary Response Program (\$128,505)
- Increased appropriation for the excluded office manager position (\$18,741)

During FY 2000, the HEER Office will continue to build its capacity to order, enforce and oversee cleanups of contaminated sites and recover costs wherever possible. In addition, it will encourage greater utilization of incentive programs such as the VRP and Brownfields programs to return contaminated properties to productive economic use. Finally, the HEER Office will work to develop and implement a comprehensive Hawaii Chemical Accident Release Prevention Program. These activities will continue to be the priorities of the HEER Office's fiscal years 1999/2000 Operating Plan:

- Improve enforcement of Chapters 128D and 128E, HRS.
- Improve emergency response preparedness.
- Improve oversight and response to contaminated sites.
- Improve usage of the VRP and Brownfields programs.
- Improve office operations.
- Develop a Hawaii Chemical Accident Release Prevention Program.

THE HEER OFFICE

The HEER Office operates under various environmental authorities. The primary state enabling legislation is Chapter 128D, HRS, "Environmental Response Law" or commonly referred to as Hawaii's Environmental Response Law (HERL) and Chapter 128E, HRS, "Hawaii Emergency Planning and Community Right-to-Know Act" (HEPCRA). Chapter 128D, HRS, is modeled after the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Chapter 128E, HRS, is modeled after the federal Emergency Planning and Community Right-To-Know Act (EPCRA). Unlike CERCLA, HERL defines hazardous substances to include oil. Due to this fact, the HEER Office becomes involved in oil spill planning, preparedness and response activities under the Oil Pollution Act of 1990 (OPA 90). The following is a list of the legal authorities under which the HEER Office operates:

Legal Authorities

State Laws/Rules (Hawaii Revised Statutes - HRS)

- Chapter 128D, HRS, "Hawaii's Environmental Response Law" (HERL)
 - Title 11, Chapter 451, Hawaii Administrative Rules (HAR), "State Contingency Plan."
- Chapter 128E, HRS, "Hawaii Emergency Planning and Community Right-to-Know Act" (HEPCRA).
- Chapter 321, HRS, "Department of Health"
 - Title 11, Chapter 5, HAR, "Environmentally-Related Illness and Injury Reporting"

Federal Laws

- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 40 CFR, Part 300, "National Contingency Plan."
- CERCLA, Title III, "Emergency Planning and Community Right-to-Know Act," 40 CFR, Part 302, "National Contingency Plan."
- The Oil Pollution Act of 1990 (OPA 90), 40 CFR, Part 300, "National Contingency Plan."

Program Mission and Objectives

Mission

To protect human health, public welfare and the environment, and to provide state leadership, support and partnership in preventing, planning for, responding to, eliminating, and enforcing environmental laws related to releases or threats of releases of hazardous substances, pollutants or contaminants including oil.

Specific program actions are:

1. Prepare for and respond in a timely and effective manner to releases of hazardous substances and oil into the environment.
2. Prepare and respond to all media related (air, land and water) releases during non-routine state working hours (off-hours).
3. Locate, investigate, and assist in the cleanup of lands with prior releases of hazardous substances, pollutants or contaminants.
4. Prevent harmful releases of oil and hazardous substances into the environment.
5. Evaluate the risks associated with releases of chemicals into the environment and other environmental risks to public health and the ecosystem.

Objectives

The following are our objectives:

Objective A: Environmental Release Response:

- A-1: Improve the preparedness of federal, state and local entities to respond to releases of petroleum and hazardous materials into the environment utilizing risk-based management principles and effective partnerships.

A-2: Integrate the Department of Health's response and cleanup programs utilizing risk-based management principles and effective partnerships.

A-3: Enhance and improve capabilities to identify and assess hazardous substance and petroleum-contaminated sites.

A-4: Enhance and improve capabilities to clean up hazardous and petroleum waste sites.

Objective B: Prevention of Environmental Contamination

B-1: Implement an oil spill prevention program in Hawaii.

B-2: Implement a Pipeline Safety Program.

B-3: Implement a Clean Air Act (CAA) Section 112(r) Risk Management Program.

B-4: Implement a HEPCRA Inspection Program.

Objective C: Statewide Risk Assessment Support

C-1: Maintain an ongoing core of qualified environmental technical experts.

FY 1999 ACTIVITY

FY 1999 HEER Office Priorities

During FY 1999, the HEER Office concentrated on improving its various programs including the Voluntary Response Program and initial components of a chemical accident release prevention program. The FY 1999 Operating Plan priorities were:

- Improve enforcement of Chapters 128D and 128E, HRS.
- Improve emergency response preparedness.
- Improve oversight and response to contaminated sites.
- Improve usage of the Voluntary Response Program (VRP) and Brownfields Program.
- Improve office operations.
- Develop a Hawaii Chemical Accident Release Prevention Program.

FY 1999 Notable Accomplishments by Priorities

Improved enforcement of Chapters 128D and 128E, HRS

Legal Support/Enforcement

A Deputy Attorney General continues to regularly spend two days each week working on HEER Office matters. During this time, consultations are scheduled and time is spent with the HEER Office staff to discuss all cases in development. The Deputy Attorney General advises and counsels the staff with regard to subpoenas, orders, contracts, agreements, memorandums of agreement (MOAs), settlements, lawsuits, cost recovery, natural resource damage assessments and other development issues. Some of the major outcomes resulting from this assistance are:

In FY 1999, cost recovery efforts have resulted in the collection of \$949,635 and Natural Resource Damage Assessment collection efforts resulted in the collection of \$5,393.

Del Monte	\$ 1,647
Chevron Waiau	2,655
Barbers Point Harbor/Kauai	49,816
Pier 2, DOT	362,448
Operations Kokua	<u>533,069</u>
TOTAL:	\$ 949,635

The Department of the Attorney General in FY 1999 has supported the HEER Office's efforts on issues concerning closure of federal facilities, Brownfields, voluntary response actions, and the cleanup of sites on the State List.

During FY 1999, Natural Resource Damage Assessment (NRDA) has become a major area of focus. This is particularly true because of the negotiations that have taken place with Chevron regarding the 1996 oil spill into Pearl Harbor. Together with the Natural Resource Trustees from the State and Federal agencies, a settlement has been negotiated. The settlement resulted in a cash penalty of \$100,000 along with restoration to the natural resources affected by the oil spill. The amount collected as partial settlement in FY 1999 is approximately \$5,393.

The Office of the Attorney General has also provided support in the negotiations in other NRDA cases such as the Tesoro oil spill and boat groundings at Kure Atoll (Paradise Queen II) and on Kauai (Van Loi).

Improve emergency response preparedness.

Pollution Exercise Participation

DOH played an active role in designing, planning, and conducting a wide range of oil and hazardous materials (HAZMAT) training

exercises. Two Emergency Support Function 10 (ESF10) or HAZMAT exercises were held. The EPA, CHEVRON and TESORO conducted tabletop and deployment exercises. These exercises were designed to test the formation and responding capability of the Incident Command System.

DOH, in partnership with the U.S. Coast Guard, EPA and industry, held regular training and workshops on response operations throughout the year. Many of these exercises test the agencies' capability to respond to oil spills in various situations.

Campbell Local Emergency Action Network (CLEAN)

CLEAN was developed in 1997 by businesses in the James Campbell Industrial Park (CIP) to address emergency planning issues, including public health and safety, for the CIP and surrounding community. The DOH HEER Office has participated in this effort and is highly supportive of their activities. An Emergency Management Plan for the CIP currently in use provides guidance and information to emergency response personnel, local residents, and businesses based on local conditions and specific CIP hazards.

Community involvement has been present throughout the planning process. A special task force has been working to improve the overall effectiveness of the warning/notification system, to achieve increased public awareness and protection in and around CIP, and to provide public education on appropriate responses to the warning/notification in the event of an emergency. This has resulted in CLEAN procuring Sentinel Alert Radios for CIP and public facilities, including schools in the area to enhance notification of a chemical release. CLEAN with the support of a \$10,000 EPA Region 9 Grant presented four training seminars for local Emergency Coordinators on the Clean Air Act 112(r) Risk Management Plan requirements. Again this year, the CLEAN organization was active in community outreach and participated in the Makakilo Emergency Preparedness Fair.

Airborne Dispersant Deliver System (ADDS)

In April 1999, Governor Cayetano signed a Memorandum of Agreement (MOA) with Rear Admiral J.J. McClelland, Commander of the Coast Guard's Fourteenth District and with the Clean Islands Council (oil industry spill response co-op). Under the MOA, the Coast Guard will use one of its four C-130 aircraft at Barbers Point Air Station to fly the State owned Airborne Dispersant Delivery System (ADDA) to a spill site for usage. The Clean Island Council will maintain the ADDS and train personnel for immediate use of the system in the event of an oil spill. This new oil spill response capability will allow the State and the Coast Guard to utilize chemical dispersant to fight offshore oil spills. The ability to use chemical dispersant will greatly enhance the State's oil spill response capability for combating oil spills in the Hawaiian Northwest Island chain and other locations distant from Honolulu. It is critical that this capability exist immediately after an oil spill occurs to be most effective in keeping the oil from reaching Hawaii's beaches. Dependency on mainland aircraft would delay operations for several days. The State is purchasing the ADDS with funds from the Environmental Response Revolving Fund. This partnership is an insurance against the devastating impact that a large oil spill could have on Hawaii.

Improve oversight and response to contaminated sites.

Response Contracts.

The Hawaii Environmental Response Law (HERL), Chapter 128D of the Hawaii Revised Statutes, mandates that the Department of Health (DOH) undertake response actions whenever any hazardous substances, pollutants and contaminants including oil are released or there is a substantial threat of such a release into the environment that may present a substantial threat to the public health, welfare, or to the environment. To implement the requirements of the HERL, the DOH, Hazard Evaluation and Emergency Response (HEER) Office solicited the qualifications of several environmental companies. After an exhaustive evaluation, two companies were selected in 1998. A time-critical emergency environmental response contract was awarded to the Pacific Environmental Corporation (PENCO) and the non-emergency environmental response contract

was awarded to Ogden Environmental and Emergency Services Company Incorporated. In FY 1999 both contracts were extended both companies provided response services for the HEER Office.

Initial Site Screening Team - ISST

The Initial Site Screening Team, composed of members of the Site Discovery, Assessment and Remediation (SDAR) Section, just went through its second year of operation. It screens and prioritizes the contaminated sites which are reported to the HEER Office in order to prioritize the remediation workload. Every site that comes to the ISST is screened and assigned a priority of high, medium, low, or no further action (NFA).

Potentially Responsible Parties (PRPs) of the release sites are notified by letter of the priority ranking of their sites. Sites which are eligible for further investigation under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) are assigned to personnel in the Preliminary Assessment/Site Investigation (PA/SI) group. Sites which are ineligible under CERCLA and ranked medium or high priority by the ISST are assigned to a State Remedial Project Manager (RPM). Low priority sites generally do not have site managers assigned to them at this time.

During FY 1999, the ISST completed the screening of 45 sites with the following prioritizations: no high priority; 8 medium priority; 20 low priority; and 17 NFAs.

Improve usage of the Voluntary Response Program (VRP) and Brownfields Program

Voluntary Response Program

The voluntary hazardous substance cleanup program was established in July 1997 through the enactment of Part II of the Hawaii Environmental Response Law (Chapter 128D, HRS). The purpose of the law is to encourage the voluntary clean up of contaminated property and to facilitate its economic development. The law gives the Department of Health authority to grant prospective purchasers an exemption from future liability related to the contamination

that is cleaned up under the program. Amendments passed during the 1998 legislative session allow current owners to participate in the program and obtain a letter of completion that would provide an exemption for subsequent purchasers of the property. This change was intended to make the program more useful to current owners since they are now no longer required to identify a prospective purchaser interested in the buying the property before applying to the VRP.

During the first year of the program (FY 1998), the infrastructure for the VRP was developed and the Department approved its first two participants. In FY 1999, three additional projects, all on Oahu, were approved: A&B Properties in Waipahu (former Oahu Sugar Mill site); Ross Trusts by the Kapalama Canal; and Chuei Shokoh, Inc., on Kapiolani Boulevard. These projects are currently underway and interest in the program seems to be growing.

Also, during FY 1999 outreach to potential users of the program continued. As is to be expected in implementing a new program, a number of issues have come up during the course of these projects. As they arise, the DOH is working to develop the policies and guidance needed to resolve these issues in a way to make the program consistent with statute and useful as possible to property owners and purchasers.

Since the VRP is designed to be a self-supporting program that can offer a valuable incentive to property owners, it has a great deal of potential to promote more environmental clean up at a reduced cost to the State. The Department is working to expand the program in the future.

Kakaako Brownfields Project

The Kakaako Brownfields Project Site is located in the makai area of the Kakaako Redevelopment District. The Honolulu Community Development Authority received a \$90,000 grant from the Environmental Protection Agency to conduct a Brownfields investigation in the light industrial area of Honolulu. The investigation area was divided into 10 units consisting of 19 State owned parcels. Facilities operating in the investigation area included: a shipyard, City and County maintenance facilities, University of Hawaii research facilities, a marine fuel supply business, and a former tuna packing plant. Soil and groundwater sampling was

completed in August 1998. A laboratory analysis for metals, petroleum, volatiles, semivolatiles, pesticides and polychlorinated biphenyls (PCBs) is being conducted by the EPA's Contract Laboratory Program. The Phase II Environmental Field Investigation Report dated June 8, 1999 was submitted to HCDA and DOH. The report discusses sampling results and identifies areas that may need further environmental assessment.

Improve office operations.

Office Management

The HEER Office operated under a temporary office manager for nearly two years. In April of 1999, a permanent office manager was selected. This has stabilized the office management as it allows the section supervisors who were on temporary assignments to concentrate on their respective areas of responsibility.

Data Management

During FY 1999 the HEER Office identified the need for better data management. Due to an increased demand for information that the HEER Office manages and growing technologies in computer and information systems, we received budget authorization to establish a data manager position during FY 1999 and began the process to create the position.

The Internet web page developed in FY 1998 was updated in FY 1999 to allow Internet users to retrieve commonly requested HEER documents and database files.

During FY 1999, the HEER Office made plans to upgrade its existing personal computer (PC) workstations from a Windows 3.1 operating system environment to Windows-NT utilizing Microsoft 2000 software. Hardware and software valued at over \$100,000 were ordered to make this transition. Ten of the existing Pentium computers will be upgraded and seventeen new Pentium II computers have been purchased. Implementation will take place in FY 2000.

Geographic Information System (GIS)

A GIS database was initiated in March 1998 by the hydrogeologist of the HEER Office. The following statewide geographical data layers were adopted from the Hawaii State Office of Environmental Quality Control (OEQC) and installed in the HEER Office's GIS database. The HEER Office's hydrogeologist performed updates to several of the data layers.

Aquifer Systems - The aquifer layers were modified so that users can easily review the different types of aquifers.

Groundwater Wells - Drinking water wells on Oahu were updated based on log data from the Safe Drinking Water Branch. Contaminated wells on Oahu were added to the database.

Land Use - Agricultural land use, forest reserve boundaries and coastlines were added to the database.

Hydraulic Data - Rainfall distribution, streams and wetlands and a watershed and drainage basin were added to the database.

Street Maps - In addition to the OEQC's street map, a detailed street map on Oahu created by City and County was added to the HEER Office's GIS database. This map allows users to process geo-coding and matching addresses.

The following three geographical data layers were developed further in FY 1999.

1. Gas Stations and Underground Storage Tank facilities
2. Background Concentration Map for Selected Metals
3. Department of Defense Ongoing Remedial Investigation Sites

The HEER Office State Remedial Project Managers (RPMs) are able to utilize the GIS System to obtain information with the help of the Geologist.

Emergency Planning and Community Right-to-Know Act (EPCRA)

The HEER Office collected \$62,800 in FY 1998 reporting period Tier II reporting fees. As authorized by Act 260, SLH 1997, these fees were deposited into the Environmental Response Revolving Fund. The Department of Health received the budgetary approval from the 1999 Legislature to distribute the fees collected to the Local Emergency Planning Committees (LEPCs) for their use in emergency planning.

During FY 1999 we sent out copies of each facility's reporting history for reconciliation with their files.

Public Inquiries

During the year, the HEER Office received over 900 inquiries from the public regarding health concerns and exposure hazards. These calls are handled by the Hazard Evaluation Section staff who provide this service to the community.

Develop a Hawaii Chemical Accident Release Prevention Program.

Hawaii Pipeline Corrosion Control Coordinating Committee

This Committee was formed under the DOH for administrative purposes for two years in compliance with Act 148, SLH 1997. Act 148 SLH 1997 sunsetted on June 30, 1999; however, pipeline operators continue to meet quarterly to promote pipeline safety. A depository for pipeline maps has been established with future placement into the Environmental Geographic Information System (EGIS) planned. The committee acts as a forum for sharing of information and technology. A database has been created to facilitate cathodic protection testing and interference mitigation of pipelines. Training for pipeline operators was provided by the State Department of Transportation's Office of Pipeline Safety.

