

**Chemical Facility Information
System for Hawaii (CFISH)
Final Report**

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by:

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to:

**Hawaii State Department of Health/
Office of Hazard Evaluation & Emergency Response
U.S. Environmental Protection Agency**

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I. PROJECT DESCRIPTION

A. Background and Purpose

In 1986, the United States Congress passed the Emergency Planning and Community Right-To-Know Act that established certain requirements for Federal, State and local governments with regard to management and reporting of hazardous and toxic chemicals in communities. This Act, also known as SARA Title III, deals with four major areas: emergency planning, emergency release notification, community right-to-know reporting requirements, and toxic chemical release inventories. One of the major goals of this legislation was to improve safety and protect public health by increasing the public's knowledge and understanding of hazardous chemicals in their communities. In response to the legislative directive, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (EPA) designed a computer program to assist responsible officials in planning for, and handling, chemical accidents. The computer program, the Computer-Aided Management of Emergency Operations (known as CAMEO), contains detailed information about more than 3,000 chemicals, allows air plume modeling, and contains databases with much related information.

While CAMEO provides a ready base of information on hazardous materials, it is not designed for use by the general public. In the interest of making the chemical information contained in CAMEO available to the private citizen and thereby meeting the public's right-to-know objectives as expressed under SARA Title III, the Department of Health with funds provided by the Environmental Protection Agency has contracted with the University of Hawaii, Environmental Center, to develop a user-friendly computer program based on the chemical and facility data contained in CAMEO. The new program, CFISH, for Chemical Facility Information System for Hawaii, is designed to facilitate public awareness of the storage, location, use, or accidental spillage of hazardous chemicals in the community. More specifically, CFISH makes information available to the public concerning:

- * Facilities in the state that use or store hazardous substances such as manufacturing plants, laundries, or chemical supply houses;
- * Types of chemicals at each facility;
- * Potential hazards associated with these chemicals;
- * Potential risks to the public;
- * Equipment available to protect the public;
- * Emergency response resources available;
- * Facility compliance/noncompliance with Title III requirements;
- * Contact information for the facility;

- * Contact information for the Local Emergency Planning Committee (LEPC) and Hawaii State Emergency Response Commission (HSERC).

The following report reviews our efforts to develop the Chemical Facility Information System for Hawaii (CFISH) and the means taken to educate the public on its content and availability.

II. METHODS

A. Scope of Work and Advisory Committee

A detailed scope of work was developed through discussions with personnel from the State Department of Health, Federal Environmental Protection Agency, and project staff. The discussions were formalized in a work plan that outlined the various tasks that would be undertaken in both the development of the program and the public education components of the project.

An advisory committee was formed to provide needed input from community sources and to build interest and support for this project. The advisory committee consisted of people with diverse expertise in the fields of both emergency planning and hazardous materials management as well as public education (See Appendix A).

Recommendations from the Advisory Committee were sought on two major topics. The first was to identify which files from the CAMEO database were to be included in CFISH. The second, was to identify sites or locations for both public demonstrations and long-term permanent installations of the CFISH program.

B. Programming

Programming of CFISH was undertaken using the Macintosh HyperCard program and data taken from eight stacks (files) of the CAMEO program. Selection of the specific stacks to be included in CFISH was based on recommendations made by the Advisory Committee and after consultation with Department of Health staff as to which stacks would be of greatest interest to the general public. The primary goal of the programming was to design a system that would permit people with little or no computer experience to access information on hazardous substances in their community in accordance with the goals of the community-right-to-know legislation.

C. Selection of Sites for Public Demonstrations and Long-Term Installations

Research, coupled with suggestions from the Advisory Committee and others, resulted in a list of potential sites for both public demonstrations of the computer program as well as for sites suitable for long-term installation and use.

Potential demonstration sites included:

- * public libraries
- * community college campuses
- * Department of Health offices
- * shopping centers.

