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HAZARDOUS MATERIAL INCIDENT REPORTING SYSTEM

Final Report

Prepared by:
A.Essam Radwan
Hasan Mushtaq
Center for Advanced Research in Transportation
College of Engineering & Applied Sciences
Arizona State University
Tempe, Arizona 85287-6306

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16. Abstract

This research effort developed a standardized reporting form for accidents or incidents involving hazardous materials. A pilot study was conducted to test the form and a computerized database was developed to handle the data. DBASE III Plus software was used for this purpose and all program adjustments and operational procedures are documented in the report. Widespread use of such standardized reporting and data storage techniques should greatly enhance the analytical capability of agencies involved in routing decisions for hazardous materials transport or in planning response capability to hazmat accidents or incidents.

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HAZARDOUS MATERIALS INCIDENT

REPORTING SYSTEM

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INTRODUCTION:

In the process of the technological and industrial development of a country, large quantities of chemical substances are produced, stored, transported, and disposed. Such activities pose risk to the public with respect to their health and safety. As a result, the concern about the emergency response capabilities in handling hazardous substance incidents in any community is legitimate.

1.1 BACKGROUND INFORMATION:

A recent study was conducted to develop a standardized hazardous materials incident reporting form. In September, 1987 a meeting was held which included representatives from local, and state agencies that deal directly or indirectly with hazardous materials handling. An agreement was reached from the attendees on a draft incident reporting form and their participation in a four month pilot study. Maricopa and Coconino Counties were selected as the pilot test sites. The pilot study resulted in a return of eighty-eight completed forms. Approximately 10% of the forms were not completed properly. The number of completed forms was far less than anticipated and agency cooperation was less than desirable.

Members of the Center for Advanced Research in Transportation (CART) utilized the pilot study data and developed a computerized hazardous material incident

database. DBASE III plus software was used for this purpose and the database was developed on an IBM Compatible microcomputer at Arizona State University (ASU). In September, 1988, a meeting was held at Arizona State University which involved key personnel from Motor Vehicle Division of the Arizona Department of Transportation (ADOT), Division of Emergency Services of the Department of Emergency and Military Affairs, the Arizona Transportation Research Center of ADOT, Phoenix Fire Department, and CART. Two main issues were discussed: the friendliness of the computer database, and the willingness of local and state agencies to utilize the system. As an outcome of this meeting, recommendations were made to modify the program to produce detail information on the computer screen and on the printer.

1.2 STUDY OBJECTIVES:

A proposed follow-up study was recommended by participants of the September meeting. The objectives of this work effort were to refine the computerized database for hazardous material incidents to generate comprehensive reports and to hold presentations at local and state agencies to demonstrate the system and highlight its potentials. The tasks needed to meet the study objectives are as follows:

1) Adjust the existing database programs to display on the screen descriptive information about the accidents

rather than display numerical codes. Furthermore, modify the model to generate frequency tables of the different entities of the database.

2) Provide the user with the option of viewing the results on the computer screen or obtain a comprehensive output on the printer.

3) Document the programs in a user manual format showing computer sessions and a sample run.

4) Hold presentations at local and state public agencies to demonstrate the modified database system and point out it's potentials.

2. HAZARDOUS MATERIAL INCIDENT DATABASE

The principal objective of this database is to computerize the HAZMAT incident data entry, processing, storage and retrieval. This centralized data bank will permit any state agency to retrieve incident information that pertain to their operation efficiently and produce a summary report.

The incident form which is given to the reporting agencies is divided into 8 main blocks and contains all possible information needed to describe the incident. The incident form is set in such a way to help the reporter in entering the data easily and quickly and also to help the person keying in the data to extract it from the incident form easily.

2.1 MAIN FILE:

The database for the incident form is composed of three database files. The main file is created under the name HMINCDNT.DBF. This file contains most of the information on the incident form. This main file has two common fields, RPRT and CONTACT, through which the complementary files are linked with the main file. Figure 1 shows the structure of HMINCDNT.DBF.

2.2 COMPLEMENTARY FILES:

It was found that the reporting agency or the contact company could be the same for more than one hazardous

materials incident; so to prevent entry duplication, two complementary files were created. The two files which complement the main file are HMRPRT.DBF and HMCNTCT.DBF. The HMRPTR.DBF file contains information on the reporting agency and the person making the report. It is linked with the main file by the field RPRT which is common to both files. This field contains the initial of the person making the report.

Figure 1. The Structure of HMINCDNT.DBF

Field	Field name	Type	Width
1	DATE	Date	8
2	TIME	Character	4
3	RPTR	Character	3
4	POS	Character	2
5	LAST_NAME	Character	12
6	LAST_NAME	Character	12
7	CONTACT	Character	3
8	SITE_TYPE	Character	8
9	LOCATION	Character	70
10	PLACARDS	Character	1
11	LABELS	Character	1
12	LIGHT	Character	2
13	WEATHER1	Character	2
14	WEATHER2	Character	2
15	AREA_TYPE	Character	2
16	SRF_COND	Character	2
17	INC_TYPE	Character	2
18	CONT_TYPE1	Character	3
19	CONT_TYPE2	Character	3
20	CONT_TYPE3	Character	3
21	CONT_TYPE4	Character	3
22	MOB_OR_FIX	Character	1
23	INC_SITE	Character	3
24	RELEASE	Character	2
25	CHEM1_NO	Character	6
26	UNITS1	Character	3
27	LOAD1	Numeric	5
28	QTY_INV1	Numeric	5
29	EXP1	Numeric	5
30	CHEM2_NO	Character	6
31	UNITS2	Character	3
32	LOAD2	Numeric	5