Four Counties Used Oil Collection Programs

The HEER Office provided \$175,000 to the DOH's Office of Solid Waste Management (OSWM) to be used by the four

counties for their Residential “Do It Yourself” Used Oil collection programs. These funds cover a portion of the cost for the operation of the collection centers on the Neighbor Islands and the provision of “Oil Eater Boxes” to residents on Oahu. Technical guidance on best management practices regarding used motor oil is also provided to recreational boaters and other small generators as part of the OSWM program.

Clean Air Act (CAA) 112(r) Program

The HEER Office is moving forward to develop the Risk Management Program under the Clean Air Act 112(r) provisions. Steps are being taken to fill two EHS IV positions that were approved in the 1999 legislative budget. Initially, both of these positions will be fully engaged in establishing the program including drafting necessary legislation and identifying covered facilities. Once the program is established, we will seek program delegation from EPA. This program goes along with other programs stressing prevention and preparedness.

FY 1999 Responses

During FY 1999, the HEER Office responded to 265 of 567 notifications. The Appendix “A” Release Notification Log, contains a listing of each of these notifications during the year. Many of these notifications were for small spills which were resolved in less than one day.

In addition, the HEER Office has a number of contaminated sites which require significant time and/or resources to resolve. Appendix “B” State Site List contains a listing of these sites along with pertinent information. Sites of particular interest which were managed by the HEER Office during FY 1999 are listed below. These sites include those at which the HEER Office provided assistance to other state programs:

Significant Site Summaries from the Emergency Response Section

Compressed-gas cylinders. There has been a slight increase in the number of compressed gas cylinders that have been washing ashore. In FY 1999 about 49 compressed gas cylinders washed ashore as compared to 47 cylinders in FY 1998, mostly on Hawaii’s windward shore. These cylinders varied in sizes and shapes. All

were extensively corroded with little or no possibility of identifying the contents. These cylinders were either punctured in place or towed three miles out to sea then punctured. The majority of cylinders were found on Oahu; Kauai had the second most while Maui and Hawaii had only a few. A mechanism has been established with the U.S. Coast Guard, whereby, the HEER Office can cost recover funds used to destroy the cylinders from the National Pollution Funds Center.

Honolulu Harbor, Pier 2 Spill. In June of 1998, patches of black oil began appearing in the water at Pier 2. Initial assumption was that the oil was from a Smith Maritime tug and fuel barge. Divers could not find a source or a fault in the tug or barge hulls, so U.S. Coast Guard investigators directed the tug and tow to Pier 51. Cleanup activities were completed.

The following day, black oil mats were discovered floating out from beneath Pier 2 and Pier 1. The HEER State On-Scene Coordinator (SOSC) again responded to the scene. Pollution contractors were hired and began cleanup operations. The Department of Transportation (DOT), Harbors Division was notified. During the cleanup, a corroded, abandoned, eight-inch diameter steel pipe was discovered with a jagged hole. The pipe was later identified as dating back to the early 1940's when the piers, pipelines, and associated properties were part of Fort Armstrong under U.S. Army control. It had been abandoned in place sometime around 1943.

The DOT was notified that they were the responsible party and the HEER SOSC, upon agreement with DOT, acted on behalf of the Harbors Division to provide technical expertise as well as oversight of the cleanup activities. Approximately 100 gallons of residual black oil was recovered from the pipeline and the pipeline was sealed with grout. Cleanup efforts continued for about a month, through mid July of 1998 due to access difficulty and tidal fluctuations. Cleanup costs of over \$300,000 was initially paid for from the Environmental Response Revolving Fund and later reimbursed by the DOT.

TESORO Oil Spill and Natural Resource Damage Assessment (NRDA). On August 24, 1998, Tesoro Hawaii released approximately 117 barrels of black oil from a ruptured transfer hose offshore at the Barbers Point single-point mooring. Response vessels and contractors responded to the spill and recovered an undetermined amount of oil. The spill appeared to have dissipated with the on-scene weather conditions, breaking down into long

sheening ribbons. Airplane flights over the area were unable to locate solid mats of floating oil.

On September 4, 1998, oil was discovered washing up on Kauai's Aliomanu Bay and Anahola beaches. Sample results from the August 24th and September 4th incidences indicated that the oil match was identical and that they came from the same source. HEER SOSC and Tesoro Hawaii conducted cleanup operations. The incident resulted in the closing of beaches and injury to natural resources. The Federal and State Natural Resource Trustees entered into an MOA with Tesoro Hawaii, the responsible party, to conduct a joint damage assessment. A draft Restoration Plan and Environmental Assessment will be developed and public input sought.

Kinau Street Bomb Maker. On August 25, 1998, the Hawaii Police Department responded to a complaint at a fourth floor apartment on Kinau Street. The individual at the address was admitted to the hospital for mental observation and his brother informed doctors of his past history of making explosives. The apartment was entered and numerous pages of notes and chemicals in the apartment verified that the individual was continuing experiment with explosives. The HEER SOSC assisted in the determination, removal and disposal of the chemicals involved.

Bio Technology Unlimited Pier 19. In October of 1998, three bulk storage tanks, used for the storage of used cooking oil from restaurants, were left abandoned by the operator and found to be leaking. The problem was resolved, however, the improper disposal of used cooking oil and grease trap waste continues to be a problem in the community.

Kure Atoll. On October 16, 1998, the fishing vessel, Paradise Queen II, ran ground on Green Island, Kure Atoll. The vessel was an 87 feet lobster fishing vessel of American registry. Kure Atoll, though some 1,200 miles northwest of Honolulu, is part of the City and County of Honolulu and a state wildlife refuge for 17 species of birds and an endangered monk seal population. The vessel was carrying 11,000 gallons of diesel fuel and 500 gallons of lube and hydraulic oil. Most of the oil was removed without impact to the shoreline and attempts are on going to remove the vessel, though a lack of sufficient insurance has hampered the removal.

Clandestine Drug Laboratory Removals. On October 18, 1998, HEER Office SOSCs assisted a joint task force of Hawaii Police Department Narcotics and Vice Officers and State Narcotics

Officers in the removal of illegal drug manufacturing chemicals from a house in Ewa Beach. The removal was unlike the majority of clandestine laboratory removals because the party was synthesizing drugs using red phosphorous from a case of highway flares. Most clandestine laboratory removals involve the re-crystallization of material smuggled in to Hawaii rather than the synthesis or conversion of raw ingredients as done routinely on the mainland.

Pearl City Bike Path Pipeline Leak. On January 29, 1999, a spill notification was received stating that there was a pungent fuel odor in the area of the Pearl City bike path near the Leeward Community College. Initial investigation by an U.S. Department of Fish and Wildlife agent revealed a puddle of what appeared to be weathered fuel. The puddle was within fifty yards of the Waiiau Bird Sanctuary owned by the U.S. Navy and operated by the U.S. Department of Fish and Wildlife. The laboratory results from the fuel samples taken, characterized it as a high detergent "Diesel". Simultaneously, the U.S. Navy and Chevron USA conducted pipeline leak and pressure tests despite the fact that their subsurface pipelines in the area were not designated to transfer diesel fuel. The pipeline tests showed no apparent break or leak. It was then thought that the diesel puddle was due to a fugitive dumping incident. The U.S. Navy had the puddle vacuumed by pump trucks and cleaned the area.

About a week later, a revisit to the site showed that the puddle had recharged with fuel. The HEER SOSOC prodded the soil embankment surrounding the puddle with a pitchfork and fuel began to leach to the surface. The case was reopened and the Navy and Chevron USA toned and excavated the nearby pipelines to discover that a pinhole (approximately 2 centimeters in diameter) leak was discovered in the Navy line. The hole was repaired with a soft patch and taken out of service permanently and prematurely as part of the Barbers Point Air Station Base closure. The site was cleaned again and restored to its original condition.

Kauai Department of Water Supply-Mercury in Wailua Homestead Wells A and B. In early February of 1999, mercury was detected in drinking water samples taken from the wells serving a community of approximately 5,550 persons. The mercury seal used in the submersible pump motors in each well is the suspected source of the mercury. Treatment action on Well B was successful and it is currently back in operation serving the community. Plans are underway to treat Well A. Two other wells in Kauai are known to

utilize the same submersible pumps with mercury seals. The mercury pumps will be removed.

CHEVRON Natural Resource Damage. The May 14, 1996 Chevron pipeline oil spill into Waiau Stream and Pearl Harbor resulted in damage to natural resources. The Federal and State Trustees pursuant to the Oil Pollution Act of 1990 (OPA 90) collectively assessed the extent of the natural resource damages. A draft Restoration Plan and Environmental Assessment was developed and a Public Hearing and public comment were sought. The NRDA damage claim for the incident encompasses compensatory restoration actions for injuries to the following natural resources and services:

- Intertidal habitat
- Water column habitat
- Sub-tidal habitat
- Freshwater marsh habitat and
- Lost human use

The proposed compensatory restoration actions seek to:

- Enhance wetlands and wetland services to compensate for injuries to freshwater marsh and intertidal habitats,
- Open vegetated shoreline areas to compensate for injuries to water column and sub-tidal habitats, and
- Improve visitor services at the USS Arizona Memorial to compensate for the loss and diminishment of human use services resulting from injuries associated with natural resources.

Van Loi, Fishing Vessel. In April of 1999, the HEER Office responded after the fishing vessel, Van Loi, hit a reef at Waipouli Canal, near Kapaa, Kauai. At the time of the incident the Van Loi was on its way to the Midway Island area to fish for swordfish. It had 16,000 gallons of diesel fuel, six tons of frozen squid, and one thousand made-up hooks on board. The vessel backed off the reef and received pumps from the Coast Guard, however, at 8:30 A.M. it was back on the reef and the crew was evacuated.

The Coast Guard opened the Oil Pollution Fund as lead Federal agency under the Oil Pollution Act of 1990 and dispatched an oil spill response contractor to the scene. The DOH HEER Office SOSOC on duty was briefed at the incident command meeting. The vessel was being pounded by 12-foot seas causing the vessel to

break up into four pieces. Most of the 16,000 gallons of diesel fuel was released through breached tanks.

The DOH was forced to close the beaches from Waipouli Canal to Lydgate Park. The Department of Land and Natural Resources sent divers to videotape the underwater reef damage as part of the Natural Resource Damage Assessment. There was damage to the reef caused by the gouging effect of the grounded vessel, the movement of the wreckage with the tide, and the dragging of part of the wreckage ashore during removal operations. The larger stern section of the vessel was towed seaward. The diesel fuel evaporated and dispersed in the waters due to high winds and sea conditions before it could impact the shore.

Kaneohe Safeway PCB Spill. In May of 1999, polychlorinated biphenyls from a Safeway-owned transformer taken out of service was discovered leaking. The emergency threat has been mitigated and work is being done to determine the extent of contamination, with particular emphasis on Kaneohe Bay.

U.S. Navy, Halawa Stream/Gate 32" Pipeline Spill. On May 6, 1999 an estimated 40 gallons of #6 marine diesel fuel leached through the soil beneath the U.S. Navy Halawa Gate parking lot into Halawa Stream, adjacent to the U.S.S. Arizona Memorial Visitor Center. Navy personnel excavated a slightly depressed (sinkhole) in the parking lot and discovered a ruptured 32-inch diameter steel pipeline flange. The entire flanged area was cleaned and welded. The Navy conducted pipeline integrity tests and the pipeline was placed back into service. All contaminated soil was forwarded to the naval soil processing area for remediation and/or disposal. The pipeline repair is only temporary as it is not within national pipeline standards compliance. A complete replacement of that segment of the pipeline must be done in the future. This temporary repair was allowed because this is the primary pipeline serving all vessel-fueling operations (i.e., USCGC Cutters, Destroyers, Aircraft Carriers).

Airport Group International (AGI) release. In June of 1999, during the final stages of refueling a Boeing 747 with an AGI truck at the Honolulu International Airport, equipment failure caused approximately 6,500 gallons of aviation fuel to be released on the runway. Due to booming efforts, fuel/sheen was contained in the Manuwai Canal.

Environmental Crimes Task Force. HEER Office's SOSCs have continued to meet with the Environmental Crimes Task Force,

which is co-chaired by the Assistant U.S. Attorney, the State Attorney General's Office, and the resident EPA Criminal Investigation Special Agent. The members of the Task Force are quite varied and represent those agencies overseeing environmental programs. Criminal activity of interest usually involves the intentional release of hazardous substances or their storage and transportation in a manner contrary to law in an effort to eliminate disposal costs. The interaction and teamwork between members has started to produce results.

In FY 1999, HEER Office cooperation with the Task Force has resulted in the first indictment and conviction of an individual under the Class C Felony provision of the Environmental Response Law (Chapter 128D, HRS) for the intentional release and non-reporting of diesel fuel at Maalaea Harbor, Maui. Also, convicted under the Clean Water Act was Affordable Grease Trap Services, the operator of a grease trap cleanout truck, who dumped the waste into a streambed. The owners of Industrial Technology Inc., a hazardous waste disposal company, were convicted and sentenced to two years in federal prison for defrauding the government by dumping industrial waste into their cesspool. The HEER Office provided sampling and technical services to federal and state investigators. The same services have been provided routinely to several ongoing federal and state investigations.

Significant Summary for Oiled Wildlife Response

Program development for oiled wildlife response continued throughout FY 1999. The purpose of having an Oiled Wildlife Response Program is to provide assistance to wildlife harmed by an oil release. The major participants in the program include:

1. The Hazard Evaluation and Emergency Response (HEER) Office. The HEER Office will oversee funding of the facility through the Environmental Response Revolving Fund (ERRF).
2. The Department of Land and Natural Resources Division of Forestry and Wildlife (DLNR/DOFAW). The DLNR/DOFAW will provide a plan to staff the facility.
3. The Clean Islands Council (CIC). The CIC will produce a maintenance and inspection schedule/procedure.

4. The U.S. Coast Guard Marine Safety Office (MSO).
The MSO will develop an operations plan for the transportation of animals and equipment.

The following oiled wildlife response is taken from a report provided by the Oiled Wildlife Coordinator (OWC), Greg Massey, DVM, who works for DLNR/DOFAW and also works under a \$50,000 Memorandum of Agreement with the DOH.

Oiled Wildlife rehabilitation Facility Site Search included:

1. Maui County Sites: Met with Grant Chun, Managing Director, Maui County to discuss sites owned by the county government (in particular the old Maui Zoo) that might be used for an oiled wildlife response facility. Of particular interest is any site that can be operated by both agencies in partnership.
2. Huleia National Wildlife Refuge on Kauai: Met with Thom Alexander and toured existing structure at refuge. Discussed possible partnership between State and USFWS to modify existing warehouse and build additional structures.
3. Marine Corps Base Hawaii, Kaneohe: Examined garage/storage area on base that could be used as a temporary rehabilitation site during response to spills occurring on base and also possibly for spills throughout Oahu.
4. Midway Atoll: Met with Rob Schalenberger to discuss using Midway as a staging/response site for the Northwest Hawaiian Islands. Discussed negotiating a Memorandum of Agreement between Midway Phoenix Corporation, USFWS, and state of Hawaii to facilitate development of this idea.
5. State Owned Sites, Maui: Met with Wes Wong, Meyer Ueoka, and Phillip Ota to discuss the possibility of using one of two available State-owned parcels on Maui (makai side of Kanaha Pond and large parcel on the mauka side of the Maui Ocean Center). Toured parcels with Phillip Ota.

Pollution Incidents addressed by the Oiled Wildlife Coordinator (OWC), included:

1. On July 23, 1998 the OWC participated in a Tosco oil spill response drill.
2. On July 23, 1998 a jet fuel tank jettisoned from military helicopter on windward coast of Oahu. The OWC consulted with biologists monitoring effects on birds in offshore sanctuaries.
3. Beginning in September through October 1998 the OWC responded to the Tesoro single port mooring (SPM) hose spill. The OWC represented the DOH and DOFAW as a member of the Bird Technical Working group participating in the natural resource damage assessment for the Tesoro SPM hose spill.
4. In October 1998 a vessel grounded at Kure Atoll. The OWC consulted with DOFAW officials investigating the incident.
5. In December 1998 the OWC assisted DOH/HEER to investigate report of oiled doves at private residences on Oahu.
6. In April 1999 the OWC assisted in the Van Loi vessel grounding on Kauai by consulting with DOH, DOFAW and NMFS officials regarding potential for wildlife impact.
7. The OWC responded to a red-footed booby oiled at Tern Island by banding (Band #1347-74638), cleaning and rehabilitating, then releasing the bird. This case could not be associated with an identified spill.