Potential long-term installation sites considered:

- * school libraries
- * public libraries
- * community college campuses
- * hospitals
- * medical professional buildings
- * computer bulletin boards
- * banks
- * shopping centers
- * fire departments
- * supermarkets
- * the Nature Center
- * the Maritime Museum
- * the Waikiki Aquarium
- * environmental action group offices
- * computer equipment dealerships
- * Hawaii Access
- * Hawaii F.Y.I.
- * Hawaii Board of Realtors

Sites were visited to determine their true potential either for demonstrations or for long-term installations. Numerous telephone calls were made to locate or evaluate sites. After a great deal of investigation, two things were clear:

1. Public demonstrations would be most conveniently and efficiently held at the Community College campuses; and,
2. Long-term installation sites are extremely limited due to the lack of Macintosh computers available to the public.

We also examined the feasibility of housing the CFISH program in the Colorado Alliance of Research Libraries (CARL) computer system at the University of Hawaii, Macintosh users group's libraries, several school libraries, the Hawaii Access System (HAS) and the state F.Y.I. program.

D. Development of CFISH User's Manual and the Operator's Manual

The scope of work also included the development of a User's Manual to the CFISH program and an "Operator's Manual" for use by the Department of Health (DOH) staff in the maintenance and update of the program.

III. RESULTS AND DISCUSSION

A. Equipment Requirements

CFISH requires a Macintosh computer with at least 2 MB of RAM, 15 MB of hard disk space capable of running Macintosh System 6.0.5 or later, and a HyperCard 2.1 program. To give public demonstrations of the program, arrangements were made to borrow an overhead projector interface unit and a Macintosh computer specially configured for use with such an interface from Apple Pacific (Apple Computer's local office).

B. Program

The CFISH program was developed using data taken from the **Facility Information, Chemical Inventory, Toxic Release Annual Report, Incident Report, Codebreaker, RIDS (Response Information Data Sheets), Contact and Priority Chemical** stacks. These are all files of the CAMEO program. The CFISH program permits the public to examine some 590 chemical facilities within the State with regard to what chemicals are used in their operations, the amounts released to the environment as a routine component of that use, and records of any spills or other accidental releases. (A complete description of the CFISH program is presented in the User's manual.)

C. CFISH User's Manual and Operator's Manual

The CFISH User's Manual was developed for use by the public. The User's Manual assumes that the user has little or no knowledge of the use of Macintosh computers and systematically "walks" the user through the procedures required to obtain information from the CFISH program.

An Operator's Manual was developed to describe the technical programming system for CFISH. This manual is directed toward future programmers who may wish to modify the system and update the information in CFISH.

D. Public Demonstrations

Simultaneous with the development of the CFISH program, efforts were made to organize the initial public demonstration-education programs for the CFISH system. Nine demonstrations were scheduled including five on Oahu, one on Maui, one on Kauai, and two on

Hawaii:

Honolulu Community College
Windward Community College
Leeward Community College
Leeward Community College, Waianae Branch
Hawaii Community College, Hilo
Kauai Community College
Maui Community College
Kapiolani Community College
Kealakehe Elementary School, Kailua-Kona

Plans for demonstrations involved:

- * Preparation of introductory and explanatory remarks about the project and community right-to-know.
- * Preparation of pre- and post-demonstration questionnaires.
- * Preparation of an informational pamphlet.
- * Gathering of necessary computer equipment.
- * Preparation and posting of signs indicating the date, time, and location, of the demonstrations.

The Environmental Center had scheduled eleven demonstrations: five for Oahu, on August 31, September 1, 2, 3, and 14; two each for Hilo on the Big Island on September 8, and on the islands of Maui, and Kauai on September 9 and 10 respectively. The outer island demonstrations included presentations to the LEPC's in the afternoons and another to the public in the evenings. However, on August 27, the Department of Health informed us that all demonstrations were cancelled until further notice.

A demonstration for HSERC was held on September 22, 1992. The Environmental Center rescheduled five public demonstrations: Honolulu Community College, Leeward Community College, and Windward Community College. These demonstrations were held on September 24, 29, and 30 respectively. A press conference was held on October 2, 1992. Demonstrations at Maui Community College and University of Hawaii at Hilo were held on October 5 and 6, 1992. Demonstrations for Kauai were not rescheduled due to Hurricane Iniki.

Rescheduling the demonstrations proved extremely difficult, time consuming and costly. The result was that only five demonstrations could be rescheduled in the time remaining on the contract (September 30). To accommodate the outer islands and to complete the User's Manual, the Operator's Manual, and the Final Report, it was necessary to extend the contract to October 31, 1992. The Environmental Center absorbed most of the cost of this extension because no funding by the Department of Health (DOH) was available.