Figure 1. The Structure of HMINCDNT.DBF (Continued)

Field	Field name	Type	Width
33	QTY_INV2	Numeric	5
34	EXP1	Numeric	5
35	CHEM3_NO	Character	6
36	UNITS3	Character	3
37	LOAD3	Numeric	5
38	QTY_INV3	Numeric	5
39	EXP3	Numeric	5
40	HAZ_SUB	Logical	1
41	HAZ_WASTE	Logical	1
42	HAZ_MAT1	Character	2
43	HAZ_MAT2	Character	2
44	HAZ_MAT3	Character	2
45	RESP_AGY	Character	66
46	SUPP_AGY	Character	33
47	NOTI_AGY	Character	36
48	RES_FAT	Numeric	4
49	RES_INJ	Numeric	4
50	RES_VAC	Numeric	4
51	RES_DEC	Numeric	4
52	WOR_FAT	Numeric	4
53	WOR_INJ	Numeric	4
54	WOR_EVAC	Numeric	4
55	WOR__DEC	Numeric	4
56	PUB_FAT	Numeric	4
57	PUB_INJ	Numeric	4
58	PUB_EVAC	Numeric	4
59	PUB_DEC	Numeric	4
60	DAM_EST	Character	1
61	ENV_CONT	Character	1
62	DAM_ASS1	Character	2
63	DAM_ASS2	Character	2
64	COMMENTS	Memo	10
Total			434

The HMCNTCT.DBF file contains all the pertinent information about the company and the person to contact in that company. This file also has a common field, CONTACT, which links it to the main file. This field contains the initials of the contact person or of the company name.

Apart from that, the data in each block on the form is keyed into the computer as it is shown on the form. In the places where there is a number code adjacent to the choice,

the number code is entered for faster data entry. Figure 2 shows the structure of HMCNTCT.DBF and Figure 3 shows the structure of HMRPRT.DBF.

Figure 2. The Structure of HMCNTCT.DBF

Field	Field name	Type	Width
1	LAST_NAME	Character	12
2	FIRST_NAME	Character	12
3	TELEPHONE	Character	14
4	COMPANY	Character	30
5	POSITION	Character	30
6	CONTACT	Character	3
Total			102

Figure 3. The Structure of HMRPRT.DBF

Field	Field name	Type	Width
1	LAST_NAME	Character	12
2	FIRST_NAME	Character	12
3	TELEPHONE	Character	14
4	AGENCY	Character	24
5	POSITION	Character	20
6	COUNTY	Character	3
7	RPTR	Character	3
Total			89

2.3 DATA MANIPULATION:

After setting up the database file, the next step is to use the file to manipulate the data and extract records which meet certain criteria selected by the user. Because of the possibility of a great number of combinations of the criteria in the form, criteria selection was divided into different blocks. The program searches for records meeting the different combinations selected by the user for a certain block and then outputs information for these records.

2.4 MAIN MENU DESCRIPTION:

The main menu gives six selections: search by date, search by location, search by scene identification, search by causal elements, search by hazard and damage conditions, and exit search selection. "Search by Date" extracts records which meet the criteria of year, month, day, day of week or a combination of these. This is the main search variable considered in block 1 of the incident form. "Search by Location" looks at block 2 and extracts records for the type of location chosen by the user. "Search by Scene Identification" extracts records for a combination of criteria selected from block 3, while "Search by Causal Elements" searches for criteria from block 4. "Search by Hazard and Damage Conditions" selects criteria from blocks 5 and 7 or combines them. This search also includes the release circumstances in block 4. The variable in block 5 is the hazardous materials class while the variable in block 7 is damage assessment. Other data included in these two blocks, as well as data from block 6, are not used for searches, but are given in the output of the records extracted using the criteria selected.

Each of the main menu selections is further divided into a submenu to guide the user to the criteria he or she wants to select for record extraction. When the user selects one of the options in the submenu, a list is generated, with all the variables under that option. The

variable name is listed next to the variable code, which is the required input for the selected variable.

2.5 SUBMENU DESCRIPTION:

In the options listed for each submenu, the user can select one option or a combination for the computer to search depending on needs. For example, the "Search by Date" submenu, the user can select one option or a combination for the computer to search depending on needs. For example, the "Search by Date" submenu has 3 options: "By Year," "By Month," and "By Day." The user can search for a specific year, month or day only, or for a combination of two, or even all three options. "By Day" is further divided into a selection by day itself (i.e. 1,2,3, etc.) or by day of the week (i.e. Monday, Tuesday, etc.). When the day of week option is selected, a list of the different days of the week is shown with a code number adjacent to each weekday. The user enters the code number corresponding to the selected weekday. This listing procedure is also generated for the "By Month" option with codes for the different months of the year.

The submenu for "Search by Location" gives four options for the user to select: "Fixed Site," "Railroad Site," "Highway Site," and "Pipeline Site". In this submenu, when an option is selected the computer gives the output for the option, and he or she can choose only one option, not a

combination of them.