Other issues addressed by the OWC included:

1. Identified companies on Oahu with rental equipment that might be needed during a spill response:
 - Honolulu Container Sales and Rentals - freezers and containers
 - Mike Russell & Associates - sprung Instant Structures

- Chaney Brooks - Realtor dealing in rental warehouse property
 - Jonathan Qwon, Hawaii Harbors Division - State-owned warehouse space
2. Purchased:
- 24 pairs of assorted sized bird-washing gloves
 - Rubbermade 300 gallon tub for oiled bird rehabilitation
 - Precision QID blood glucose analyzer and reagent strips
 - Miscellaneous medical supplies
 - Miscellaneous hematology supplies for collecting and analyzing blood from oiled marine animals

Training/conferences/meetings attended by the OWC:

1. 1999 International Oil Spill Conference (March 1999).
2. Midway Atoll Oiled wildlife response training provided by IBRRC (May 1999).
3. Regional Response Team meetings (August 17-18, 1998).
4. Natural Resources Damage Assessment at Tesoro Hawaii offices (May 19, 1999).
5. Honolulu Area Committee (June 8, 1999)
6. Natural Resource Trustees "Lessons Learned from Tesoro SPM Hose Spill (June 3, 1999).

Significant Site Summaries from the Hazard Evaluation Section

The Hazard Evaluation Section provides public health advice and technical support to DOH, other government agencies, and the general public, both residents and tourists. Television interviews with DOH toxicologists demonstrated the useful advice provided to the public on high profile health concerns. From the many inquiries (950) received by the toxicologist in FY 1999, the following narrative provides the details of some of the most time-consuming health-hazard projects and illustrates a wide range of issues and

problems addressed by the Hazard Evaluation Section. In addition, the Hazard Evaluation Section assisted the Remedial Project Managers on numerous sites including Kapalama Incinerator, Home Depot, Village Park, Del Monte Kunia and Ewa Villages.

Fish Advisories. Two fish advisories were issued in 1998. The first advisory was issued for the Ala Wai Canal due mainly to organochlorine pesticide contamination. The second advisory was issued for Pearl Harbor due primarily to polychlorinated biphenyl contamination.



WARNING!
Fish Advisory

警告
魚類忠告

ປະກາດຕັກເຕືອນ ເຮືອງໄທ

BABALA!
Paalala Ukol sa Pangingisda

BALLAAG!
Ballakad Panggep Iti Panagkalap

警告！魚貝類に関するお知らせ

**Hawaii Department of Health**
HAWAII STATE DEPARTMENT OF HEALTH
P. O. BOX 3379
HONOLULU, HAWAII 96801

The Health State

The HEER office was instrumental in establishing the fish advisories for these two water bodies. For the Ala Wai Canal, the HEER Office designed the sampling and analysis plan and conducted the health risk assessment. The results of the risk assessment were used to advise the public against consuming fish and shellfish from the Ala Wai Canal.

The Pearl Harbor fish advisory was established after review of a human health risk assessment conducted by the Navy. In consultation with the EPA, the HEER Office recommended that fish from Pearl Harbor not be consumed. Information was disseminated to the public via press conferences, and posted signs along the shoreline of Pearl Harbor. A multilingual brochure was prepared by the HEER Office warning people not to eat fish and shellfish from Pearl Harbor and urban streams in Honolulu.

Vog Grant. The HEER Office received a \$100,000 grant from the U.S. EPA to assess the health risks from exposure to volcanic pollution (Vog). The goal of the study is to evaluate whether exposure to Vog impacts the respiratory health of asthmatic children. The work is being conducted by the University of Hawaii's School of Public Health.

Del Monte Kunia Well. A human health risk assessment was conducted by the Hazard Evaluation Section to assess the risk due to pumping and discharge of Kunia Well groundwater containing ethylene dibromide (EDB) and 1,2, dibromo-3-chloropropane (DBCP) to the irrigation basin. Using several conservative assumptions, the estimated cancer risk from exposure to EDB was 5×10^{-6} which is within EPA's "acceptable" cancer risk range of 10^{-4} to 10^{-6} . The noncancer risk from exposure to DBCP was 0.5 indicating that no adverse health effects are likely. Prior to resuming pumping of the Kunia Well, the State Department of Health (DOH) recommended that a pilot study be conducted to measure EDB and DBCP in air and water during the discharge of groundwater into the irrigation basin.

Heptachlor Epoxide in Cucumbers. Heptachlor epoxide levels exceeding Federal Action Levels were found during routine sampling by the DOH Food and Drug Branch. The contaminated cucumbers were destroyed. A risk assessment was conducted to assess the risk from past

exposure to heptachlor epoxide in cucumbers grown in Kunia and Molokai. Because of the limited exposure times and low levels found in the cucumbers, the risks were found to be insignificant. The public was informed via a press conference.

Drinking Water on Oahu -- Honolulu Advertiser. A toxicologist was interviewed by a reporter from the Honolulu Advertiser in May 1999, providing material for a full- page article which was intended to educate Hawaii's residents on the relative safety of tap water as opposed to bottled water. A month later, the Honolulu Board of Water Supply began mailing Consumer Confidence Reports to every billing address, as required by Federal law. Each report was intended to inform a customer about the quality and contents of his particular drinking water supply. At the end of the fiscal year, a public meeting was held in Kapolei, and both toxicologists sat on the panel to explain about the safeguards which protect public health. Similar public education meetings were held in three other regions of Oahu in July and August of 1999.

Village Park, Kunia, Oahu. The 1999 Legislature appropriated funds for the DOH to conduct soil testing in the Village Park and West Loch Fairways communities as part of an epidemiological investigation to determine if physical and learning disabilities of children are caused by contamination of soil in those communities. A HEER Office toxicologist advised on the contaminants (pesticides and metals) to be analyzed and will evaluate the results. A report is due to the 2000 Legislature.

Ala Wai Canal Dredging, Honolulu. A toxicologist is working in coordination with the DOH Office of Solid Waste Management to ensure proper disposal of the dredged sediment, which is contaminated with pesticides (chlordane, DDT, and their breakdown products), PCBs, and metals (lead, mercury, chromium). The reef runway at Honolulu International Airport is the currently favored site for disposal. An alternate disposal site is the old Waipahu Landfill.

Soccer Park Over Waipahu Incinerator and Landfill, Oahu. The old Waipahu Incinerator closed in the early 1990's, because it lacked proper pollution controls. The adjoining landfill was never officially closed and is contaminated with many hazardous substances (dioxins, furans, lead,

cadmium, chromium, mercury). The City and County of Honolulu wants to build a sprawling soccer park which will cover and cap the area of the Incinerator and Landfill as well as U.S. Navy land. A toxicologist is working in coordination with the DOH Office of Solid Waste Management to ensure protection of public health and a nearby wildlife refuge.

Anthrax Hoax. In February 1999, packages which supposedly contained the spores of an infectious disease, anthrax, were mailed to two businesses in Honolulu. They were unsuspectingly opened, and the threatening letters frightened the building's workers. A toxicologist was interviewed on the 6:00 TV news, in hopes of educating and reassuring the public. Laboratory tests later found that it was only harmless dust.

Fireworks Smoke. Many people complain of the nuisance of New Year's Eve fireworks smoke, but a munitions-knowledgeable Maui resident told a toxicologist that a hazardous metal, lead, could also be in the smoke. Lead azide is occasionally used in fireworks because a small quantity produces a loud explosion. Inhaling lead may be hazardous to very young children. Various brands of fireworks were collected for a year, then analyzed by Dr. Ray Uchida at the University of Hawaii's Agricultural Diagnostic Center. All fireworks passed except for Whistling Moon Traveler rockets, which contained 7.86% lead, or about the same percentage as lead-based paint. Fortunately, these rockets are not widely sold items.

Second-hand Smoke from Crystal Methamphetamine, Honolulu. The smoke or vapor from a crystal-methamphetamine smoker was leaking through the walls or ceiling into a neighboring apartment. The Coalition of Drug-Free Hawaii inquired about the possible health risk to the children living in the next apartment. There is indeed a risk, as a toxicologist found out from the San Francisco Drug Hotline.

Fiberglass Work in Residential Areas, All Islands. Many residents work on fiberglass boats or surfboards at home. The work intermittently generates acrid-smelling vapors of styrene, and the neighbors are concerned about the possible health risk. In the last year, calls came in because of boat work in Manoa, Kaneohe, and Kailua, Oahu. The air in and around the home in Manoa was measured for styrene by a

HEER Office toxicologist. The levels were not hazardous even while standing next to the dripping fiberglass work, much less to the children living next door. The human nose can detect styrene at one two-thousandth of the level which would cause eye or nose irritation. This result will be checked against other measurements of fiberglass work, whenever complaints are received.

Polyurethane Parking-Lot Resurfacing, All Islands. A SOSC and a toxicologist measured the air for hazardous levels of an irritating, allergenic by-product (TDI, or toluene diisocyanate) on three consecutive days while the NeoGuard polyurethane surfacing was being applied and was curing. Elderly residents at a Waikiki condominium were rightly concerned, but the levels were not hazardous. Many shopping centers, hotels, and apartment buildings on all islands may use this surfacing in the future. This result will be checked against other measurements of polyurethane work, whenever complaints are received.

Kapolei High School, Oahu. The Kapolei High School is now under construction; however, before construction was authorized on this site, the land was evaluated for any environmental health hazards. Up to five years ago, this land was under sugar cane cultivation. A HEER Office toxicologist found out which pesticides may have been used on the sites, researched how long each pesticide would be expected to persist in Hawaii's soil and climate, decided what to test for in the soil, personally collected soil samples, and took them to a laboratory to be analyzed for six herbicides used on sugar cane (arsenic, pentachlorophenol, atrazine, ametryn, dalapon, and diuron). The toxicologist then evaluated the laboratory results, assessed the possible health risk to future students and faculty, and wrote a memorandum which reassured the Department of Education (DOE) and the Department of Accounting and General Services (DAGS) that there was no public health objection to the construction of the school.

Kauai Intermediate School, Puhi, Kauai. Lihue students have been attending a combined intermediate and high school, but now there will be a separate intermediate school built on former Grove Farm land in Puhi. Using the same procedure as was described for Kapolei High School, a toxicologist collected soil samples from the proposed site and had them analyzed for five herbicides (ametryn,

hexazinone, diuron, glyphosate, and 2,4-D). It was determined that there will be no public health risk to future students and faculty at the site.

Kaimuki-Kahala Pikake Farms, Oahu. Hawaii State laws grant every landowner the right to farm. This accounts for flower farms and horticulture businesses existing adjacent to and upwind of residential districts in Kaimuki and Waimanalo. Pikake farms in Kaimuki were investigated jointly by a toxicologist from the HEER Office and the Department of Agriculture's Pesticides Branch, in response to a complaint from three neighboring families with children. The Pesticides Branch monitored the families' properties before and after the pesticides (acephate, cyfluthrin, avermectin B1) were sprayed. The toxicologist found that the levels were not hazardous to human health even if breathed or eaten by small children. One resident, an attorney, disagreed with this assessment and took her protest to the Governor.

Waiale Drive and Mahalani Street, Wailuku, Maui. A toxicologist worked with the DOH Office of Solid Waste Management and Maui County on a proposed extension of Mahalani Street in Wailuku. There is a residential neighborhood and a golf course in the area. The shortest route for the extension would have run through an uncapped ash landfill, which was closed before 1960. The ash is contaminated with dioxins, lead, and many other hazardous substances. After assessing the potential health risks and costs of pollution controls, the County decided to route the road around the old landfill.

Natural Energy Laboratory, Keahole, Kona. One of the experimenters at the Natural Energy Laboratory spilled a chemical (a Freon substitute, dichlorodifluoroethane) into a tidepool and killed dozens of fish. Native Hawaiian subsistence fishermen were alarmed, though cooking any contaminated fish would have removed the chemical. A public meeting was held among all concerned parties, including the Deputy Director for Environmental Health and both toxicologists. The tidepool was naturally flushed by the ocean, and marine life has returned.

Kingdom of Bhutan, the Himalayas, South Asia. A physician for the United Nations' World Health Organization (Doctors Without Walls) who lives on Kauai inquired about drinking

water catchments. The King of Bhutan, in the Himalaya region north of India, has built gigantic tanks to catch rainfall for his people. The tanks were unfortunately made of pure lead, which could be a health hazard to everyone, especially children. A HEER Office toxicologist advised the physician about choices of EPA-approved coating materials with which to line the tanks and of approved disinfectants for microbes in the drinking water.

Significant Site Summaries from the Department of Defense State Memorandum of Agreement (DSMOA)

Army Installations

Kahuku training area. A PA/SI final report was completed for the former transformer sites associated with the former Nike Launch sites at the Kahuku Training Area in February 1996. Polychlorinated biphenyls were detected above the EPA Region IX Preliminary Remedial Goals. Further investigation of the site was performed during FY 1998. However, the nature and extent of contamination have not been confirmed. Additional remediation is planned possibly for FY 2000.

Kipapa Ammo Storage Tunnels. A PA/SI report was completed for the Kipapa Ammunition Storage tunnel in February 1996. Onsite releases of hazardous substances were not observed during this preliminary assessment (PA) nor were records of such releases found in the documents reviewed. Tunnel interiors were not included as part of this investigation and, therefore, site characterization has not been completed. In addition, a monitoring well at the Air Force's Kipapa Fuel Storage Annex adjacent to the Kipapa Ammo Storage Tunnel had trichloroethylene (TCE), a solvent, in the basal groundwater. The source of the TCE and the extent of contamination by TCE are not known at this time. The HEER Office has met with both the Air Force and the Army to encourage their cooperation in the investigation of TCE in the basal groundwater.

Pohakuloa Training Area. A site inspection report was reviewed for a vehicle refueling area and the Department of Health concurred with the Army that future remedial activity does not appear to be necessary for this site. The site inspection reports were reviewed for a pesticide storage area, two landfills and a former fire training area and recommended additional characterization of the fire training area for polychlorinated biphenyls (PCBs) and dioxin, testing at Landfill 1 and Landfill 2 for soil gas and methane, and characterization of the soil cover at Landfill 1.

Schofield Barracks. Trichloroethylene (TCE) has been detected in the drinking water wells at Schofield Barracks. The Army has been aerating the water to volatilize the solvent out of the water to protect public health. Additionally, the Army has been investigating the vicinity in order to find the source of the contamination and to eliminate a future threat. To date, no source has been found; therefore, the Army is proposing to treat all the groundwater that is contaminated as the final remedy. Regular monitoring of the wells in the area will continue. Individual Record of Decisions (RODs) have been signed for the remaining sites. Work has been completed in repairing the cracks on the landfill cap. The Army has resubmitted a request to the EPA to have the site de-listed from the National Priorities List (NPL). EPA is reviewing the request with new information and current groundwater monitoring results.

Field Station Kunia. Field Station Kunia is an underground communication facility. The station is located one mile south of Schofield Barracks along Kunia Road. The facility is situated in pineapple fields. The site is secured by fence and camera surveillance. In 1994, a 305,000-gallon concrete underground storage tank was removed. During removal, it was discovered that there was an uncontrolled release of diesel. Some removal of contaminated soil was conducted. Initial investigations failed to properly delineate the full extent of the contamination. In March 1999, the Army conducted further subsurface investigation by drilling

fifteen borings. The investigation was to delineate the vertical and horizontal range of the fuel hydrocarbon plume. Borings were drilled to approximately 200 feet below grade. The report is presently being written for this project.

Tripler Army Medical Center Landfill. The Tripler Army Medical Center (TAMC) Landfill is located on the west side of the TAMC installation. The landfill covers about two acres and is about 160 to 200 feet above mean sea level. The landfill was active from 1947 through 1974. Early landfill use was restricted to construction debris from the construction of TAMC. Later, the landfill was used to dispose of incinerated medical waste, laboratory wastes, maintenance waste, food waste, and construction and landscaping debris. Unspecified waste from Fort Shafter was also disposed in the landfill.

The Army conducted a Preliminary Field Screening Investigation to determine the presence or absence of hazardous substance contamination from the landfill operation. The investigation found polynuclear aromatic hydrocarbons, pesticides, lead and dioxin chemicals in the surface and subsurface soils in the interior of the landfill. Monitoring wells were installed down to the basal groundwater aquifer and analysis results of the water found no chemical contamination.

The Army conducted a remedial investigation (RI) with soil and groundwater sampling. The remedial investigation confirmed the levels of dioxin, PCB and pesticides in the surface soil, subsurface soil and sediment. To address any human health risk posed by the contaminants, the Army will be installing a cap over the landfill and a concrete drainage channel to handle the rainwater runoff from the landfill. The landfill cap is currently in the design phase.