The first public demonstrations on Oahu were attended by a small group of people, including Department of Health personnel, a member of the Advisory Committee, four participants who responded to invitations by the Environmental Center, but no members of the general public. Favorable comments were offered by the DOH staff who participated in the demonstrations. No members of the general public attended any of the subsequent demonstrations. The Leeward and Windward demonstrations each had two participants, the Maui demonstration had no participants, and the Big Island demonstration had three participants, all by invitation by the Environmental Center.

E. Publicity

Approximately two months prior to the anticipated date of the first demonstration, the Communications Office of the Department of Health indicated that it was their job to prepare and carry out all publicity campaigns for this project. This included the preparation of an informational pamphlet on the project. Therefore, all arrangements for publicity became the responsibility of the Department of Health's Communications Office. This included such tasks as the preparation of public service announcements, arrangements for press conferences, interviews and mini-demonstrations.

In an effort to facilitate the task of the Communications Office, two press releases were prepared by the CFISH project staff and sent to the Communications Office for their use. The first announced the project and the computer program and the second announced the revised schedule of public demonstrations (after the postponement requested by the DOH). In addition, a draft of an informational pamphlet was prepared and delivered to the Communications Office. This formed the basis of a brochure on the CFISH program that was prepared by the Communications Office and distributed at the first public demonstration of CFISH.

To assure that those who had assisted in the initial scoping of this project and in the development of the educational components of the program were kept apprised of our progress, the Environmental Center sent individual letters to project supporters and interested parties indicating the demonstration schedules and inviting them to attend one of the public demonstrations.

The Communications Office scheduled a press conference for a few hours after the CFISH demonstration to the Hawaii State Emergency Response Commission (HSERC), but cancelled it because "they felt that Hurricane Iniki (which had occurred about 11 days earlier) was taking all the attention of the media." Press releases sent out by DOH the day before the first public demonstration were not effective.

F. Demonstrations to LEPC Personnel

In conjunction with the public demonstrations on their islands, the Hawaii and Maui LEPCs received training in CFISH. Kauai's training was postponed because of Hurricane Iniki. Training for the Oahu LEPC's was given by the Department of Health on October 19, 1992.

In general the LEPC's provided very supportive comments. Some were disappointed that the program was not written to be compatible with DOS systems. However, we explained

that we were limited by the Macintosh format of the CAMEO database.

G. Project Effectiveness

The work plan called for us to evaluate the effectiveness of the public demonstrations by testing participants, before and after the demonstrations, on their knowledge of hazardous materials in their community. Pre- and post-demonstration questionnaires were prepared to assess the participants' knowledge of basic community right-to-know information. The questionnaires each took about 10 minutes to administer.

Approximately 12 questionnaires were completed by the DOH staff and 4 special invitation participants who attended the Honolulu Community College demonstration. The 12 questionnaires completed were given to staff of DOH for their use. Because of the lack of publicity and therefore lack of attendance, no members of the "public" attended any of the demonstrations. Therefore, no "public" questionnaires were completed.

The initial plan was to assess the effectiveness of the project-program to educate the public pursuant to the goals of the Community Right-To-Know provisions under SARA Title III. Unfortunately, the initial project assessment plan had to be abandoned. Insufficient data was obtained to quantitatively determine "project effectiveness." As previously indicated, the DOH's Communications Office sent out press releases to the media just one day before the first demonstration. One television report was aired on October 4, after the Oahu demonstrations. To our knowledge, no other publicity or news pieces were aired or printed. Therefore the publicity campaign was inadequate and did not provide sufficient notification to the public of the availability of the demonstrations. The result was that a quantitative measure of the effectiveness of the project was not possible.

H. Long-term Installations

The major problem in establishing long-term installations of the CFISH program for use by the public is a lack of suitable computer equipment at the various potential public access sites or establishments. Except for the Community College campuses and privately owned computer businesses, there are essentially no Macintosh computers available to the general public in Hawaii.

The Hawaii Access System (HAS) was considered for long-term installation of CFISH. HAS is a computerized information system for public information, utilizing a very user-friendly touch-screen program. It has two main components, a legislative information system and a health and human services system. Presently, Hawaii Access has five locations throughout the state. Unfortunately, it is a DOS-based system, and thus is not compatible with our CFISH program.