The submenu for "Search by Scene Identification" gives four options: "Light Condition," "Weather Condition," "Area Type Condition," and "Surface Condition." Weather Condition," When these are selected by the user, a list of variables in the option is given, with a code number adjacent to it. For the selected variable, the user enters its code number. The user can select one option or a combination of two, three or all four options.

The submenu for "Search by Causal Elements" also has four options: "Incident Type," "Container Type," "Incident Site Category," and "Release Circumstances." The "Incident Site Category" is further divided into "Mobile Site" or "Fixed Site." Lists and code numbers are generated for the user's convenience and combinations are applicable.

The submenu for "Search by Hazards and Damage Conditions" has three options: "Release Circumstances," "Hazardous Material Class" and "Environmental Contamination." Release Circumstances is from block 5 and Environmental Contamination from block 7. Lists of the variables and their code numbers are given and combinations are applicable. In this submenu "Release Circumstances" was used again although it has already been covered by the previous submenu because it was felt that a combination of the release circumstances with the hazardous material class would be a required user selection.

All submenus have an "Exit Criteria Selection" option to exit from the submenu to the main menu. The main menu has an "Exit Search Selection" option to exit from the main menu and from the program back to the database system.

2.6 APPENDING THE DATABASE

There is always a possibility and necessity of adding new hazardous materials incidents data to the HAZARDOUS MATERIALS INCIDENT DATABASE. The following section will describe how to add new information to the main database file.

Adding records to a dBASE III file is a straightforward procedure. Whenever the user wishes to add some new records to the database file he/she has to load dBASE III PLUS on his/her computer. When the dot(•) prompt appears, the following sequential commands are to be executed.

- USE HMINCDNT.DBF
- APPEND

dBASE III PLUS will display the formatted screen, a blank record at the end of the file where the user has to start entering new records, only one at a time. The user can use "• SET MENU ON" statement before the append statement to bring the menu on top of the screen. If the menu is currently not displayed then by pressing F1 key the menu will be displayed. This menu describes the different cursor movement keys that can be used while appending records.

3. SAMPLE SCREEN SESSIONS:

3.1 ASSUMPTIONS ABOUT THE USER:

It is important that the user understands what Hazardous Material Database is basically used for. It is expected that the user is reasonably familiar with using a microcomputer, although best effort is given to explain necessary information on the screen while the user is using the program.

3.2 BASIC REQUIREMENTS BEFORE STARTING:

Before beginning to use the program the user must check and make sure all necessary programs and required files are stored in a single directory (say HAZMAT). It is also necessary to have the dBASE III Plus Software to be installed in the user's microcomputer which he/she is going to use. The Path in the root directory in AUTOEXEC.BAT file should be so selected that the user can enter dBASE III Plus from the directory in which he/she has stored all the necessary programs and database files (say HAZMAT). If the user installs the dBASE III Plus in the same directory on the program files and database files, he/she will not be required to make the path in the root directory in the AUTOEXEC.BAT file.

3.3 GETTING STARTED:

After logon procedure the user has to get into the directory (say HAZMAT) in which he/she has stored all the

program files and database files. Being in that directory then the user has to start dBASE III Plus. When the dot prompt (•) occurs the user can start the program by typing "DO MAIN." After the program is started the main menu screen will appear. In the following chapters all the options in the main menu will be discussed in detail through the use of Sample Screen Sessions.

3.4. SESSION ONE : SEARCH BY DATE

To search by date the user has to type "1" in the main menu selection as following.

```
************      MAIN SELECTION      ************

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH 1
```

After the option "1" is selected the following screen will appear. This is the submenu for the mainmenu selection of " SEARCH BY DATE ". The user may choose any one of the of three choices offered by the submenu. If the user wishes to search " BY YEAR ", he/she has to type "1" as following.

```
*** SELECTION OF CRITERIA BY DURATION ***

      1 >  BY YEAR
      2 >  BY MONTH
      3 >  BY DAY
      4 >  EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED  1
```

After the option "1" is selected the following screen will appear. In this screen the user is asked to select the year to search by.

```
SELECT THE YEAR TO SEARCH BY IN THE FORM 1987, 1988,..etc.
  SELECT THE REQUIRED YEAR
```

If the user wishes to search " BY MONTH " , he/she has to type "2" as following.

```
*** SELECTION OF CRITERIA BY DURATION ***

      1 >  BY YEAR
      2 >  BY MONTH
      3 >  BY DAY
      4 >  EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED  2
```

After the option "2" is selected the following screen will appear. In this screen the user is given the different codes of the twelve months in a year. The user may choose any one of the months at a time by typing the corresponding code.

```
SELECT THE MONTH TO SEARCH BY IN THE FORM 1, 2, ....etc.

 JANUARY     1
 FEBRUARY    2
 MARCH       3
 APRIL       4
 MAY         5
 JUNE        6
 JULY        7
 AUGUST      8
 SEPTEMBER   9
 OCTOBER    10
 NOVEMBER   11
 DECEMBER   12

 SELECT THE REQUIRED MONTH
```

If the user wishes to search " BY DAY ", he/she has to type "3" as following.

```
      ***  SELECTION OF CRITERIA BY DURATION  ***

           1 >  BY YEAR

           2 >  BY MONTH

           3 >  BY DAY

           4 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED  3
```

After the option "3" is selected the following screen will appear. Here again the user is given two options. If the user wishes to search " BY DAY " of the month, he/she has to type "1" as following.

```
        1 >  BY DAY
        2 >  BY DAY OF WEEK

SELECT THE DAY TYPE TO SEARCH BY 1
```