Navy Installations

Defense Reutilization and Marketing Office (DRMO) - Manana. The DRMO Manana storage area is a 51-acre parcel of land in Pearl City which is off Waimano Home Road. The DRMO storage area was used for the collection and temporary storage of hazardous

waste generated by the Department of Defense, Pacific Rim military facilities. It was also used to store excess equipment and supplies that were turned in for disposal handling. The site investigation found arsenic contamination in the subsurface soil down to four feet. In May 1996, the Navy completed a cleanup action with the removal of the arsenic contaminated soil. The DRMO Manana storage area parcel was transferred to the City and County of Honolulu in June 1996. In FY 1997 the Navy completed plans to install ground water monitoring wells at the site. The wells are planned for installation in FY 2000.

Ewa Junction Fuel Drumming Facility. This Navy facility was constructed in 1943 as a fuel drumming and transportation terminal and is currently inactive. According to a 1972 Navy report, approximately 315,000 gallons of motor gas (MOGAS) from an underground storage tank was released onto the surface of the ground in March 1971. MOGAS was found in soil and ground water samples obtained from beneath the site. A Phase II Remedial Investigation sampling action was done in FY 1999. Sampling of subsurface soil and groundwater in the off-site area to the south has been completed to determine if any MOGAS contamination traveled off of the site. Analytical results are forthcoming.

Naval Computer and Telecommunications Area Master Station (NCTAMS). The NCTAMS facility was placed on the National Priorities List (NPL) in May 1994. NCTAMS is composed of two sites, a Naval Radio Transmitting Facility (NRTF) at Lualualei and the main station and a receiver site in Wahiawa. NCTAMS Wahiawa is located on the eastern side of the highest part of the Schofield Plateau and about one mile east of Whitmore Village. The Lualualei Naval Radio Transmitting Facility is located in Lualualei Valley and is contiguous with Naval Magazine Lualualei. Earlier site investigations done at the sites found PCB contamination in the soil around electrical transformers. It was learned that maintenance technicians checking the transformer oil, which contained polychlorinated biphenyls (PCBs),

were discarding the oil samples onto the ground around the transformers.

In 1991, the Navy conducted a removal action by excavating the PCB contaminated soil around several of the transformers and sending it to the mainland for proper disposal. This site investigation identified 15 sites which require further investigation at NRTF Lualualei and NCTAMS Wahiawa. The Navy has completed the remedial investigation at the Old Wahiawa Landfill and the Building 6 Disposal Area. The Navy has also completed plans for removal action at the transformer sites at both NCTAMS facilities to excavate PCB contaminated soil and store it for treatment. Fieldwork for the removal of PCB contaminated soil is on going.

Naval Station Pearl Harbor - Aiea Laundry. The Aiea Laundry is a laundry facility owned and operated by the Navy which has done dry cleaning since the early 1950's. The facility is located on the corner of Moanalua Road and Kaimakani Street in Aiea. St. Elizabeth Church and School is on the west side of the laundry with Aiea Elementary

School to the east. Site investigations have found releases of dry-cleaning solvent (perchloroethylene) and Stoddard solvent from several underground storage tanks and from a drainage swale outside the facility. Solvent and solvent vapors remain in the soil beneath the site. The contaminants include perchloroethylene, trichloroethylene and vinyl chloride, which is a known carcinogen.

A soil vapor extraction system which was operating onsite and removing contaminant vapors, especially vinyl chloride, from the soil has been turned off to pulse the system as the level of contaminant removal has declined significantly. Ground water sampling from recently installed monitoring wells have found diesel fuel in one well and perchloroethylene in three wells on the south side of the site. Diesel fuel is being removed.

The Navy has completed a Field Sampling Plan to install four ground water monitoring wells to see if

contamination in the ground water has migrated off the site. The plan also calls for soil sampling under the concrete floor of the dry-cleaning facility. The groundwater monitoring wells have been installed and samples have been collected. Analytical results are forthcoming.

This is one of a few sites slated for transfer to the Department of Hawaiian Home Lands (DHHL) from the federal government. The HEER Office is working with the DHHL to ensure that all remedial activities are completed to the satisfaction of the State before acceptance.

Pearl City Fuel Annex. The Pearl City Fuel Annex is located on the Pearl City Peninsula and is operated by the Navy's Fleet Industrial Supply Center. The facility consists of five above ground storage tanks for the storage and pumping of bulk aviation fuels. Records indicate that tank and pipeline leaks have occurred in the past with a 10,000-gallon JP-4 (a jet petroleum fuel), release recorded in December 1980.

Soil and groundwater sampling have uncovered arsenic, lead and petroleum hydrocarbon contamination in the soils and petroleum hydrocarbon contamination in the groundwater on the site. The Navy completed, the Removal Site Evaluation Report and will determine if a response action needs to be conducted.

Pearl City Peninsula Landfill. The landfill is located on the north shore of Middle Loch and operated from 1965 until 1976. The site is currently capped with a two-foot thick layer of crushed basalt. An Investigation indicated the presence of dioxin, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), trichloroethylene (TCE), and fuel products. The Navy is planning a removal action and has developed the Engineering Evaluation/Cost Analysis (EE/CA). The removal action involves repairing the present cover on the landfill and excavating the dioxin contaminated ash layers from City and County property and placing the contaminated ash on the Navy's burn disposal area and covering the ash with clean soil. The fieldwork has started for the removal action.

Pearl Harbor Naval Shipyard - Battery Shop Building 394. The Battery Shop is an open-air facility that was used prior to 1990 to clean, disassemble and restore lead-sulfuric acid batteries. An estimated 60,000 gallons of battery acid fluid was discharged into an unlined disposal pit on the site. Lead residues from battery disassembly operations were also disposed in the pit. Site investigations have found high lead contamination in the former pit area and in the surface soil around the battery disassembly area. Lead contamination in the soil was as high as 214,000 parts per million (mg/kg). The Navy conducted further site investigations to determine the extent and concentration of the lead contamination on the site. The Navy is now proposing to conduct removal action by using an in-situ electrokinetic process, which is supposed to remove the lead from the contaminated soil. Bench testing has been completed on the lead contaminated soil for the electrokinetic process. Fieldwork has started to install the electrokinetic treatment process.

Pearl Harbor Naval Shipyard - Building 8. Building 8 is located in the Naval Shipyard Industrial Area on the East Loch of Pearl Harbor. It served as a power plant, an equipment test facility and a pipefitting shop. Site investigations revealed that subsurface oil is accumulating within Building 8 sumps and other subsurface structures adjacent to the building. During heavy rainfall events, oil sheens in Pearl Harbor around Dry Dock No. 1 are believed to be caused by oil migrating along the conduits of the Building 8 storm drain system and into Pearl Harbor. An oil plume up to several feet thick has been identified in the ground around Building 8. The Navy has installed an active extraction system to contain and extract the oil from the plume under the site. The system is working well with 13,880 gallons of oil recovered since July 1997.

Pearl Harbor Naval Shipyard Building 68. Building 68 is an electrical repair shop located in the northeast section of the naval shipyard. From approximately 1950 through 1979, the shop serviced electrical transformers containing PCB dielectric fluid. During

this period, PCB dielectric fluid was reportedly disposed into catch basins located adjacent to Building 68. Approximately 50 to 55 gallons of PCB transformer fluid were discharged to these catch basins per year. These catch basins drain into Pearl Harbor. A sampling of sediments in the catch basins found polychlorinated biphenyl (PCB) contamination ranging from 21 mg/kg to 1,130 mg/kg. The Navy conducted a time critical removal action in the catch basin where PCB contaminated sediments were removed and a coating was applied to the interior surface of the catch basin. The Navy is regularly sampling the catch basin sediments to determine if more PCB contamination is entering the catch basin.

Pearl Harbor Naval Shipyard Oscar 2 Pier. The Oscar 2 Pier is located on the western corner of the naval shipyard. The site is adjacent to Building No. 177, a power plant which is no longer in service. Black oil was noted on the northwest shore off of the Oscar 2 Pier. The oil appears to be old residual fuel oil with a tar like viscosity much like the Navy Special Fuel Oil. Two permanent oil extraction wells, installed in the past to collect oil in the ground and prevent it from going into Pearl Harbor, are located near the site. To stop the release of oil presently going into Pearl Harbor, the Navy has decided to install a passive trench recovery system about 150 feet long along the shoreline at the site. The passive trench recovery system has been installed and is working well. A total of 7,366 gallons of oil has been recovered since February 1998.

Pearl Harbor Naval Station Ford Island Landfill. The Ford Island Landfill is located on the southwestern end of Ford Island. This site was used for burning and disposal of solid wastes from the 1930's through the 1980's. The wastes came from the Naval Air Station on Ford Island and are made up of waste parts and metal scraps. A site investigation revealed contaminant concentrations in the groundwater under the landfill below levels that would pose a threat to Pearl Harbor; however, debris on the surface of the landfill would pose a potential threat to people who may use the landfill in the future for recreation. As a result, a cap was placed over the landfill and was

completed in December 1996. Ground water monitoring is being performed quarterly.

Pearl Harbor Sediment's Study. The Navy is conducting a study of the sediments in the Pearl Harbor basin to determine what effect the Navy's operation at Pearl Harbor has had on the harbor itself. The site encompasses the entrance channel to the estuary, West Loch, Middle Loch, East Loch and Southeast Loch. Naval operations conducted adjacent to the site have included fuel storage, handling, transfer and recycling facilities as well as operation, maintenance and support facilities and military landfills.

Past waste handling and disposal methods, although acceptable at the time, may have caused unexpected long-term problems at some locations through the release of toxic and hazardous substances into the soil and ground water at sites surrounding the estuary as well as the estuary itself.

The Navy has developed a sampling and analysis plan for the remedial investigation (RI) of the harbor sediments. The sampling of the sediment and the fish in the harbor was completed in November 1996. Analytical results of sediment and fish and crab tissue have been received. The evaluation of the analytical results of fish and crab tissue showed PCB and pesticide contamination. As a result, the Department of Health issued a fish advisory against eating fish caught in Pearl Harbor. The Navy is currently evaluating the analytical results to determine whether contaminate levels pose a threat to human health and the environment.

Pearl Harbor Subsurface Fuel Investigation. The subsurface fuel investigation site encompasses three areas: Area 1 consists of abandoned underground tanks; Area 2 includes the Public Works Center gas station, the fuel reclamation facility and the diesel purification plant; and Area 3 consists of scattered underground storage tanks and fuel lines in the Halawa Service Station and Hotel Pier area. The types of fuel that are present on the site are diesel, gasoline, JP-5 (a jet petroleum fuel), kerosene, Navy

Special Fuel Oil, Bunker C and lubricating oil. Free product plumes have been found in all three areas.

The Navy recently completed a Phase II sampling effort in the RI to better assess the nature and extent of soil and ground water contamination with petroleum fuel. Based on the results of the RI, the Navy is looking toward a removal action of free product plumes to the extent possible. The Navy has completed plans for a Removal Site Evaluation. The EPA Superfund Innovative Technology Evaluation (SITE) program is testing three technologies to remove the free product fuel oil. The test programs using vacuum, surfactant and thermal processes to enhance oil extraction have been completed. Results of the tests are forthcoming.

PWC Transformer Sites. Nine transformer sites are located within the Pearl Harbor area. Previous environmental investigations identified these sites as potential health and/or environmental concerns on the basis of detection of polychlorinated biphenyls (PCBs) in the soil and/or on the concrete pads surrounding the transformers. The Navy has completed removal action plans to excavate the PCB contaminated soil and store it for treatment.

Red Hill Oily Waste Disposal Pit. This site was constructed in the early 1940's and is located within the Red Hill fuel tank farm area. An unlined pit located in the central portion of the site was used for the disposal of oily residues generated during periodic fuel tank cleaning operations and oily waste generated by leaks and drips from fuel piping systems associated with the Red Hill fuel storage tanks. The unlined pit was replaced with a stilling basin made of gunite and asphaltic-concrete in 1972.

The Navy conducted a remedial investigation of the site and found petroleum hydrocarbon and polynuclear aromatic hydrocarbon contamination in the subsurface soils where the old unlined pit was located and under the stilling basin. Petroleum hydrocarbon contamination was also found in the shallow ground water system located under the stilling basin. Based on these results, the Navy conducted

removal action which involved removing the stilling basin and the petroleum contaminated soils under the stilling basin and where the old unlined pit was located.

To determine whether the petroleum hydrocarbon contamination did infiltrate into the basal groundwater aquifer, the Navy has installed monitoring wells into the basal aquifer and sampled the basal groundwater.

Analytical results have shown no contamination in the basal aquifer. However, soil samples taken on various areas of the site show some high levels of petroleum contamination, which the Navy must address.

Naval Air Station (NAS) Barbers Point. In 1993, the Base Closure and Realignment Commission placed NAS Barbers Point on the Base Realignment and Closure (BRAC) list. The base closed on July 2, 1999.

The airport has been transferred to the State Department of Transportation. Other parcels are in the process of being transferred or remediated prior to transfer. The Barbers Point BRAC Cleanup Team made up of the Navy, EPA, and the State of Hawaii representatives was formed to make decisions on closure-related environmental efforts to be performed by the Navy. The Governor signed the Community Redevelopment Plan providing an overall reuse strategy for the conversion of the base to civilian use after its closure in 1999. A Restoration Advisory Board (RAB) was established in 1994 to allow for community involvement in the environmental decision-making process. Cleanup of the sites has been initiated to meet reuse strategy and transfer dates.

Marine Corps Installation

Kaneohe Marine Corps Base. Five areas of concern have been identified on the base and these include a fuel farm sludge disposal area, two landfills, a fire fighting training area, and one old maintenance area. A variety of hazardous substances are present in the five areas of concern. Geographically, the Kaneohe Marine Corps Base is ecologically sensitive because it is surrounded on all sides by water (Kaneohe Bay is

to the west, the Pacific Ocean to the north, Kailua Bay to the east, and Nuupia Ponds to the south). Nuupia Ponds is a wildlife refuge where five endangered species reside. One endangered species, the green sea turtle, also uses the Kaneohe Bay. Kaneohe Bay is a popular recreation area for boating, snorkeling, scuba diving, and other water sports.

Quarterly monitoring of groundwater wells are being conducted at the Fire Fighting Training Area. Bio-slurping in the area of the Fuel Farm Sludge Disposal Area began in FY 1997. An Expanded Site Inspection (ESI) was submitted to EPA for review. EPA determined that conditions currently do not warrant placing the site on the National Priorities List (NPL).

However, activation and expansion of the existing bio-slurping system was performed in 1998. Funding was made possible as part of the BRAC Barbers Point construction associated with the Navy's move to Kaneohe Marine Corps Base. Additional information is being gathered to complete the evaluation of the site.

Air Force Installations

Bellows Air Force Station (AFS). The Installation Restoration Program (IRP) at Bellows AFS includes 20 Installation Restoration Program (IRP) sites and 17 Areas of Concern (AOCs). Site investigation, sampling and remediation at Bellows AFS are ongoing. Multiple areas of concern are currently being investigated.

Bellows' World War II 50,000 Gallon Above Ground Storage Tanks Closure - The Air Force closed in place six inactive, World War II, 50,000 gallons aviation gasoline aboveground storage tanks (ASTs) located in a horizontal tunnel. The wastewater from these tanks containing elevated levels of benzene was removed, treated and used to irrigate re-vegetated areas in Bellows. The 1,920 linear feet of associated pipelines were removed. A steel-reinforced concrete masonry unit wall will be installed at the tunnel entrance to seal off the ASTs. A closure

document for this project was reviewed and approved by the Department of Health (DOH).

Bellows Underground Storage Tank Project - Under this project four underground storage tanks (USTs), 3,362 linear feet of pipeline, and six dispensing stands with associated appurtenances, were removed. The HEER Office reviewed the results of the confirmatory soil and groundwater sampling and determined that there were no contamination levels above the DOH's Tier 1 action levels. Final closure reports were submitted and signed by DOH.

The Bellows Excess Land - Several acres of land in Bellows were declared excess and will be deeded to the State of Hawaii and the Navy. These areas are being prioritized for site investigation and remediation.

Geophysical surveys were conducted to locate USTs on 41 potential UST sites on the excess land. Concurrently, a comprehensive historical review of underground petroleum, oil and lubricant (POL) system was conducted at Bellows. A Remediation Management Plan for POL System Components was also finalized. Currently, final closure reports for 17 USTs on the excess land were submitted and signed by the Department of Health.

One UST removal site by Inoaole Stream needed further investigation due to the high levels of petroleum hydrocarbon contamination in the soil. The HEER Office recommended determining the extent of contamination. Soil sampling indicated a limited petroleum hydrocarbon contamination and there was no evidence of the contamination reaching the groundwater. The closure document for this site was reviewed and final document was signed by DOH.

The HEER Office recommended further investigation of two former wash rack areas on the excess land for semi-volatile organics in soil. Results of the resampling and risk evaluation were reviewed by DOH. The sites were closed with no further action. A No Further Response Action Planned (NFRAP) decision document was prepared for the Installation Restoration Program (IRP) site (the Nike Facility)

wherein these sites were included and is being reviewed. This is the first NFRAP decision document presented to DOH from Bellows AFS.