Hawaii F.Y.I. is another state-sponsored computer system. It also has two components. One is a commercial operation which allows private companies to make their computer services available to the public for a fee. The other is a public information component. Terminals are located in each of the state libraries and provide access to several public information programs. Because of its public information mission, online capabilities, and numerous terminals located

statewide, the Hawaii F.Y.I. was an extremely attractive potential "site" for the CFISH program. Unfortunately, the North American Presentation Level Syntax (NAPLS) system used by F.Y.I. is not compatible with a Macintosh-HyperCard based program such as CFISH, hence its use could not be structured. Because F.Y.I. had appeared to be so perfect a site for the long-term installation of CFISH, it was disappointing to find, after a very thorough investigation involving discussions with several technical experts, and key F.Y.I. officials, that CFISH could not be made compatible with the programs and language required by the F.Y.I. system and equipment.

Sites consulted for long-term installation of the computer program included:

Kapiolani Community College computing center
Honolulu Community College computing center
Maui Community College computing center
Kauai Community College computing center
University of Hawaii, Hilo, or Hawaii Community College
University of Hawaii, Manoa, computing center
Connecting Point computer store, Honolulu
Computerland computer store, Honolulu
Hawaii Loa College Computing Center

Long-term installation agreements were sent to each of these potential sites for their review and comment. These agreements are fairly simple and reflect verbal commitments already reached (see Appendix B). To date we have not received a reply from any of the potential sites.

I. Modifications to DOH Standard Operating Procedures (Appendix C)

Under the terms of the grant from the EPA to the DOH that led to the CFISH program, the state was to continue the education of the public beyond the immediate terms of the grant so as to insure public awareness of the CFISH program and the presence of hazardous substances in the environment. To assure that this ongoing education program is continued, the DOH must institute certain modifications to their standard operating procedures. These modifications are presented in draft form, in Appendix C, for consideration by the Department of Health.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. A DOS-Based Version of CFISH

Finding long-term public access sites for the CFISH program was difficult due to the lack of Macintosh computers available to the public. This deficiency seems likely to continue and will be an ongoing implementation problem. One solution, to the lack of accessibility, would be for the Department of Health to purchase several used Macintosh computers into which the CFISH program could be loaded. The computers might find "homes" in a number of places to which

the public has access, such as public libraries. Another solution would be to create a DOS version of CFISH to take advantage of the more abundant locations of DOS-based computers. Conversion of the data from the CAMEO files that are presently in a Macintosh-HyperCard format to a DOS-based file would be possible, given additional programming time.

B. Updating CFISH

Updating CFISH is essential to a meaningful and successful community right-to-know program in Hawaii. This involves two important facets: updating the data information contained in the program and improving the program itself in response to user comments. The public has the right to expect the data to be as current and accurate as possible. If the data provided to the department by the LEPCs is current, accurate, and in the proper form, the updating of the CFISH program should be routine. Efforts should be made to assure that the required periodic data entry to the CAMEO project is consistent and uniform so that subsequent transfer of that data to the CFISH files will be simple and accurate. Time and costs required to address modifications to the CFISH program in response to user's comments is a difficult action to quantify. The decisions about such updates will depend on the use of the program and the user comments received pursuant to that use.

C. Modifications of CFISH for Use on Other Computer Systems

The use of CFISH with other systems has been considered. Systems that appear to have the greatest probability for success include:

1. Hawaii Access
2. Hawaii F.Y.I.
3. The CARL System at the University of Hawaii
4. Computer Bulletin Boards

Hawaii Access's computer service is an IBM-based video touch-screen information system that provides users with information about government services relating to health and human services. Hawaii Access uses laser technology and can provide voice responses in three languages. A first-in-the-nation information system when it was announced in March 1990, Hawaii Access has tremendous potential but lacks multiple sites.

As discussed previously, Hawaii Access is not compatible with the Macintosh CFISH program. A DOS version of CFISH raises another question altogether. Although Hawaii Access uses interactive video segments and CFISH uses an interactive computer program, it seems likely that such a technologically advanced system could readily use a DOS version of CFISH to provide public access to community right-to-know information. The compatibility of a DOS version of CFISH with Hawaii Access bears investigating.