After the option "1" is selected the following screen will appear. Here the user is asked to select the day of the month to search by, by typing the number of the day.

```
SELECT THE DAY TO SEARCH BY IN THE FORM 1, 2, 3, ...etc.
 SELECT THE REQUIRED DAY
```

If the user wishes to search " BY DAY OF WEEK ",he/she has to type "2" as following.

```
        1 >  BY DAY
        2 >  BY DAY OF WEEK

SELECT THE DAY TYPE TO SEARCH BY 2
```

After the option "2" is selected the following screen will appear. The user may choose any one of the day of a week at a time by typing the corresponding code.

```
SELECT THE DAY OF WEEK TO SEARCH BY IN THE FORM 1,2,..etc.

 SUNDAY     1
 MONDAY     2
 TUESDAY    3
 WEDNESDAY  4
 THURSDAY   5
 FRIDAY     6
 SATURDAY   7

 SELECT THE REQUIRED DAY OF THE WEEK
```

Finally the user has an option to get out of the submenu. By typing "4" as following the user will be in the mainmenu selection again.

```
        ***  SELECTION OF CRITERIA BY DURATION  ***

             1 >  BY YEAR

             2 >  BY MONTH

             3 >  BY DAY

             4 >  EXIT CRITERIA SELECTION


  SELECT ITEM OF COMBINATION REQUIRED  4
```

In the submenu option of the mainmenu selection " SEARCH BY DATE ", the user can have combinations among the submenus. In this case after one submenu selection is complete the user will be asked if he/she wants to select more items for combination. If the user types "N" for NO, the program starts running and he/she has to wait for the results. But if the user types "Y" for YES, he/she is given the opportunity to select another submenu selection repeating the same process as before. The total possible number of combinations among the submenus is four.

```
      ***  SELECTION OF CRITERIA BY DURATION  ***

           1 >  BY YEAR

           2 >  BY MONTH

           3 >  BY DAY

           4 >  EXIT CRITERIA SELECTION


SELECT MORE ITEMS FOR COMBINATION  ( Y/N )   Y

SELECT ITEM OF COMBINATION REQUIRED
```

3.5. SESSION TWO : SEARCH BY LOCATION

To search by location the user has to type "2" in the mainmenu selection as following.

```
************     MAIN SELECTION     ***********

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH  2
```

After the option "2" is selected the following screen will appear. This is the submenu for the mainmenu selection of " SEARCH BY LOCATION ". The user may choose any one of the four choices offered by the submenu. In this case the user does not have the flexibility of selecting combinations among the submenu selections. That means only one submenu selection has to be chosen at a time by the user.

```
************  LOCATION INFORMATION  ************

          1 >  FIXED SITE
          2 >  RAILROAD SITE
          3 >  HIGHWAY SITE
          4 >  PIPELINE SITE
          5 >  EXIT SELECTION

SELECT ITEM REQUIRED
```

After any one option is chosen the program starts running and the user has to wait for the results. In addition to the four submenu selections the user is also given the choice to get out of the submenu by typing "5" as following.

```
************  LOCATION INFORMATION  ************

          1 >  FIXED SITE
          2 >  RAILROAD SITE
          3 >  HIGHWAY SITE
          4 >  PIPELINE SITE
          5 >  EXIT SELECTION

SELECT ITEM REQUIRED  5
```

3.6. SESSION THREE : SEARCH BY SCENE IDENTIFICATION

To search by scene identification the user has to type "3" as following.

```
************    MAIN SELECTION    ************

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH  3
```

After the option "3" is selected the following screen will appear. This is the submenu for the mainmenu selection of " SEARCH BY SCENE IDENTIFICATION ". The user may choose any one of the four options offered by the submenu.

If the user wishes to search by " LIGHT CONDITION ", he/she has to type "1" as following.

```
*** SELECT THE SCENE IDENTIFICATION CRITERIA ***

        1 >  LIGHT CONDITION
        2 >  WEATHER CONDITION
        3 >  AREA TYPE CONDITION
        4 >  SURFACE CONDITION
        5 >  EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED  1
```

After the option "1" is selected the following screen will appear. In this screen the user is given the codes for different light conditions. The user may choose any one of the light conditions at a time by typing the corresponding code.

```
00 N/A OR N/D
01 DAWN
02 DAY
03 DUSK
04 DARK
98 UNKNOWN

SELECT THE REQUIRED LIGHT CONDITION
```

If the user wishes to search by "WEATHER CONDITION", he/she has to type "2" as following.

```
*** SELECT THE SCENE IDENTIFICATION CRITERIA ***

        1 > LIGHT CONDITION
        2 > WEATHER CONDITION
        3 > AREA TYPE CONDITION
        4 > SURFACE CONDITION
        5 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED 2
```

After the option "2" is selected the following screen will appear. In this screen the user is given the codes for different variable weather conditions. The user may choose any one of the weather conditions at a time by typing the corresponding code.

```
00 N/A OR N/D
05 FOG
06 RAIN
07 SNOW
08 WIND
09 DUST
10 HOT
11 COLD
12 FAIR
98 UNKNOWN
99 OTHER

SELECT THE REQUIRED WEATHER CONDITION
```