Landfills/Dump Sites - Preliminary work, including a geophysical survey, was completed for an engineering evaluation/cost analysis (EE/CA) of four landfill and dump sites. HEER reviewed Draft Work plans and the Air Force submitted a final plan after comments were resolved.

The HEER Office has reviewed the report of a site investigation (SI) of a former dumpsite near the Old Pier. Work included trenching and collection of soil and groundwater samples. Further investigation will be conducted at the site.

A limited remedial investigation (RI) was conducted at a former tar and asphalt pit. These included the removal of the asphalt-enriched soil, removal of drums/remnants, sampling the soil and groundwater, and a limited ecological risk assessment around the site including Waimanalo Stream. The RI concluded that there were no chemicals of concern (COC) above the DOH Tier 1 action levels in all media sampled and recommended the site for no further action (NFA). The RI report was finalized with no further action.

Areas of Concern - Site inspections were completed for the following five areas of concern (AOCs): (1) a transformer site; (2) a medical waste dump; (3) a tank with unknown contents; (4) a bomb dispersal area; and (5) the Community Dump site. Reports for these five sites were reviewed by the HEER Office and four of the five were recommended for no further action (NFA). The medical waste dump was further investigated and additional investigations revealed no medical waste in the excavations nor any potentially hazardous wastes.

Multiple Drum Removals- A total of 101 drums/remnants were removed from Bellows. Only two drums in the former sub-depot area were found to contain hazardous materials and were transported to the mainland for disposal. These drum sites are still being investigated because of elevated polyaromatic

hydrocarbons (PAHs), heavy metals and pesticides. The Marines through the Navy will take over the investigation of these two drum sites. The final report for multi-drum removals at Bellows was submitted to the HEER Office.

Hickam Air Force Base (AFB). The Hickam AFB Environmental Restoration Program (ERP) includes 42 IRP sites and 25 Areas of Concerns (AOCs) (including Fort Kamehameha sites). Site investigation, sampling and remediation at Hickam AFB are an ongoing process. Multiple areas of concern are currently being investigated.

Runway 8L Sites - The sites related to the transfer of Runway 8L and adjacent lands to the State of Hawaii Department of Transportation, have been characterized. The characterization is intended to support either a no further action (NFA) decision or further evaluation. The Runway 8L site has been divided into subsites for remediation purposes. These subsites consist of two major drainage canals, two fuel spill sites, four landfills, a fuel distribution pipeline, a leach field, and one area previously containing abandoned drums. Sampling results were reviewed by the HEER Office in coordination with the Air Force and follow-up investigations were recommended. Engineering Evaluations/Cost Analyses (EE/CAs) for remedial investigation and actions were prepared for four sites; a former landfill, a POL area, a former Atomic Energy Commission area, and the Kuntz Pipeline. Four other sites were recommended for NFRAP closure- two former landfills, a petroleum spill site and a drum removal area.

Underground Storage Tank and Fuel Distribution and Storage System Components - A comprehensive Remediation Management Plan was developed by the Air Force to address contamination from previously-closed USTs and fuel distribution and storage system components at Hickam. The plan develops a multi-year strategy to locate, characterize, remove and cleanup approximately 590 existing components. Under the project, 18 underground storage tanks (USTs) were closed and eight UST locations were characterized. The HEER Office reviewed all site

closure and site characterization reports and coordinated with the Air Force to resolve comments. These reports were all finalized.

Subsurface Fuel Plume Investigation - A subsurface fuel plume delineation and recovery project for three large fuel spill sites was continued from last year. The project conducted an air monitoring study in an area of the fuel plume with heavy residential and commercial activities and demonstrated that there was no excessive risk to residents and workers in the area. The Bioslurper pilot test was expanded in coordination with the HEER Office. The project will produce a comprehensive plan to clean up one of the largest fuel plume sites on Hickam AFB. An EE/CA was prepared and is being reviewed by DOH.

Other Areas of Concern - Another site inspection was completed to characterize other areas of concern at Hickam AFB to determine if they pose a risk and if they qualify for additional action under the Installation Restoration Program (IRP). The project characterized 11 areas on Hickam AFB. The reports were reviewed by the HEER Office and awaiting resolution to the comments.

Fort Kamehameha. Data was collected at areas of concern to support the development of an Air Force Relative Risk Evaluation Ranking for nine locations on Fort Kamehameha. This project is being paid for by the Army and managed by the Air Force. The draft report from this effort is currently under review by the HEER Office. A draft work plan was reviewed by the HEER Office for an Engineering Evaluation/Cost Analysis Work at a large landfill underneath the Mamala Bay Golf Course, on former Fort Kamehameha land. Comments for this work plan has been resolved and a final work plan was submitted to DOH. A comprehensive multi-year underground storage tank removal program was initiated for Fort Kamehameha to verify and remove underground storage tanks associated with Army activities at Fort Kamehameha.

Hickam Petroleum, Oil & Lubricant (POL) Pipeline and Fuel Storage Annexes (FSAs). A remedial investigation (RI) and installation restoration assessment which included a quarterly groundwater monitoring continued during FY 1999 at the Waikakalaua Fuel Storage Annex (FSA), the Kipapa FSA and a Valve Pit area.

Waikakalaua Fuel Storage Annex - At the Waikakalaua FSA RI fieldwork was focused on installing monitoring wells to the Pearl Harbor basal aquifer. The monitoring wells are near two open-bottom disposal basins and installed off-site. Also, there is a Pearl Harbor basal aquifer monitoring well approximately one-eighth mile south of the FSA boundary. As monitoring wells previously drilled in these areas have shown, petroleum contamination is evident in discrete zones (preferential pathways) in the saprolite and solid basalt. Moderate levels of the total petroleum hydrocarbon (TPH) as well as benzene, toluene, ethyl benzene and xylene (BTEX) contamination has been detected. Long-term monitoring with monitored natural attenuation was being proposed for the groundwater at the site.

A pilot-scale bioventing system has been expanded and will be used to remediate subsurface contamination at the open-bottom disposal basins in the near future. The newly-installed Pearl Harbor basal aquifer monitoring wells will provide information necessary to refine the Vadose zone numerical model (SESOIL) and the groundwater numerical model (Bioplume II) being used to support the presumptive remedy of natural attenuation for petroleum contaminants found in the Pearl Harbor basal aquifer.

Kipapa Fuel Storage Annex - At Kipapa FSA soil borings were installed on the plateau above the Kipapa underground storage tanks (USTs). The borings above the middle of the Kipapa USTs showed little to no contamination while the borings above the front of the Kipapa USTs detected intervals of significant petroleum related contamination which will be addressed by a pilot-scale, solid basalt bioventing system.

Pearl Harbor basal aquifer monitoring is being conducted on the plateau currently occupied by Noholoa Park, Hanalani Schools and Hokualii Hale Townhouse development. The area between the front of the Kipapa USTs and Kipapa Stream is an area where past waste disposal has occurred and is impacting the shallow groundwater associated with Kipapa Stream. The analytical results for soil and groundwater have confirmed previous findings that significant levels of petroleum contaminants exist in the Vadose zone and shallow groundwater which extends to Kipapa Stream. No contaminants were found in Kipapa Stream surface water samples that exceeded either the applicable, relevant and appropriate requirements (ARARs) or the to-be-considered (TBC) requirements.

Laboratory problems have made much of the subsurface volatile organic compound (VOC) data unusable for risk analysis and the groundwater will be resampled. When electrical power became available, the existing bioventing system to remediate the Vadose zone along with implementation of a pilot-scale air sparging system to remediate the shallow groundwater, was expanded. Surface soil sampling for lead contamination in a small area was completed with some samples detecting elevated lead levels, leading to uncertainty that the total extent of the problem has been defined.

Due to delays caused by the unusable, Kipapa FSA VOC data and the resampling effort, the draft final RI report is now expected in FY 2000.

Valve Pit #17 (VP17) - At VP17 three shallow groundwater monitoring wells and a Pearl Harbor basal aquifer monitoring well were installed around the valve pit. Data from one shallow groundwater monitoring well showed significant levels of benzene, toluene, ethyl benzene and xylene (BTEX) contamination and a thin layer of petroleum floating in the water, while the other two shallow groundwater monitoring wells were free of contamination. Only low levels of THP-diesel range organics were detected in the Pearl Harbor basal aquifer monitoring well below

VP17. Expansion of the pilot-scale bioventing system was restarted.

A quarterly groundwater monitoring program to gather additional RI level data was initiated in FY 1998 and will extend into FY 2000. This data will be crucial to the understanding of contaminant transport.

Wheeler Army Airfield (AAF). Wheeler AAF was transferred to the Army in 1993 and is currently being operated by them. The Air Force retains IRP management under an agreement between the Army and the Air Force established at the time of land transfer. All compliance activities except for one dump site have been transferred to the Army mainly, the fuel component systems. There were eight IRP sites identified and five AOCs. These included two former dump sites, landfill, a fire training area, two aircraft parking and maintenance areas, a sewer line, and a pond used for oxidation of disposed sludge. Site inspections will be initiated this year for the last four sites mentioned.

The Air Force completed their investigation of the dump sites used for the disposal of drums containing petroleum products and waste solvents. In the process of the removal activities at one of the dump sites, the Gulch Runway Dump, large quantities of excavated materials were generated that this site was established as a RCRA waste generating unit. The waste stored at this dumpsite was removed. The only remaining waste left is 450 cubic yards of stockpiled soil awaiting treatment or disposal. The soil contains more than 10 ppm of PCBs but less than 50 ppm, so it's not a TSCA-regulated waste.

A removal action is tentatively planned at a former hot mix plant, which will involve the removal of a large tar pit. NFRAP documents for the former landfill, one dumpsite and the former fire training area were signed by the DOH.

Kaala AFS. The IRP at Kaala AFS included 9 IRP sites and 1 AOC. These included former USTs, a waste oil sump, a drum rack outfall area, disposal areas, and a former transformer. Four of the nine IRP

sites were administratively closed. There are no ongoing removal or remedial actions at Kaala AFS. Due to the low relative human health and environmental risk and the ongoing Federal Aviation Administration (FAA) construction project at the site, no remedial actions are planned until after year 2002. The main sites of concern are the waste oil sump and the drum rack outfall.

The final report for a multi drum removal project was submitted. The drums and drum remnants were successfully removed and the contents as well as the soil beneath the drums were characterized. No contaminants of concern (COC) were identified above the regulatory action levels.

Punamano AFS. This site was divided in three subsites for remediation purposes consisting of the Motor Pool Drain Outfall Site (SS01), the Environmental Area 4 (EA04) and the Suspected Sunken Tank Area. At the Motor Pool Drain Outfall Site, 40 cubic yards of soil contaminated with petroleum hydrocarbons were taken for thermal desorption treatment. After investigation the Environmental Area 4 turned out to be a non-site as there were no tanks or any appurtenances discovered upon investigation. No tanks were discovered at the Suspected Sunken Tank Area either. During FY 1998 the three subsites were closed out, closing documents were signed and no further action is planned. A burn pit was inadvertently discovered near SS01. Lead in soil was reportedly above Tier 1 action level and a removal action will be implemented in FY 2000.

Satellite Stations (Kokee Air Force Station, Palehua Solar Observatory, Kaena Point Satellite Tracking Station). Site inspection was completed for the three Air Force satellite installations. No contaminants of concern were identified above the regulatory levels and the Air Force is recommending no further remedial action for the sites. A 6,000-gallon diesel underground storage tank was removed at Palehua Solar Observatory. Confirmation soil samples

taken beneath the tanks indicated that contaminant concentrations were below Department of Health Tier 1 action levels. No further action was recommended for the site.

Technical Support to the DSMOA Program and Oversight of Hawaii State Remediation Sites

During FY 1999 the HEER Office Geologist provided technical support in the following areas to the DSMOA program and investigation on the Hawaii State remediation sites.

GIS Information. Information such as locations and types of groundwater wells, the depth of groundwater at the site, groundwater flow direction, type of the aquifer, spatial relationship to nearby wetland and streams, and background or regional concentrations of certain chemicals are very important for the evaluation of the impact of a remediation site on human health and the environment. The HEER office Remediation Project Managers are able to utilize the GIS system to obtain this information with the help of the Geologist.

Geostatistical Applications. Spatial patterns of contaminants are observed at many remedial sites as a result of site history and operation activities. Unfortunately, most classical statistical techniques make no use of the spatial information. Geostatistics can overcome the shortcoming of classical statistics and provide a solution for estimation problems utilizing the spatial information in sampling data sets. This insures that decisions made for a remedial site are accurate as well as protective of human health and the environment. The application of geostatistical techniques and GIS display tools in the evaluation of the remedial decisions at the Kapalama Incinerator was described in a technical memorandum.

Groundwater Modeling. Assistance and recommendations on evaluation of groundwater modeling studies were provided for the following investigations:

- Fate and transport of the petroleum plume in the caprock groundwater body at the Home Depot site
- Fate and transport of pesticides in the basal aquifer in Kunia

- Fate and transport of BTEX in the unsaturated zone at Waikakalaua fuel storage annex, central Oahu
- Fate and transport of BTEX from perched groundwater to the basal aquifer at Kipapa gulch, central Oahu.

Statistical Analysis

- Provided assistance to the Toxicologist and RPMs on the statistical calculation of exposure concentration and associated risk.
- An issue regarding the calculation of 95% upper confidence limit of mean for risk assessment at remediation sites was addressed in an internal memorandum.

Sampling Plans

- Provided assistance to the HEER office RPMs with evaluation of the sampling plans for both military installations and state sites.

Metal Background Analysis

- Development of a guidance for the analysis of background metals has been initiated.
- Limited data on metal background levels for Oahu, Hawaii, and Kauai have been placed into the GIS database.
- Comments and recommendations on the studies of background concentrations of metals in soil and groundwater were given in two memoranda.

Document Review

- Helped RPMs to review the reports on various military installations and state remediation sites.
- Provided professional support on issues involving geology and groundwater.

Significant Site Summaries from the Site Discovery, Assessment, and Remediation Section (SDAR)

Preliminary Assessment/Site Investigation Sites

Hamakua Sugar Company, Haina Mill. The former Haina Mill, located about a mile north of Honokaa, is the location of a proposed power plant facility by Enserch Development Corporation. Phase I and Phase II assessments of the entire mill area brought up several concerns, primarily involving petroleum hydrocarbon contamination, which were addressed by the potentially responsible party (PRP). Arsenic was found in the soil at natural background levels. The proposed power plant will encompass only a portion of the assessed property. The HEER Office reviewed the final report which addressed the environmental concerns in that specific portion where the proposed power plant will be constructed. In December 1998, the HEER Office determined that no further actions appear to be necessary at the site.

Ewa - Ewa Sugar Mill/Oahu Sugar Co. This site consists of five subunits: (1) the Coral Wastepit Site, (2) the pesticide Mixing and Loading Site in Ewa, (3) the former Fumigant Storage Area, (4) the pesticide mixing/loading and cane seed fungicide dipping site on Waipio Peninsula, and (5) the pesticide Staging Area in Kunia. Sampling events have been performed by the HEER Office at all five subunits.

Coral Wastepit - A mixture of waste oil and water was disposed of at the coral wastepit adjacent to NAS Barber's Point. This site is inaccessible to the public and is scheduled to be part of the Ewa Marina golf course. In June 1999, the landowner of the wastepit property cooperated with the HEER Office in conducting a sampling event in accordance with EPA assessment sampling guidelines. The HEER Office is awaiting sampling results from those samples shipped to the mainland; however, a visible petroleum product was discovered at the site, and a local laboratory confirmed the presence of a petroleum product. If no additional hazardous constituents are present in the samples (such as PCBs, heavy metals), the HEER

Office will recommend that no further action be conducted under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The responsible party (RP) will then have to take actions to address the petroleum contamination under State law.

Pesticide Mixing/Loading Site - Ametryn was previously detected at levels above action limits by the Department of Agriculture in the soil at the Pesticide Mixing/Loading site in Ewa. Sampling conducted by the HEER Office in 1997 indicated the presence of pentachlorophenol (PCP) and arsenic above regulatory action levels and indicated the presence of dioxins. Confirmatory analyses of these samples were negotiated with EPA, and the results confirmed the presence of high concentrations of dioxins. The site has been fenced and locked, and warning signs have been posted. Due to the elevated dioxin concentrations, the HEER Office has issued an Order to Oahu Sugar Company to fully characterize the concentration at the site. Due to laboratory problems with the original soil samples in the chlorinated herbicides analysis, a supplemental sampling event will be conducted by the HEER Office in September 1999, in order to obtain analytical results for these chemicals.

Fumigant Storage Area - The former Fumigant Storage Area is located within a residential area. It was previously suspected that chemicals used for fumigating plantation homes may have spilled at the site. The initial sampling results indicated the presence of only trace amounts of various chemicals, all of which are below regulatory action levels. Recent interviews and site visits with former sugar company employees and residents of the area have identified two additional areas with potential contamination: a PCB transformer oil dumping area and a chemical mixing area. In addition, a different area was identified as the location of the former fumigant shed, or "poison house."