Hawaii F.Y.I. is a computer system designed for use in all the state's public libraries for public information computer programs. Hawaii Access also is used by children in some schools for both classroom and home projects. Unfortunately, the technology used by Hawaii F.Y.I. is incompatible with CFISH in its present form and apparently is not likely to be very compatible with a DOS version of CFISH. A version of the program specially prepared for Hawaii F.Y.I.

would lose much of its interactivity.

Preliminary discussions indicate that CFISH could be used through the Colorado Alliance of Research Libraries (CARL) computer system at the University of Hawaii, a research tool, if some custom programming were done. Although not readily available to the public at large, the CARL system allows for multiple users at a given time.

Computer bulletin boards were suggested as potential "sites" for CFISH however the program is too large to be uploaded to the bulletin boards. Computer user groups' lending libraries might serve as a substitute for the bulletin board option.

V. SUMMARY OUTLINE OF RECOMMENDATIONS

The following is a summary outline of the recommendations offered with regard to maintenance and use of the CFISH program as a component of the Community Right-To-Know project:

1. The Office of Hazard Evaluation and Emergency Response should institute standard operating procedures to:
 - a. update the CFISH program and replace copies of the program previously distributed
 - b. confirm and/or renew site use agreements
 - c. continue periodic public demonstrations of the CFISH computer program
 - d. require regularly-scheduled reports of demonstrations given and of the frequency of use of the permanent sites, and;
 - e. make an effort to find new sites both for permanent installation of the CFISH program and for public demonstrations.
2. Funds should be sought for:
 - a. the development of a DOS version of the CFISH program; and/or,
 - b. the purchase of rebuilt older Macintosh computers capable of running the Macintosh-HyperCard version of CFISH for installation in Public libraries;
 - c. implementing the new standard operating procedures, particularly the continued public demonstrations of CFISH with appropriate publicity.
3. Efforts should be made to conclude long-term agreements.

4. Copies of the CFISH program should be made available to the following if they have access to the necessary equipment:
 - a. HSERC members
 - b. LEPC's
 - c. Advisory Committee Members
 - d. Long-term Sites
 - e. The presidents of the two Macintosh users clubs (listed in the Acknowledgements section)
 - f. The computing centers at all of the public and private colleges in Hawaii (including the community colleges)
 - g. Science departments at all colleges and universities in Hawaii
 - h. ASK-2000
 - i. The Fire Science Program at Honolulu Community College
 - j. The Hawaii Interactive Television System and the state video-conferencing centers for possible statewide broadcast
 - k. Hawaii F.Y.I. (for its evaluation)
 - l. Hawaii Access (for possible inclusion in any future Macintosh-compatible services it may offer)
 - m. The Hawaii Board of Realtors.
5. The Department of Health should maintain contact with Hawaii F.Y.I. officials and continue to explore technical options which would allow a form of CFISH to be used in the Hawaii F.Y.I. system.
6. Two technical options should be kept in mind for possible future use:
 - a. kiosks or independent (free-standing, non-system linked) computers, and
 - b. uploading to computer bulletin boards.
7. The Department of Health should take whatever steps necessary to assure that a successful and ongoing publicity campaign is undertaken for community right-to-know education and the CFISH program. If necessary, this should include an advertising campaign carried out by a professional contractor.

VI. ACKNOWLEDGEMENTS

We wish to thank the many people who have provided information as to possible site locations for both short and long-term housing of the CFISH program, volunteered equipment for public demonstrations, and also offered suggestions as to file content of the program. In particular, in addition to the Advisory Committee, we wish to acknowledge the following:

Art Koga
Hawaii, Inc.

John Burke, Chairman
Honolulu Apple Users Society

Michael Morgan, President
Honolulu Mac Users Group

Joe Adcock
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Gordon Nishida
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APPENDIX B

STANDARD AGREEMENT

CONCERNING USE OF THE CHEMICAL FACILITY INFORMATION SYSTEM FOR HAWAII (CFISH) COMPUTER PROGRAM

The following constitutes a use agreement between the Hawaii Department of Health, Office of Hazard Evaluation and Emergency Response and _____

_____ for the use of the Chemical Facility Information System for Hawaii (CFISH) computer program developed by the Department of Health to facilitate public education concerning hazardous substances.