If the user wishes to search by "AREA TYPE CONDITION", he/she has to type "3" as following.

```
***  SELECT THE SCENE IDENTIFICATION CRITERIA  ***

          1 >  LIGHT CONDITION

          2 >  WEATHER CONDITION

          3 >  AREA TYPE CONDITION

          4 >  SURFACE CONDITION

          5 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED  3
```

After the option "3" is chosen the following screen will appear. In this screen the user is given the codes for different variable area type conditions. The user may choose any one of the area type conditions at a time by typing the corresponding code.

```
00 N/A OR N/D
13 INDUSTRIAL
14 COMMERCIAL
15 RESIDENTIAL
16 RURAL/AGRIC
17 WILDLANDS
99 OTHER

SELECT THE REQUIRED AREA TYPE CONDITION
```

If the user wishes to search by "SURFACE CONDITIONS", he/she has to type "4" as following.

```
***  SELECT THE SCENE IDENTIFICATION CRITERIA  ***

          1 >  LIGHT CONDITION

          2 >  WEATHER CONDITION

          3 >  AREA TYPE CONDITION

          4 >  SURFACE CONDITION

          5 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED  4
```

After the option "4" is selected the following screen will appear. In this screen the user is given the codes for different variable surface conditions. The user may choose any one of the surface conditions at a time by typing the corresponding code.

```
00 N/A OR N/D
18 PAVED
19 UNPAVED
20 SLIPPERY
21 ROUGH
22 ROAD CONSTR.
99 OTHER

SELECT THE REQUIRED ROAD SURFACE CONDITION
```

Finally the user has an option to get out of the submenu. By typing "5" as following he/she will be in the mainmenu again.

```
***  SELECT THE SCENE IDENTIFICATION CRITERIA  ***

          1 >  LIGHT CONDITION

          2 >  WEATHER CONDITION

          3 >  AREA TYPE CONDITION

          4 >  SURFACE CONDITION

          5 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED  5
```

In this submenu option of the mainmenu " SEARCH BY SCENE IDENTIFICATION ", the user can have several combinations among submenus. In this case after one submenu option is complete the user will be asked if he/she wants to select more items for combination. If the user types "N" for NO, the program starts running and he/she has to wait for the results. But if the user types "Y" for YES, he/she is given the opportunity to select another submenu selection repeating the same process as before. The total possible number of combinations among the submenus is nine.

```
*** SELECT THE SCENE IDENTIFICATION CRITERIA ***

          1 > LIGHT CONDITION
          2 > WEATHER CONDITION
          3 > AREA TYPE CONDITION
          4 > SURFACE CONDITION
          5 > EXIT CRITERIA SELECTION

SELECT MORE ITEMS FOR COMBINATION ( Y/N ) Y

SELECT ITEM OF COMBINATION REQUIRED
```

3.7. SESSION FOUR : SEARCH BY CAUSAL ELEMENTS

To search by causal elements the user has to type "4" as following.

```
************     MAIN   SELECTION     ************

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH   4
```

After the option "4" is selected the following screen will appear. This is the submenu for the mainmenu selection of " SEARCH BY CAUSAL ELEMENTS ". The user may choose any one of the four choices offered by the submenu.

If the user wishes to search by " INCIDENT TYPE ", he/she has to type "1" as following.

```
*** SELECT THE CAUSAL ELEMENTS CRITERIA ***

        1 > INCIDENT TYPE
        2 > CONTAINER TYPE
        3 > INCIDENT SITE CATEGORY
        4 > RELEASE CIRCUMSTANCES
        5 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED   1
```

After the option "1" is selected the following screen will appear. In this screen the user is given the codes for different variable incident types. The user may choose any one of the incident types at a time by typing the corresponding code.

```
00          N/D OR N/A
01          FIRE
02          SPILL
03          LEAK
04          RELEASE
05          EXPLOSION
06          REACTION
07          PICKUP
08          ACCD. W/O
99          OTHER

SELECT THE REQUIRED INCIDENT TYPE
```

If the user wishes to search by " CONTAINER TYPE ", he/she has to type "2" as following.

```
*** SELECT THE CAUSAL ELEMENTS CRITERIA   ***

        1 >  INCIDENT TYPE
        2 >  CONTAINER TYPE
        3 >  INCIDENT SITE CATEGORY
        4 >  RELEASE CIRCUMSTANCES
        5 >  EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED   2
```

After the option "2" is selected the following screen will appear. In this screen the user is given the codes for different variable container types. The user may choose any one of the container types at a time by typing the corresponding code.

```
00              N/D OR N/A
09A             ANY BOTTLE TYPE
09P             PLASTIC BOTTLE
10              PAIL
11              BAG
12              CYLINDER
13F             FIBERBOARD DRUM
13M             METAL DRUM
13P             PLASTIC DRUM
14              CARBOY
15A             ALUMINIUM PORT TANK
15S             STEEL PORT TANK
16A             ALUMIN. STORAGE TANK
16P             PLASTIC STORAGE TANK
16S             STEEL STORAGE TANK
17              PIPELINE
18              FIXED SYSTEM
19              HOPR. CAR
99              OTHER

SELECT THE REQUIRED CONTAINER TYPE
```

If the user wishes to search by " INCIDENT SITE CATEGORY ", he/she has to type "3" as following.

```
***  SELECT THE CAUSAL ELEMENTS CRITERIA   ***

          1 >  INCIDENT TYPE

          2 >  CONTAINER TYPE

          3 >  INCIDENT SITE CATEGORY

          4 >  RELEASE CIRCUMSTANCES

          5 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED   3
```