The suspected chemical mixing area was immediately sampled by the HEER Office in July 1998, in response to public concerns. No elevated

concentrations of hazardous substance were detected. A second Site Investigation soil sampling event was conducted for the rest of the site in January 1999. No hazardous substances were detected above regulatory levels in the area of the former fumigant shed. In the area of the reported PCB oil dumping, no hazardous substances were detected above regulatory levels, with the exception of one detection of arsenic. In addition, one sample was also analyzed for a petroleum product by a local laboratory, in response to a resident's request, because they detected an "oily" odor in their front yard. The concentration detected was below DOH's action levels. The HEER Office is currently awaiting the validation of analytical data by EPA.

Waipio Peninsula - The pesticide mixing/loading and seed cane fungicide dipping site on Waipio Peninsula is owned by the U.S. Navy and is located within a restricted area. Soil sampling at this site indicated the presence of dioxins and concentrations of DDE, DDT, arsenic, and PCP above regulatory action levels. Confirmation or confirmatory analyses of these samples were negotiated with EPA, and the results confirmed the presence of high concentrations of dioxins. As a result, the HEER Office issued an Order to Oahu Sugar Company to fully characterize the contamination at the site as a next step. The site has been fenced and locked, and warning signs have been posted. Oahu Sugar Company has developed a draft work plan, sampling and analysis plan, and a quality assurance project plan to accomplish the remedial investigation to characterize the contamination on the site. They are in the process of revising the plans in response to the DOH's comments on the draft documents.

Kunia Staging Area - Ametryn, atrazine, and arsenic were previously detected in the soil at the Kunia Staging Area site at levels above regulatory action levels. This site lies within the planned Royal Kunia Phase II, a residential subdivision. A soil sampling event was conducted by the HEER Office in January 1999. Arsenic was detected at levels well exceeding regulatory action levels. It is expected that further

action under State law, rather than under CERCLA, will be conducted.

Kanaha Pond East and Kanaha Pond West. Kanaha Pond consists of two (2) sites: Kanaha Pond East and Kanaha Pond West.

Kanaha Pond East - This site consists of five (5) parcels owned by the State of Hawaii and managed by the Hawaii Department of Land and Natural Resources (DLNR). These lots are located on approximately 2.69 acres along the north border of the Kanaha Pond Wildlife Refuge. All of the businesses were vacated in 1993, removing all structures and leaving the site vacant. The area is going to be used as a buffer area for Kanaha Pond Wildlife Refuge.

Kanaha Pond West - This site is located along Amala Place, across from the Wildlife Refuge and adjacent to the drainage ditch going from the Refuge to the Pacific Ocean. The site consists of seven (7) parcels, also owned by the State of Hawaii and managed by the Hawaii Department of Land and Natural Resources (DLNR). These parcels are located on approximately 2.65 acres of land in an industrial area. Substantial amounts of solid wastes and hazardous material are presently on the five parcels in the south portion of the Site. The DLNR intends to remove the solid wastes and hazardous materials; however, at present there is no prospective date for the intended cleanup.

Land in this area was condemned in 1945 by the United States Government for the formation of a Naval Air Station. It is unknown what kind of activity took place on the site during this period. The land was then transferred to the Hawaii State Department of Transportation, Airports Division (DOT Airports) in 1953/54. The land was rented out to businesses in the early 80's. Finally, the land was put under the control of the DLNR in the late 1980's and is currently managed by the DLNR.

Business rented these lots on a month-to-month basis as early as 1980. The businesses were served

notices of eviction in 1983. Businesses stored construction materials and equipment on the lots. 55-gallon drums were observed on some lots. Some of the drums were marked waste oil, while others were unmarked. Old cars, boats, used engines, batteries, metal parts, roofing materials, and tires were also seen on the lots.

Presently, CERCLA Preliminary Assessments (PA's) have been conducted for parcels of the Sites that were considered areas of concern. A CERCLA Site Investigation (SI) of the sites will be performed in Fall 1999. A draft Field Sampling Plan was developed to determine if past operations at the industrial sites pose a threat to ecological receptors at the nearby wildlife refuge. The plan proposes the collection of soil, sediment, groundwater, and surface water samples for metals, PCBs, and SVOCs. A limited number of soil and groundwater samples will also be analyzed for VOCs. The proposed plan was submitted to the EPA for review.

Kapaa Landfill. The Kapaa Landfill comprises an active landfill area located adjacent to an abandoned basalt quarry; inactive landfills located adjacent to and within the Kawainui Marsh, and a quarry waste site within Kawainui Marsh. Kawainui Marsh is made up of more than 300 hectares (~800 acres) and provides habitat for four (4) federally listed endangered species. Groundwater depth ranges from 0.3 meters - 30 meters below the ground surface (bgs) and flows in an east to northeast direction, discharging from the landfill areas into Kawainui Marsh. It is not known if hazardous materials were deposited at the landfills. Available data for the site indicate levels of copper and zinc above their respective ambient water quality criteria (AWQC).

A CERCLA PA has been completed and a CERCLA SI is in development. A draft Field Sampling Plan was developed to determine if leachate from the landfill is adversely impacting the marsh. The plan proposes the collection of sediment and surface water samples from the Kawainui Marsh and analysis for VOCs, SVOCs, pesticides/PCBs, and metals. Analytical data for groundwater and leachate samples

collected for landfill monitoring requirements will be reviewed to assess the likelihood of the landfill as the contaminant source. As such, sediment and surface water samples will also be analyzed for various general chemistry parameters to facilitate this comparison. The draft plan was submitted to the EPA for review. The sampling dates will be scheduled to correspond with the groundwater and leachate sampling event and have not been established at this time.

Kunia - Hawaii Agriculture Research Center (HARC). HARC, formerly known as Hawaiian Sugar Planter's Association (HSPA), disposed of unknown quantities of a variety of laboratory wastes, experimental fertilizers and pesticides from their Makiki facility into disposal pits at their Kunia facility. Analyses of samples from these pits showed pentachlorophenol to be present. The HEER Office has requested sampling for PCP, pesticides and total metals from the disposal pits to determine if all hazardous materials have been removed.

Maili Kai Emergency Access Road – Polychlorinated biphenyls (PCBs) were released from abandoned capacitors and mixed in soil during construction of an emergency access road in December 1996. The extent of contamination and removal options are being evaluated.

Mapunapuna - Pukoloa Wood Treating Site. Pentachlorophenol (PCP), arsenic, chromium, and dioxins have been detected in the soil and groundwater (except dioxin) at a Servco Pacific, Inc. facility on Pukoloa Street. The contamination appears to have resulted from past practices of a wood treating company formerly located at the site. Copper chromium arsenate (CCA) and PCP are chemicals commonly used to treat lumber. Servco has conducted several sampling events, involving the drilling of numerous soil borings and the installation of monitoring wells. Servco has also removed a CCA tank and two contaminated concrete drip pads. Thorough site history was performed by both Servco and the HEER Office, and other potential responsible parties (PRPs) for the site were identified.

In an effort to resolve the question of financial responsibility for characterization and cleanup of contamination at the site, the HEER Office hosted a potential responsible party (PRP) meeting in April 1998. Numerous PRPs and/or their representatives attended and discussed the issue of responsibility with Servco as the lead PRP. The issue is being addressed by the PRPs' insurance companies. The HEER Office has since incorporated all of Servco's sampling data in its draft SI Report, which has been submitted to EPA, and is currently awaiting EPA's comments and/or decision.

Waiawa Gulch. This site began as a federal facility Site Investigation (SI) Review conducted by the HEER Office. The Hawaii Army National Guard (HIARNG) provided the EPA with a preliminary assessment (PA) and SI, and the HEER Office was later asked to further evaluate the site by performing a federal facility SI review using EPA's Hazard Ranking System (HRS) criteria. Lead was detected at a concentration of 4,371 mg/kg in a soil sample collected from the bank of Waiawa Stream at a 6-inch diameter pipe drainage outfall which is connected to a wash rack at the HIARNG facility. Possible sources of contamination to the stream include the HIARNG facility, a junkyard/recycling facility across the stream, and other small industrial operations in the area. An Ecologist/Microbiologist with EPA Region IX conducted a site visit and stream walk in Waiawa Gulch in July 1998. Observations made during the stream walk indicated a reduction in aquatic macro fauna biodiversity as the stream flows through the light industrial area, the recycling area, and the HIARNG property. Further sampling of water, sediment and habitat was recommended for this site. The HEER Office is currently drafting a Field Sampling Plan for the site. It is anticipated that sampling will be conducted in late 1999.

Laehala Street Dump Site. The Laehala Street Dump Site is located in Hilo, near the Onekahakaha Beach Park. The site is a vacant 16,000 square foot lot overgrown with vegetation. Abandoned drums were discovered in two areas at the site. Drum Site 1

contained three 55-gallon metal drums, and Drum Site 2 contained an assortment of 55, 30 and 5 gallon containers. The containers contained petroleum, paint-like sludges and liquids. The drum contents and surrounding soil were sampled. The soil samples indicated releases of arsenic (330 ppm), lead (750 ppm) and acetone (0.4 ppm) above the guidelines set by the Environmental Protection Agency. Contaminated soil was removed and confirmation samples reported levels of contaminants below cleanup guidelines. The site is currently being recommended for a No Further Action status.

Kauai Agricultural Research Center – Between 1967 and 1968, the University of Hawaii conducted experiments for the U.S. Army to assess the defoliation effects of various pesticides, including Agent Orange, on jungle vegetation on Kauai. A former employee identified an area where drums and containers of pesticides were buried in 1968. The DOH Solid and Hazardous Waste Branch is overseeing the removal and disposal of these drums. Concurrently, the HEER Office is providing support for the drum removal activities and is investigating the historical background of the experiments in an effort to locate mixing and loading areas and areas of chemical dispersal. A request for CERCLIS entry was submitted to the EPA.

Hawaii Pest Control - This site is located in an industrial area of Hilo, Hawaii. It was occupied by a pest control service company between 1961 and 1996, and is currently vacant. Activities reportedly performed onsite have included pesticide mixing, disposing of unused pesticides/mixes, and washing of pesticide equipment and containers. Environmental investigations conducted at this site identified elevated concentrations of chlordane, aldrin, dieldrin, and heptachlor in soil. A response action has not been implemented. The HEER Office has initiated the preparation of a CERCLA PA for this site.

Hawaii State Remediation Sites

Hobron Avenue Area - Petroleum free product is encountered over approximately half of the Maui Petroleum property and is being removed via recovery wells and an interceptor trench. Soil and groundwater contamination remains above screening levels, and is known to extend beyond the property boundaries. Similar contamination problems have been discovered at the adjacent Shell and Chevron terminals and the nearby VIP Foods warehouse.

Due to the common area-wide petroleum issues, these properties have been incorporated into one site (i.e., the Hobron Avenue Area site).

A work plan is being developed for the Maui Petroleum property. Final site characterization, alternatives analysis, and cleanup at Maui Petroleum are expected to be completed before the end of the March 2000.

Honolulu Harbor – The Technical Work Group (TWG) has completed the Phase 1 investigation of Honolulu Harbor, and is scheduled to submit a draft preliminary conceptual site model (CSM) to HEER on September 3, 1999. Identification of other potentially responsible parties is expected to be completed by September 30, 1999, and the work plan for the remedial investigation/remedial alternatives analysis is expected to be completed by the end of March 2000. The TWG is meeting regularly, and is in contact with the HEER Office at least bi-weekly, to move the investigation and cleanup forward.

Piers 26. Minor sheens are noted after rainfall events. Storm drains are the suspected source. An investigation of the Pier 26 storm drains is expected to be completed by October 1999.

Piers 29 and 36. Sheen monitoring indicates that actions completed by the TWG (removal of a protruding 8-inch PVC and repair of a bulkhead with water- and oil-tight materials) have stopped petroleum seepages at Pier 29. Sheen monitoring also indicates

that there is not currently a petroleum seepage problem at Pier 36.

Piers 37 and 38. Ground breaking for the “fishing village” planned for this area has begun. DOT is in the process of applying to the Voluntary Response Program (VRP) on behalf of the future tenants. DOT will investigate and perform any necessary cleanup of petroleum contamination in this area. Upon satisfactory completion of the program, the future tenants will receive a waiver of liability for the contaminants and locations addressed under the response action.

Home Depot Property. The Home Depot site is part of a larger holding by Castle and Cooke upon which the former Dole Cannery was operated. There was a significant risk due to benzene, benzo (a) pyrene, and methane at the site. Under the VRP, Home Depot implemented a remedy which involves remediation and engineered controls of the contaminated media at the site. A letter of completion granting certain exemptions from liability has been drafted, and is expected to be issued in September 1999.

Tosco/Unocal Property. Soil and groundwater investigations have been conducted at the Tosco terminal on Pacific Street. The results have been included as part of the Phase 1 report prepared for Honolulu Harbor by the Technical Work Group.

Kapalama Incinerator - In September 1995, while preparing for demolition and redevelopment of the incinerator property, the City and County of Honolulu (CCH) tasked an environmental consultant to conduct a preliminary site assessment to examine the potential for previous operations to have contaminated the site with hazardous substances. The assessment concluded that fly ash from the former incinerator may have contaminated surrounding soil with metals, polynuclear aromatic hydrocarbons (PAHs), dioxins, and furans.

Elevated levels of metals, dioxins, and furans were confirmed in soil located around the former incinerator in August 1996. A report was made to the HEER

Office at the end of February 1997. Lead was discovered in surface soil on the grounds of the adjacent Honolulu Community College (HCC) in October 1997. HCC operates a day care center approximately 150 feet southeast of the incinerator property, and due to the nearby daycare center and other concerns, the HEER Office held a series of public informational meetings and made blood-lead testing available to the daycare children and other potentially affected individuals.

The selected remedy includes excavation of all site soil contaminated above health-based levels; ex-situ washing of contaminated soil; backfilling excavated areas with the cleaned soil; and disposal of residual wastes. The soil-washing alternative was selected because it is a permanent solution for the site, and requires no future management of onsite soil. It also satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. While requiring the highest capital investment of all the options evaluated, it has the lowest potential for future liability, and consequently may have the lowest long-term costs.

Soil washing equipment is currently being set up on site and undergoing testing. Full scale operation is expected to begin in September or October 1999. The project is expected to be completed in 2000.

Waiau Marsh - The site is impacted by residual contamination resulting from a May 1996 Chevron pipeline release of bunker fuel product. Site characterization and an ecological/human health risk assessment has been conducted by Chevron to determine if the residual fuel poses a risk. The risk assessment is currently under review by DOH.

Maili Kai Emergency Access Road - Polychlorinated biphenyls (PCBs) were released from abandoned capacitors and mixed in soil during construction of an emergency access road in December 1996. The tentatively selected options to dispose of low level contamination at a local landfill; high level contamination (over 50 parts per million in soil) will be sent to the mainland for incineration at a TSCA

facility. Changes in the federal law, and the need for EPA's interpretation of the changes, have temporarily delayed completion of the project. However, the removal is expected to be conducted in late 1999 or early 2000.

Hawaii Bitumuls - Sand Island - The HEER Office reopened the case file for the Hawaii Bitumuls Sand Island site based on information provided by the neighboring Longs Drug (warehouse) site. Longs Drug had previously investigated and found diesel contamination beneath their warehouse and was not able to locate a potential onsite source of contamination. It appears that the Hawaii Bitumuls site may have been closed prematurely in 1994 and further investigation is needed. Based on the expanded area of contamination, the Hawaii Bitumuls company was contacted to do further investigation and the previously issued No Further Action letter has been rescinded.

STATE PRIORITY CLEANUP SITES

The State Site List (Appendix B) contains all of the sites through FY 1999 which have been determined by the HEER Office to need further assessment and possible removal or remedial action. These sites have gone through the Initial Site Screening Team (ISST) prioritization process based upon the criteria in the Hawaii State Contingency Plan, Chapter 11-451 Hawaii Administrative Rules. These sites have been determined to be of either high, medium, or low priority and are either actively being worked on by a project manager from the HEER Office or they will be addressed in the future.

The majority of cleanup sites are identified through the spill/release "notification system" required by the State Contingency Plan. The Release Notification Log (Appendix A) contains the FY 1999 notifications. All spills and releases, both Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and non-CERCLA eligible (i.e. petroleum product contaminated), are reported to the DOH. The remainder of sites identified are from deferrals by other programs and the HEER Office's site discovery process.

Chapter 128D, HRS, requires that the department publish a list of those facilities undergoing action where a formal agreement has been established or a "responsible party" is not conducting the appropriate action. Although the program currently provides oversight to a number of sites, the following sites are the only ones officially listed on the State Priority List. All of these facilities voluntarily entered into agreements to conduct the appropriate action.