The Department of Health, Office of Hazard Evaluation and Emergency Response agrees to:

1. Provide a copy of the CFISH program
2. Update the program or provide an updated copy of the program as more current data becomes available
3. Publicize the fact that the program is available at _____

_____ agrees to:

1. Make the program available to its students
 - 1a. Make the program available to the general public
 - 1b. Make the program available to its users
 - 1c. Install the program on its demonstration MacIntosh computers and make its customers aware of the program
2. Replace the program with an updated copy when one is supplied by the Department of Health

APPENDIX C

DRAFT

STANDARD OPERATING PROCEDURES

FOR

PUBLIC EDUCATION

CONCERNING HAZARDOUS SUBSTANCES

OCTOBER, 1992

OFFICE OF HAZARD EVALUATION AND EMERGENCY RESPONSE

HAWAII STATE DEPARTMENT OF HEALTH

HEER SOP 11

**STANDARD OPERATING PROCEDURES
FOR PUBLIC EDUCATION
CONCERNING HAZARDOUS SUBSTANCES**

The standard operating procedures in this section pertain to the following:

- I. CFISH computer program updates
- II. CFISH site agreement renewals
- III. CFISH public demonstrations
- IV. Reports
- V. On-going site search

The Office of Hazard Evaluation and Emergency Response will take primary responsibility to continue public education efforts begun with the U.S. Environmental Protection Agency's 1991 grant to the Department of Health to create a community right-to-know public education computer program. The standard operating procedures in this section provide for the continuation of the public education efforts centered around the Chemical Facility Information System for Hawaii (CFISH) computer program.

I. CFISH COMPUTER PROGRAM UPDATES

Prompt and accurate updating of the CFISH computer program is essential for an effective community right-to-know program.

On each April 1, the department will request updated data from each county, to assure that the CFISH program contains the most current information available. The updated data will be loaded into CFISH as quickly as possible to assure that the public has timely access to the latest information.

The department will send updated copies of the CFISH program to all those who have been given copies of the program previously. To this end, the department shall maintain an accurate list of the locations of all copies of the program, including longterm sites such as community college laboratories, computer bulletin boards, computer club lending libraries, computer retail outlets' demonstration computers, copies given to science teachers and other educators, copies given to public libraries to loan out, and the copies installed in computers used for public demonstrations.

II. CFISH SITE AGREEMENT RENEWALS

The longterm agreements have been written as open-ended agreements. Therefore, unless future signatories to the agreements request a limited agreement, there should be no need to renew agreements. In the case of any limited agreements, renewals will be negotiated no later than 30 days before the agreement's expiration date.

In order to assure continuation of agreements, the department shall make regular contact with the signatories of the longterm agreements to assure that they are using CFISH and that any questions or problems are addressed promptly.

III. CFISH PUBLIC DEMONSTRATIONS

To keep community right-to-know in the public's mind, the department shall schedule public demonstrations at least annually, and preferably semi-annually, throughout the state. The department shall request assistance from the Emergency Planning Committees (LEPCs) in carrying out the public demonstrations in their respective counties.

The department shall explore all possible opportunities for public demonstrations, including events such as Fire Prevention Week, Earth Day, health fairs, and computer shows.

The department shall conduct an appropriate publicity campaign preceding the public demonstrations. If for some reason public demonstrations cannot be arranged, the department shall conduct a publicity campaign at least annually to ensure continued public awareness of the locations where they can find the CFISH computer program.

IV. REPORTS

The department shall keep a file of reports of each public demonstration. The reports will include such information as the number of persons attending the demonstration, location, date, day of the week, and time of the demonstration, any difficulties encountered, and suggestions for future demonstrations.

The department shall gather information from the permanent sites about public use of the CFISH computer program, including frequency of use, total numbers of users, and users' comments, if such information is available. Reports of this information shall be kept by the department.

V. ONGOING SITE SEARCH

It is crucial to an effective community right-to-know program that there be sufficient permanent sites for the CFISH program. Therefore, the department shall

continue seeking locations for longterm installation of the program. Additionally, the department shall seek new and better locations for public demonstrations of CFISH.