After the option "3" is chosen the following screen will appear. To make it more easy for the user incident site category is further divided into two options. If the user wishes to search by " MOBILE SITE ", he/she has to type "1" as following.

```
            1 >  MOBILE SITE

            2 >  FIXED SITE

SELECT INCIDENT SITE CATEGORY   1
```

After the option "1" is selected the following screen will appear. In this screen the user is given the codes for different variable mobile sites. The user may choose any one of the mobile sites at a time by typing the corresponding code.

```
00              N/D OR N/A
20              PASSENGER / P.U.
22              FREIGHT VAN
23              FLATBED
24B             RAILROAD BOX
24F             RAILROAD FLAT
24T             RAILROAD TANK
25              AIRCRAFT
26              GARBAGE/TRASH TRUCK
98              UNKNOWN
99              OTHER

SELECT THE REQUIRED MOBILE SITE
```

If the user wishes to search by " FIXED SITE ", he/she has to type "2" as following.

```
            1 >  MOBILE SITE

            2 >  FIXED SITE

SELECT INCIDENT SITE CATEGORY   2
```

After the option "2" is selected the following screen will appear. In this screen the user is given the codes for different variable fixed sites. The user may choose any one of the fixed sites at a time by typing the corresponding code.

```
00          N/D OR N/A
27          AIRPORT
28          RESIDENCE
29          TANK FARM
30          TRUCK TERM
31          RAILROAD YARD
32          LAB
33          MFG.
34          OFFICE
35          REFINERY
36          SERVICE STATION
37          STORAGE
38          EASEMENT
39          VACANT LAND
40          WATER
41          SCHOOL
42          HOSPITAL
43          LANDFILL
99          OTHER

SELECT THE REQUIRED FIXED SITE
```

If the user wishes to search by " RELEASE CIRCUMSTANCES", he/she has to type "4" as following.

```
*** SELECT THE CAUSAL ELEMENTS CRITERIA ***

        1 > INCIDENT TYPE
        2 > CONTAINER TYPE
        3 > INCIDENT SITE CATEGORY
        4 > RELEASE CIRCUMSTANCES
        5 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED   4
```

After the option "4" is selected the following screen will appear. In this screen the user is given the codes for different variable release circumstances. The user may choose any one of the release circumstances at a time by typing the corresponding code.

00 N/A OR N/D
01 WHILE BEING MANUFACTURED
02 WHILE IN STORAGE
03 DURING NORMAL END USE
04 WHILE BEING LOADED
05 WHILE BEING UNLOADED
06 DURING CAR CONNECT
07 DURING CAR DISCONNECT
08 WHILE IN TRANSIT
09 DURING CAR DERAILMENT
10 WHILE VEHICLE PARKED
11 DURING VEHICLE ACCIDENT
12 DURING FIRE / EXPLOSION
13 DURING AIR CRASH
14 WHILE ABANDONED
15 UNAUTHORIZED DUMPING
16 REPAIR / MAINT. OPERATIONS
17 CONTAINER FAILURE
18 THIRD PARTY DAMAGE
98 UNKNOWN
99 OTHER

SELECT THE REQUIRED CIRCUMSTANCE OF RELEASE

Finally the user has an option to get out of the submenu. By typing "5" as following the user will be in the mainmenu selection again.

```
*** SELECT THE CAUSAL ELEMENTS CRITERIA   ***

        1 >  INCIDENT TYPE
        2 >  CONTAINER TYPE
        3 >  INCIDENT SITE CATEGORY
        4 >  RELEASE CIRCUMSTANCES
        5 >  EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED   5
```

In the submenu option of the mainmenu selection "SEARCH BY CAUSAL ELEMENTS ", the user can have combinations among the submenus. In this case after one submenu selection is complete the user will be asked if he/she wants to select more items for combination. If the user types "N" for NO, the program starts running and he/she has to wait for the results. But if the user types "Y" for YES, he/she is given the opportunity to select another submenu selection through the same process as before. The total possible number of combinations among the submenu is nine.

```
***  SELECT THE CAUSAL ELEMENTS CRITERIA   ***

        1 >  INCIDENT TYPE

        2 >  CONTAINER TYPE

        3 >  INCIDENT SITE CATEGORY

        4 >  RELEASE CIRCUMSTANCES

        5 >  EXIT CRITERIA SELECTION


SELECT MORE ITEMS FOR COMBINATION  ( Y/N )   Y

SELECT ITEM OF COMBINATION REQUIRED
```

3.8. SESSION FIVE : SEARCH BY HAZARD AND DAMAGE CONDITIONS

To search by hazard and damage conditions the user has to type "5" as following.

```
************    MAIN   SELECTION     ************

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH  5
```

After the option "5" is selected the following screen will appear. This is the submenu for the mainmenu selection of " SEARCH BY HAZARD AND DAMAGE CONDITIONS ". The user may choose any one of the three choices offered by the submenu.