Pearl Harbor*
Waikakalaua/Kipapa Fuel Pipeline
Schofield Barracks*
Del Monte Kunia*
Honolulu Harbor - Iwilei

There are four sites in Hawaii listed on EPA's National Priority List (NPL) for cleanup. Three of the sites are listed above and are marked with an asterisk (*). The fourth site listed is the Naval Computer and Telecommunication Area Master Station (NCTAMS).

The following sites are currently going through the process to determine if they are eligible for remediation under CERCLA. Once a site is determined to be a CERCLA site, it may be added to the National Priority List and the cleanup may be managed by the EPA and generally, will require no additional State funding.

1. Ewa/Oahu Sugar Company, pesticide mixing and loading site.
2. Ewa/Oahu Sugar Company, Waipio Peninsula.
3. Pukoloa Wood Treating Site, PA/SI.
4. Kanaha Pond Industrial sites, SI.
5. Maili Kai Emergency Access Road, PA.
6. Kawainui Marsh/Kapaa Landfill, SI.
7. Kauai Agricultural Research Center, PA.

The HEER Office continues to provide oversight to all military site cleanups through the Department of Defense/State Memorandum of Agreement (DSMOA) grant. The "Top Military Sites" were identified for the purpose of setting goals for the Year 2000. These sites are listed below with no preference to priority order:

Naval Computer and Telecommunication Area Master Station - Pacific
Barber's Point Naval Air Station
Naval Station Pearl Harbor - Aiea Laundry
Waikakalaua/Kipapa Fuel Storage Area - Hickam Air Force Base
Pearl Harbor Naval Base - Subsurface Oil
Pearl Harbor Naval Shipyard - Battery Shop, Building 394
Ewa Junction Gasoline Spill - Pearl Harbor
Hickam Air Force Base
Bellows Air Force Base

The military sites listed above are considered to be the highest priority military sites for consideration of oversight and compliance in accordance with the State Contingency Plan.

HEER OFFICE BUDGET AND EXPENDITURES

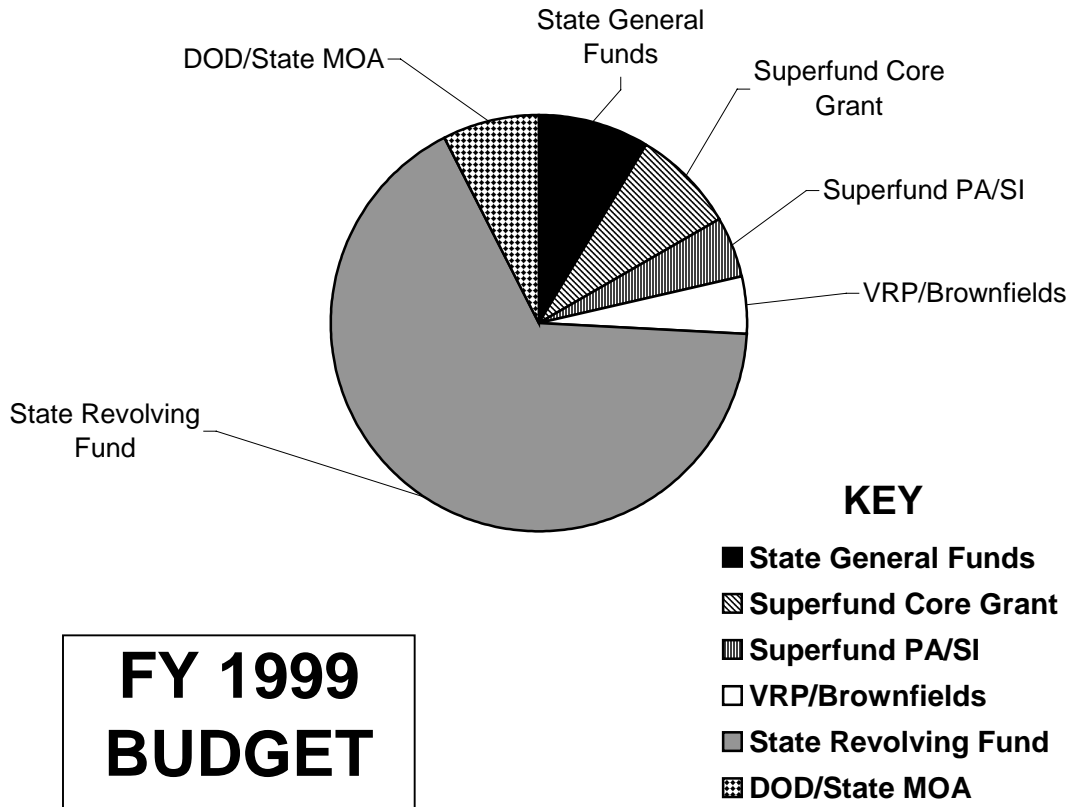
FY 1999 Budget Summary

The combined total operating budget for both State and Federal funds was \$3,718,240 during Fiscal Year (FY) 1999. The State FY 1999 extends from July 1, 1998 to June 30, 1999 while the Federal FY 1999 extends from October 1, 1998 to September 30, 1999. The federal fund amounts have been adjusted to coincide with the State fiscal year as reflected in the Annual Operating Budget and the FAMIS Expenditure Report.

State general funds (July 1, 1998-June 30, 1999) appropriated amounted to \$317,979 and was basically used to operate the Emergency Preparedness and Response and the Hazard Evaluation sections of the HEER Office. These functions are vitally important in protecting Hawaii's environment as these sections are concerned with hazardous materials, emergency responses and the assessment of chemical exposures on human health. These functions cannot be funded with the federal grant dollars currently received by the office.

The HEER Office also had an operating budget of \$2,483,882 from the State Environmental Response Revolving Fund (ERRF) during State FY 1999. The ERRF was utilized by the HEER Office for two primary purposes: operations and response. The operations budget of \$972,413 was allocated to conduct oil spill cleanups; enforce Chapter 128D, HRS; and fund the counties used oil recycling programs. Funding for the recycling programs is in the HEER Office budget; however, management and oversight of the programs is provided by the Solid and Hazardous Waste Branch, Office of Solid Waste Management. The HEER Office also budgeted \$528,000 for both emergency response and remedial contract services, which it needs to supplement its response capacity. In addition, \$605,200 was budgeted to purchase needed equipment to respond to oil spills.

Two other branches receive funding from the ERRF. The Solid and Hazardous Waste Branch had a budget of \$446,031 and the Safe Drinking Water Branch had a budget of \$607,081. A total of \$3,536,944 was budgeted from the ERRF for these three programs. The HEER Office received four federal grants totaling \$909,283. Three of the grants were from the U.S. Environmental Protection Agency and one from the U.S. Department of Defense. These grants were very specific as to their designated usage and wherever possible, we utilized federal grant funds in lieu of state funds.



HEER Office Funding Source and Budget for FY 1999:

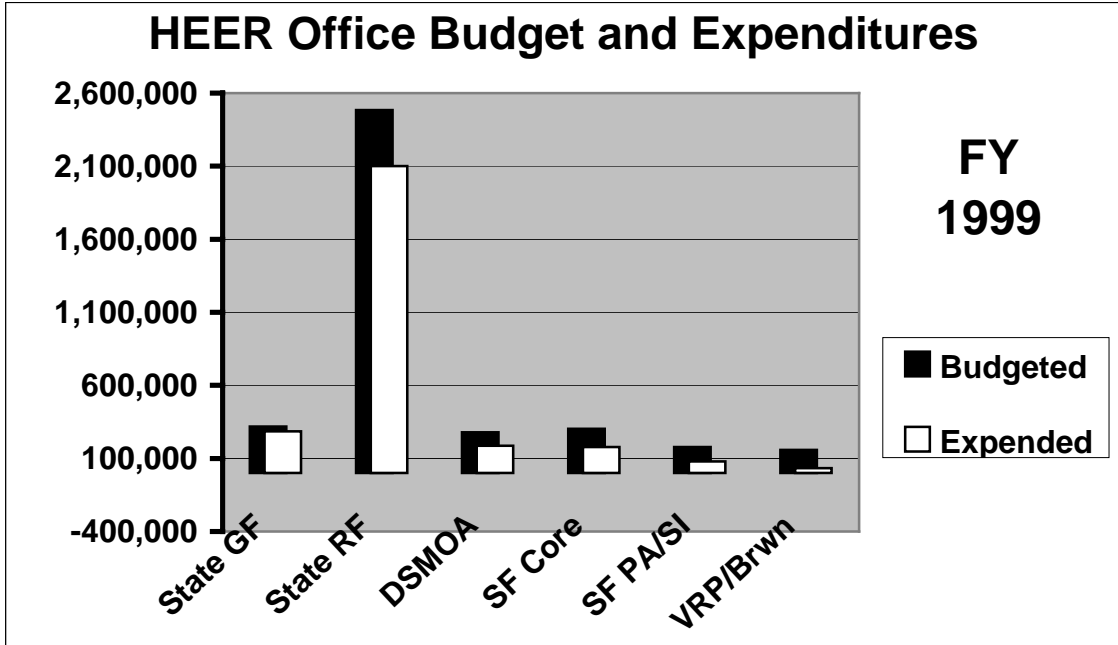
State General Funds	\$ 317,979
State Revolving Funds	\$2,483,882
The Department of Defense/State (Federal) Memorandum of Agreement	\$ 278,954
EPA Superfund Core Grant (Federal) Amended 1999 grant budgeted allotment Includes ERO & EPO support costs	\$ 302,185
Superfund PA/SI Cooperative Agreement (Federal) October 1998 grant budgeted allotment	\$ 177,221
Brownfields/VRP (Federal)	<u>\$ 158,019</u>
TOTAL STATE & FEDERAL BUDGET FOR FY 1999	\$3,718,240

FY 1999 Expenditure Summary

The HEER Office spent a total of \$2,866,628 of the state and federal budgeted amount of \$3,718,240 during FY 1999. State general funds of \$285,858 was expended between July 1, 1998 and June 30, 1999 and as mentioned previously, was basically used to operate the Emergency Preparedness and Response and the Hazard Evaluation sections of the HEER Office. These functions are concerned with hazardous materials, emergency responses, and the assessment of chemical exposures on human health. These functions cannot be funded with the federal grant dollars currently received by the office.

The HEER Office expended \$2,101,045 from the State Environmental Response Revolving Funds (ERRF) during State FY 1999. The ERRF was utilized by the HEER Office for two primary purposes: operations and response. The operations expenditure of \$232,485 was used to conduct oil spill cleanups; enforce Chapter 128D, HRS; and fund the counties used oil recycling programs. The response expenditure of \$459,666 was used to conduct responses to releases or threats of releases of hazardous substance. In addition to the HEER Office budget, the Solid and Hazardous Waste Branch expended \$310,913 and the Safe Drinking Water Branch expended \$427,627 from the ERRF. A total of \$2,839,585 was expended by all programs from the ERRF.

The HEER Office expended \$479,725 from the four federal grants for FY 1999. Three of the grants were from the U.S. Environmental Protection Agency and one from the U.S. Department of Defense. These grants were very specific as to their designated usage; however, wherever appropriate, we have attempted to use federal grant funds in lieu of state funding.



HEER Office Funding Source and Expenditures for State FY 1999:

	<u>Expended As of 6/30/99</u>
State General Funds	\$ 285,858
State Revolving Funds	\$2,101,045*
The Department of Defense/State (Federal) Memorandum of Agreement	\$ 187,652
Superfund Core Grant (Federal)	\$ 177,482
Superfund PA/SI Cooperative Agreement (Federal)	\$ 80,174
Brownfields/VRP	<u>\$ 34,417</u>

TOTAL STATE & FEDERAL EXPENDITURES FOR FY 1999 \$ 2,866,628

* **Note:** This amount reflects only the HEER Office expenditures/encumbrances in FY99 and does not include expenditures from other environmental programs, which also participate in revolving fund activities.

General Funds

General funds support the Hazard Evaluation Section, as well as the Emergency Response and Preparedness Section. These functions are vitally important in protecting Hawaii's environment as these sections are concerned with hazardous materials, emergency responses and the assessment of chemical exposures on human health. These functions cannot be funded with the federal grant dollars currently received by the office.

Table 1 - HEER Office General Funds

	<u>Budget FY 1999</u>	<u>Expended As of 6/30/98</u>
A. Funds		
1 Epidemiologist IV, SR 22		
4 Env. Health Spc. IV, SR 22		
1 Env. Health Spc. III, SR 20		
<u>1</u> Clerk Typist, SR 8		
7		
Subtotal	266,461	261,542
B. Funds	51,518	24,316
C. Funds	<u>-0-</u>	<u>-0-</u>
TOTAL HEER GENERAL FUNDS	317,979	285,858

Environmental Response Revolving Fund

The Environmental Response Revolving Fund (ERRF), established in Chapter 128D, HRS, is supported by a tax of five cents per barrel on petroleum, fines and penalties for environmental violation, grants, legislative appropriations, and costs recovered from response actions. The fund may be used to conduct removal or remedial actions consistent with Chapter 128D; however, the oil tax:

- 1) Shall also be used:
 - a) For oil spill planning, prevention, preparedness, education, research, training, removal, and remediation; and
 - b) For direct support for county used oil recycling programs; and
- 2) May also be used to address concerns related to drinking water, underground storage tanks, including support for the underground storage tank program of the department and funding for the acquisition by the State of a soil remediation site and facility.

Currently, three programs within DOH have budgeted accounts for access to the ERRF: The Hazard Evaluation and Emergency Response Office (HEER), Solid and Hazardous Waste Branch (SHWB), and the Safe Drinking Water Branch (SDWB).

Please note that this report is intended to provide a complete overview of the HEER Office activities; however, to meet the requirements of ACT 300/93, SLH, this section of the report provides a complete overview of all budgeted activities in the ERRF.

Find the specific activities and expenditures under each program in the following pages.

Table 2 - HEER Office Revolving Funds

	<u>Budget FY 1999</u>	<u>Expended</u>
A. Funds		
1 Toxicologist I, SR 26		
1 Epidemiologist III, SR 20		
2 Env. Health Spc. V, SR 24		
1 Clerk Typist II, SR 08		
<u>4</u> Env. Health Spc. IV, SR 22		
9		
Subtotal	378,269	328,971
B. Funds		
Oil Related Activities	972,413	232,495
Clean-up/Removals	528,000	459,666
Subtotal	1,500,413	692,161
C. Costs	605,200	1,079,913
GRAND TOTAL	2,483,882	2,101,045

Chapter 128D, HRS, authorizes cost recovery from money spent from the ERRF. During FY 1999, the HEER Office cost recovered \$949,635. This is a lot more than the \$88,459 cost recovered in FY 1998 and the \$67,952 cost recovered in 1997. A large amount (\$533,069) of what was cost recovered, came from a 70% FEMA reimbursement for the cost of Operation Kokua. Operation Kokua took place in 1996 and involved the removal of hazardous waste remaining after the floods on Oahu.

Del Monte	\$ 1,647
Chevron Waiiau	2,655
Barbers Point Harbor/Kauai	49,816
Pier 2, DOT	362,448
Operations Kokua (1996)	533,069
TOTAL:	\$ 949,635

**Table 3 - Solid and Hazardous Waste Branch (SHWB)
Revolving Funds**

A. Funds	<u>Budget FY 1999</u>	<u>Expended</u>
1 Env. Engineer IV, SR 24 (used oil)		
1 Env. Hlth Spec. III, SR 20 (HW)		
1 Env. Hlth Spec. IV, SR 22 (HW)		
1 Env. Hlth Spec. III, SR 20 (LUST)		
1 Env. Hlth Spec. IV, SR 22 (LUST)		
1 Geologist I, SR 24 (LUST)		
2 Env. Hlth Spec. III, SR 20 (UST)		
1 Env. Hlth Spec. IV, SR 22 (UST)		
<u>1</u> Clerk Typist II, SR 08 (UST)		
10		
Subtotal	438,263	
	310,913	
 B. Funds	 15,000	 -0-
 C. Funds	 <u>-0-</u>	 <u>-0-</u>
TOTAL	446,031	310,913

The Environmental Response Revolving Fund (ERRF) provides support for the following program activities within the Solid and Hazardous Waste Branch (SHWB):

Used oil management and recycling

On March 13, 1999, the hazardous waste regulations (Chapters 11-260 to 11-280, HAR) were amended. Various Federal regulations promulgated from 1993 to 1998 were incorporated into the amended hazardous waste rules. Most notable was the addition of the used oil regulations, Chapter 11-279, HAR. The new used oil regulations combined federal regulations along with existing state regulations that were formerly under Chapter 11-58.1, HAR, Solid Waste Management.

The Special Waste environmental engineer funded by the ERRF is responsible for permitting and enforcement activities over a wide range of special waste management facilities, including used oil and petroleum contaminated soil (PCS) recyclers. Another major responsibility is the permitting and oversight of Auto Salvage facilities where the proper

management of gasoline, oil and other automotive fluids removed from the vehicles is of concern. Currently, the Engineer has responsibility for more than 40 permitted facilities which deal directly or indirectly with petroleum products. In addition, the Engineer is responsible for the implementation of Federal rules (40 CFR 279) relating to used motor oil recycling.

Responsibility for the inspections, enforcement, and permitting of used oil transporters were transferred from the SHWB's Office of Solid Waste Management to its Hazardous Waste Section. There are currently 23 permitted used oil transporters statewide. The temporary Hazardous Waste (HW) Environmental Health Specialist (EHS) III position, which is responsible for inspections and enforcement of these used oil transporters, was converted to permanent status during the 1999 legislative session.

Hazardous Waste Permits, Closures and Corrective Action

The EHS IV (HW) supported through the oil fund continues his review of all facilities undergoing groundwater monitoring. These include facilities which have undergone closure such as: Unitek Environmental; Maui Wood Treating; Honolulu Wood Treating; Hawaiian Western Steel; and Chevron Refinery's land treatment unit. It also includes other facilities undergoing groundwater monitoring to remediate contamination on their property such as: Chevron Refinery; Tesoro Refinery; and Chemwood.

Makua Military Reservation (MMR) has applied for closure of their open burning/open detonation unit (OB/OD). Although it is an EPA lead site, the State assisted in the community meetings and outreach that have been conducted. In addition, the EPA, State, and Army have jointly conducted soil sampling at "Muliwai's" (ponds), located downstream of MMR, at the request of the community.

Management of Leaking Underground Storage Tank (LUST) sites

The EHS III and EHS IV of the LUST staff, and the geologist were assigned 306 cases involving releases of petroleum from Underground Storage Tank (UST) systems in Hawaii. The staff provided timely review of release response documentation and actions, which included meetings not only with owners and operators of UST systems, but also with consultants and contractors. The staff ensured compliance with federal UST regulations. As of June 30, 1999, 1,007 cleanups have been initiated at the 1,602 confirmed petroleum release sites in Hawaii. Approximately 42% of the sites (680) have completed their work.

The EHS IV (LUST) also performed a semiannual update of the DOH's UST database. Updating the UST database is a service provided to

consultants and contractors. The real estate, banking, and petroleum industry benefit from timely access to the information in the UST database. For example, consultants use the UST database to obtain information for environmental assessments (i.e., to determine if petroleum releases occurred at facilities and adjacent properties).

LUST staff also gave presentations regarding leaking underground storage tank regulations and release cleanup requirements to various groups.

Inspection of Underground Storage Tank facilities

The two EHS IIIs (UST) conducted 281 compliance inspections at facilities with UST's in Hawaii to ensure that release detection equipment are properly installed, maintained and operated. The goal of the compliance inspections is to prevent releases of petroleum and hazardous substances from UST systems and to minimize the volume of a release if one does occur.

During the compliance inspections, the UST staff also provided information to the owners and operators of USTs about the federal December 22, 1998 deadline. By December 22, 1998, all UST systems were required to meet corrosion protection standards and have spill and overfill prevention equipment installed. It is estimated that 80% of the regulated UST's have met the 1998 deadline.

The two EHS IIIs (UST) provided assistance to consultants and contractors who requested and reviewed approximately 1,500 facility records. Timely review of facility records assists the banking, real estate and petroleum industry in completing transactions involving the sale or return of properties that were affected by petroleum releases. The two EHS IIIs also helped the UST Unit process approximately 500 requests for public records.

The EHS IV (UST) tracked and reviewed the daily work activities of the two EHS IIIs (UST). The EHS IV was also designated as the Safety Coordinator for the Solid and Hazardous Waste Branch and ensures that staff has proper equipment for field inspections.

The UST staff helped to develop draft state UST rules that have been reviewed by U.S. EPA and a UST committee representing Hawaii's small business interest. The DOH has received approval to conduct public hearings for the adoption of the proposed UST rules. Statewide informational meetings and hearings were scheduled for November 1999.

Table 4 - Safe Drinking Water Branch Revolving Funds

A. Funds	Budget FY 1999	Expended
3 Env. Engineer IV, SR-24		
1 Env. Hlth Spec. III, SR-20		
1 Clerk-Steno II, SR-09		
1 UIC Clerk-Steno II, SR-09		
1 Clerk-Typist II, SR-08		
<u>3 UIC Geologist 1, SR-24</u>		
10		
Subtotal	457,088	368,711
B. Funds		
Travel	12,150	9,763
Supplies	20,500	7,672
Contractual	50,000	290
Air Freight	8,000	-0-
Dues	3,500	3,600
Maintenance of Motor Vehicle	1,500	42
Motor vehicle gas and oil	4,000	-0-
Phone	2,500	1,034
Postage	2,600	18
Registration Fee	6,000	3,925
Rental of Training Space	2,000	-0-
Rental of Office Equipment	8,000	4,859
Rental of Equipment Other	6,000	622
R&M Other Equipment	1,600	250
R&M Office Furn. and Equip.	6,000	3,819
Reproduction costs	5,800	-0-
Subscriptions'	1,500	186
Utilities	2,000	-0-
Other Misc. Current Exp.	6,343	355
Subtotal	149,993	36,417
C. Funds	-0-	22,499
TOTAL SDWB	607,081	427,627

Safe Drinking Water Branch (SDWB)

The Environmental Response Revolving Fund (ERRF) has enabled the protection of drinking water quality in Hawaii to be enhanced in many areas. Quality drinking water is vital to the protection and promotion of good public health. In addition, the use of ERRF monies to support drinking water activities has enabled the State of Hawaii to qualify for additional federal funds to conduct safe drinking water activities. The direct use of the ERRF has had the following benefits to public health protection.

Increased Water System Reviews

Water system reviews known as sanitary surveys are, when taken with water quality monitoring data for the system, the best means of identifying existing and potential problems of water systems. They consist of an on-site review of the water system, its facilities, operation and maintenance procedures, and records. Recommendations are made to correct existing problems or prevent future problems. The knowledge of each system is also valuable in the event of emergency conditions to assist the water system and explore alternatives to normal system operation. The Safe Drinking Water Branch is now involved in a program to conduct sanitary surveys of all public water systems in the State within a three-year period, starting with small systems which are usually the systems with the most deficiencies.

Expansion of Lead and Copper Rule Administration

The Lead and Copper Rule attempts to identify the worst case lead and copper problems in a water system. Worst cases involve new single family homes (less than 5 years old) with lead or copper in the home distribution system. Systems that are found to have a lead problem (based on required monitoring) are required to change the quality of the water to make it less aggressive to the pipes. In addition, the water system is required to provide public information on its system, the health effects of lead, and recommend interim measures to reduce any consumer's lead exposure. Given the known adverse health effects of lead, this program has substantial public health protection benefits.

Currently, eleven of the 135 public water systems exceed the action levels of 15 parts per billion for lead or 1.3 parts per million for copper. The Safe Drinking Water Branch has been working with these systems to abate these conditions. Of the eleven water systems, four have exceeded the lead action level only, one has

exceeded both the lead and copper action levels, and six have exceeded the copper action level only. Of these eleven water systems, eight have approved abatement plans, one has hired a consultant to address the problem, and two are obtaining additional sampling information.

Strengthening Review of Surface Water Treatment Plants

The Surface Water Treatment Rule (SWTR) requires the identification of all sources serving water to public water systems which are directly supplied, or directly affected by surface water. It imposes stringent filtration requirements on these types of sources. More effective filtration capability means that more contaminants will be removed from source waters. This is accomplished through the requirement of specific filtration technologies selected to address several microbial contaminants including: total coliform; Giardia Lamblia; legionella; and viruses. The ERRF provides one staff member to oversee the identification of surface or surface influenced sources as well as review plans, specifications, and construction and operation of plants designed to meet SWTR criteria.

Recently, microorganisms have been recognized which are smaller than traditionally recognized organisms and more resistant to conventional forms of disinfection. The surface water treatment rule requirements will be further strengthened to address some of these newer contaminants of concern such as Cryptosporidium and others which have recently been found in treated drinking water supplies through the Enhanced Surface Water Treatment Rule (ESWTR). The federal issuance of the ESWTR in December 1998, has placed additional surface water treatment responsibilities on the branch.

Increased Capability to Monitor Drinking Water

The monitoring of drinking water quality is changing substantially with the advent of new analytical techniques, new contaminants, and new research in the area of health effects. Further, the maintenance of existing equipment is a necessary challenge faced by all laboratories. The State Laboratories Division purchased laboratory equipment with ERRF funds which has enabled it to have additional capability to perform drinking water analyses, confirm results, and to answer emergency needs to analyze for specific contaminants. It has also enabled the Monitoring Section of the Safe Drinking Water Branch to keep up with the increasing

number and frequency of required monitoring to assure public health continues to be protected.

Protection of Existing and Potential Sources of Drinking Water

The Underground Injection Control (UIC) program is vested with the responsibility of protecting existing and potential sources of drinking water from contamination by wells allowed to inject wastes into the ground. This vital function protects drinking water quality, and at the same time, oversees the proper disposal of wastes. The provision of underground injection as a means of disposal offers an alternative (potentially less expensive) means of waste disposal.

In FY 1999, the UIC program administered 704 active permits which controlled the disposal of approximately 530 million gallons per day of wastewater, storm water and industrial effluent. In addition, the program oversaw the completion of fourteen injection well closures and assessed fines in three enforcement actions.

Certification of Operators of Drinking Water Treatment Plants

This program works to assure that operators of drinking water treatment plants are fully qualified to operate the treatment plant under their responsibility. This assurance has direct public health benefit by assuring that the personnel responsible for drinking water treatment know what to remove, and how to remove drinking water contaminants of concern. In addition, they must know the consequences and emergency response actions in case of water system failure. This program, originally addressed only operators of surface water treatment plants, however, the State is now working with EPA to expand certification requirements to include every water treatment plant and distribution system operator. This will result in better protection of drinking water by assuring that more people involved in the delivery of drinking water to the public are properly qualified.

Due to the complexity of the operator certification program, the SDWB is sponsoring training workshops throughout the State, which are put on, in some instances, by private contractors with various fields of expertise.

Assistance to Owners/Users of Rainwater Catchment Systems

This program is a significant step toward providing the kind of information needed by those who depend on rainwater catchment systems as their source of water and an important public health

protection initiative. It was authorized by the 1997 Hawaii Legislature to help owners/users of rainwater catchment systems determine the lead or copper status of their system's water. As designed, the owner/user of a rainwater catchment system pays the first \$25 of the analytical cost, and postage, with the State paying the remainder of the analytical cost.

Although not extensively used, this program has assisted those who have tested their rainwater catchment systems to know if they are subjected to lead or copper contamination of their water and the level of that contamination.

In addition to subsidizing the testing of rain-water catchment systems for lead and copper, the Safe Drinking Water Branch provides advice to those rainwater catchment users who inquire about the care and maintenance of their systems. The SDWB plans to begin work on an informational brochure intended for wide distribution to rain-water catchment system users.

Capacity Development

In an effort to prevent the formation of new water systems which do not have the resources to comply with safe drinking water requirements, a program known as Capacity Development has been initiated. Under this Capacity Development Program, all public water systems are reviewed to assure that they possess sufficient technical, managerial, and financial resources to comply with state and federal drinking water standards. Money under this activity has been used for program development and is being used for training of water suppliers.

**Table 5 - Environmental Response Revolving Fund
Summary by Program**

<u>HEER-HTH 849-FD</u>	<u>FY 1999</u>	<u>Budget Expended</u>
A. FUNDS	378,269	328,971
B. FUNDS	1,500,413	692,161
C. FUNDS	<u>605,200</u>	<u>1,079,913</u>
Subtotal HEER Operating Funds	2,483,882	2,101,045
<u>SHWB-HTH 840-FJ</u>		
A. FUNDS	431,031	310,913
B. FUNDS	15,000	-0-
C. FUNDS	<u>-0-</u>	<u>-0-</u>
Subtotal SHWB Funds	446,031	310,913
<u>SDWB-HTH 840-FH</u>		
A. FUNDS	457,088	368,711
B. FUNDS	149,993	36,417
C. FUNDS	<u>-0-</u>	<u>22,499</u>
Subtotal SDWB Funds	607,081	427,627
<u>TOTAL FUNDS</u>	<u>3,536,944</u>	<u>2,839,585</u>

Federal Funds

The budgets listed in this section are adjusted to coincide with the State fiscal year. Since federal grants are received in Hawaii based upon the federal fiscal year (October through September), these numbers do not match the federal grant amounts. Expenditures are also based upon the State fiscal year.

Core Grant

The Core Grant is provided to the state by the U.S. Environmental Protection Agency (EPA) to develop our state "Superfund" program. This grant provides the state with funding for program development, training, and administrative projects. It cannot be used to conduct any site specific activity. The Core funds consist of \$302,185. The same amount was budgeted in FY 1998.

Table 6 - HEER Office Core Grant Funds

	<u>Budget FY 1999</u>	<u>Expended As of 6/30/99</u>
A. Funds		
1 Planner V, SR-24		
1 EHS IV, SR-22		
1 Secretary, SR-14		
EPO Support		
ERO Support		
	<hr/>	<hr/>
Subtotal	117,739	107,656
B. Funds	184,446	43,009
C. Funds	<hr/>	<hr/>
	-0-	26,817
	<hr/>	<hr/>
TOTAL	302,185	177,482

PA/SI Cooperative Agreement

Since October 1989, Hawaii has entered into a PA/SI Cooperative Agreement (CA) with the EPA. The scope of this agreement is specific: can only be used for costs associated with continuing the federal PA/SI program in the State. PA/SI funds consist of \$177,221. The same amount was budgeted in FY 1998.

Table 7 - HEER Office PA/SI Cooperative Agreement Funds

	<u>Budget FY 1999</u>	<u>Expended As of 6/30/99</u>
A. Funds		
1 Env. Health Spc. IV, SR-22		
2 Env. Health Spc. III, SR-20		
<u>0.5</u> Clerk Typist II, SR-08		
3.5		
Subtotal	132,260	52,409
B. Funds	44,961	16,191
C. Funds	-0-	11,574
TOTAL	177,221	80,174

Brownfields/Voluntary Response Program (VRP) Grant

In 1997 the HEER Office established a State Voluntary Response Program (VRP) with federal funds from the EPA. The scope of this program is to use State resources to encourage the voluntary cleanup of hazardous waste contaminated sites by developers and prospective purchasers. The Brownfields Program is intended to work hand in hand with the VRP, specifically to cleanup abandoned hazardous waste sites. The budgeted funds for VRP in FY99 were \$58,019 and \$100,000 for Brownfields.

Table 8 - HEER Office Brownfields/VRP Funds

	<u>Budget FY 1999</u>	<u>Expended As of 6/30/99</u>
A. Funds	-0-	11,540
B. Funds (contractual)		
Brownfields	100,000	-0-
VRP	58,019	742
C. Funds	-0-	22,135
	<hr/>	<hr/>
TOTAL	158,019	34,417

Federal Facilities Cleanup Grant

The Department of Defense/State Memorandum of Agreement (DSMOA) program was established by the federal government to cover reimbursement of costs incurred by the state in providing oversight services to the Department of Defense (DOD) installations conducting environmental cleanup activities funded under the Defense Environmental Restoration Program (DERP). The program allows a funding limit of up to 1 percent of the funding allocation given to DOD installations in Hawaii under the DERP to accomplish environmental activities. Also, allowed is a funding limit of one and one-half percent (1.5%) of the funding allocation given to DOD installations which are closing under Base Realignment and Closure (BRAC).

A 2-year Cooperative Agreement (CA) application was submitted in May 1997 to obtain reimbursement funding to cover FY 1999 and FY 2000 costs incurred by Hawaii in the DSMOA Program. We have received approval for these costs: \$278,954 for FY 1999 and \$289,081 for FY 2000.

The DSMOA funds are given to the State based on the State's request for reimbursement or advance payment. There is no carry over of funds unspent in the 2-year Cooperative Agreement. If there is need for additional funding the Cooperative Agreement allows for the renegotiation for increased funding.

Table 9 - HEER Office Fed Facilities Funds

	<u>Budget FY 1999</u>	<u>Expended As of 6/30/99</u>
A. Funds		
1 Geologist, SR 24		
3 EHS IV, SR 22		
<u>0.5</u> Clerk Typist, SR 8		
4.5		
Subtotal	207,763	166,582
B. Funds	68,791	
	13,002	
C. Funds	<u>2,400</u>	<u>8,068</u>
TOTAL	278,954	187,652

APPENDICES

APPENDIX A

1999 DEPARTMENT OF HEALTH RELEASE NOTIFICATION LOG

APPENDIX B

1999 DEPARTMENT OF HEALTH STATE SITE LIST