If the user wishes to search by "RELEASE CIRCUMSTANCES",

he/she has to type "1" as following.

```
*** SELECT THE RELEASE CRITERIA ***

   1 > RELEASE CIRCUMSTANCES
   2 > HAZARDOUS MATERIAL CLASS
   3 > ENVIRONMENTAL CONTAMINATION
   4 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED  1
```

After the option "1" is selected the following screen will appear. In this screen the user is given the codes for different variable release circumstances. The user may choose any one of the release circumstances at a time by typing the corresponding code.

```
00 N/A OR N/D
01 WHILE BEING MANUFACTURED
02 WHILE IN STORAGE
03 DURING NORMAL END USE
04 WHILE BEING LOADED
05 WHILE BEING UNLOADED
06 DURING CAR CONNECT
07 DURING CAR DISCONNECT
08 WHILE IN TRANSIT
09 DURING CAR DERAILMENT
10 WHILE VEHICLE PARKED
11 DURING VEHICLE ACCIDENT
12 DURING FIRE / EXPLOSION
13 DURING AIR CRASH
14 WHILE ABANDONED
15 UNAUTHORIZED DUMPING
16 REPAIR / MAINT. OPERATIONS
17 CONTAINER FAILURE
18 THIRD PARTY DAMAGE
98 UNKNOWN
99 OTHER

SELECT THE REQUIRED CIRCUMSTANCE OF RELEASE
```

If the user wishes to search by "HAZARDOUS MATERIAL CLASS", he/she has to type "2" as following.

```
        ***  SELECT THE RELEASE CRITERIA  ***

            1 >  RELEASE CIRCUMSTANCES

            2 >  HAZARDOUS MATERIAL CLASS

            3 >  ENVIRONMENTAL CONTAMINATION

            4 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED   2
```

After the option "2" is chosen the following screen will appear. In this screen the user is given the codes for different variable hazardous material class. The user may choose any one of the hazardous material class at a time by typing the corresponding code.

```
00 N/A OR N/D
01 EXPLOSIVE
02 BLASTING AGENT
03 POISON A
04 POISON B
05 RADIOACTIVE
06 CHLORINE
07 AMMONIA
08 OXIDIZER
09 ORGANIC PEROXIDE
10 FLAMMABLE GAS
11 NON-FLAMMABLE GAS
12 FLAMMABLE LIQUID
13 COMBUSTIBLE LIQUID
14 FLAMMABLE SOLID
15 CORROSIVE
16 ETIOLOGIC AGENT
99 OTHER

SELECT THE REQUIRED HAZARDOUS MATERIAL CLASS
```

If the user wishes to search by " ENVIRONMENTAL CONTAMINATION ", he/she has to type "3" as following.

```
*** SELECT THE RELEASE CRITERIA ***

   1 > RELEASE CIRCUMSTANCES
   2 > HAZARDOUS MATERIAL CLASS
   3 > ENVIRONMENTAL CONTAMINATION
   4 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED   3
```

After the option "3" is selected the following screen will appear. In this screen the user is given the codes for different variable environmental contaminations. The user may choose any one of the environmental contaminations at a time by typing the corresponding code.

```
00 N/A OR N/D
01 AIR
02 WATERWAY
03 LAKE / POND
04 HARBOR
05 SOIL
06 CROPS
07 LIVESTOCK
08 WILDLIFE
09 WOODED AREA
10 DESERT
11 BRUSHLAND
99 OTHER

SELECT THE ENVIRONMENTAL CONTAMINATION
```

Finally the user has an option to get out of the submenu. By typing "4" as following he/she will be in the mainmenu again.

```
        ***  SELECT THE RELEASE CRITERIA  ***

            1 >  RELEASE CIRCUMSTANCES

            2 >  HAZARDOUS MATERIAL CLASS

            3 >  ENVIRONMENTAL CONTAMINATION

            4 >  EXIT CRITERIA SELECTION


SELECT ITEM OF COMBINATION REQUIRED   4
```

In the submenu option of the mainmenu selection " SEARCH BY HAZARD AND DAMAGE CONDITIONS ", the user can have combinations among the submenus. In this case after one submenu selection is complete the user will be asked if he/she wants to select more items for combination. If the user types "N" for NO, the program starts running and he/she user has to wait for the results. But if the user types "Y" for YES, he/she is given the opportunity to select another submenu through the same process as before. The total possible number of combinations among the submenu is nine.

```
*** SELECT THE RELEASE CRITERIA ***

   1 > RELEASE CIRCUMSTANCES
   2 > HAZARDOUS MATERIAL CLASS
   3 > ENVIRONMENTAL CONTAMINATION
   4 > EXIT CRITERIA SELECTION

SELECT MORE ITEMS FOR COMBINATION ( Y/N )   Y
SELECT ITEM OF COMBINATION REQUIRED
```

3.9. SESSION SIX : EXIT SEARCH SELECTION

If for some reason the user decides that he/she is not going to use the program, he/she may pull out of the mainmenu selection by typing "6" as following.

```
************     MAIN   SELECTION     **********

          1 >  SEARCH BY DATE
          2 >  SEARCH BY LOCATION
          3 >  SEARCH BY SCENE IDENTIFICATION
          4 >  SEARCH BY CAUSAL ELEMENTS
          5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
          6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH  6
```

3.10. DATABASE OUTPUT

Once the user has selected the combination of criteria required and the variable to look for in each selection the computer extracts the records meeting these criteria. After the extraction process is complete the records are listed for these criteria. A number of other fields which were not selected as part of the criteria are also listed. These are provided to inform the user of information like.

a. location of the incidents,

b. reporting agency information,

c. contract company,

d. agencies responding to the incidents,

e. agencies giving support and notified, and

f. percentage of total records with the selected criteria.

The output lists the records according the main menu selections. These are:

a. location of the incidents,

b. records satisfy the input criteria for general identification,

c. records satisfy the input criteria for Causal Elements, and

d. the Hazardous Material Class for the chemicals involved.

After giving the output in the previous format the computer will start giving summary statistics. These appear in a table form giving all the records in percentage.

Summary Statistics items include :

a. percentage for Light condition,

b. percentage for Weather condition,

c. percentage for Area type condition,

d. percentage for Surface condition,

e. percentage for Incident type,

f. percentage for Container type,

g. percentage for Site type,

h. percentage for Release Circumstances,

i. percentage for Hazardous Material Class,

j. percentage for the Damage Assessment, and

k. Total Human casualties involved in the selected criteria

If the combination of criteria selected do not give any record listing, then the output will give a statement saying that no records satisfy the selected criteria and return to the submenu for the user to select new criteria or to return to the main menu depending on the user's choice.

4. SAMPLE RUN:

In the following paragraphs a specific sample run will be discussed. But the user should realize that this example is only one of the many combinations that a person can choose.

4.1. PROBLEM STATEMENT:

It is required to search the database for hazardous materials incidents on the 15th day of the month of January in 1988.

4.2. PREPARING TO EXECUTE THE PROGRAM:

First of all the user should try to identify the specific criteria(s) for which a search is being made in the database. It is very clear from the problem statement that we should start searching the database with " SEARCH BY DATE ". Then in the submenu selection we have to make a combination of all the three options.

4.3. RUNNING THE PROGRAM:

When the user is in the dBASE III PLUS with the dot (.) prompt, he/she can start running the program by simply typing " .DO MAIN " and pressing <—┘. To " SEARCH BY DATE " the user has to select "1" in the main menu selection and press <—┘.

```
************     MAIN SELECTION     ************

        1 >  SEARCH BY DATE
        2 >  SEARCH BY LOCATION
        3 >  SEARCH BY SCENE IDENTIFICATION
        4 >  SEARCH BY CAUSAL ELEMENTS
        5 >  SEARCH BY HAZARD AND DAMAGE CONDITIONS
        6 >  EXIT SEARCH SELECTION

SELECT ITEM REQUIRED FOR SEARCH  1
```

In the submenu option of the mainmenu selection the user has to select option "1" to search " BY YEAR ". After selecting the year "1988" the program will ask the user whether he/she wants to select more items for combinations. By typing "Y" for YES, the user will have the option of selecting more items. Now the user has to choose "2" to search " BY MONTH ", which will give the codes for different months and again the user has to select "1" for " JANUARY ".

```
*** SELECTION OF CRITERIA BY DURATION ***

      1 > BY YEAR
      2 > BY MONTH
      3 > BY DAY
      4 > EXIT CRITERIA SELECTION

SELECT ITEM OF COMBINATION REQUIRED 1
```

```
SELECT THE YEAR TO SEARCH BY IN THE FORM 1987, 1988,..etc.
SELECT THE REQUIRED YEAR 1988
```

```
*** SELECTION OF CRITERIA BY DURATION ***

      1 > BY YEAR
      2 > BY MONTH
      3 > BY DAY
      4 > EXIT CRITERIA SELECTION

SELECT MORE ITEMS FOR COMBINATION ( Y/N ) Y
SELECT ITEM OF COMBINATION REQUIRED 2
```

After the option "2" is selected the user is given the different codes of the twelve months in a year, from which the user has to select "1" for " JANUARY " and press <—┘.

```
SELECT THE MONTH TO SEARCH BY IN THE FORM 1, 2, ....etc.

 JANUARY     1
 FEBRUARY    2
 MARCH       3
 APRIL       4
 MAY         5
 JUNE        6
 JULY        7
 AUGUST      8
 SEPTEMBER   9
 OCTOBER    10
 NOVEMBER   11
 DECEMBER   12

 SELECT THE REQUIRED MONTH  1
```

When the selection is complete, the program will again ask the user whether the user wants to select more items for combinations. After typing "Y" for YES the user has to select the option "3" to search " BY DAY ". Among the two options the user has to choose "1" again to make the search " BY DAY" of the month. According to the problem statement the day of the month is "15". After this the program will again ask the user whether he/she wants to add anything else for combination. Finally the user has to type "N" for NO and the program will start running.

```
*** SELECTION OF CRITERIA BY DURATION ***

        1 >  BY YEAR
        2 >  BY MONTH
        3 >  BY DAY
        4 >  EXIT CRITERIA SELECTION

SELECT MORE ITEMS FOR COMBINATION  ( Y/N )   Y
SELECT ITEM OF COMBINATION REQUIRED  3
```

```
        1  >  BY DAY
        2  >  BY DAY OF WEEK

SELECT THE DAY TYPE TO SEARCH BY  1
```

```
SELECT THE DAY TO SEARCH BY IN THE FORM   1,2,3, ...etc
SELECT THE REQUIRED DAY  15
```

```
*** SELECTION OF CRITERIA BY DURATION ***

      1 >  BY YEAR

      2 >  BY MONTH

      3 >  BY DAY

      4 >  EXIT CRITERIA SELECTION


SELECT MORE ITEMS FOR COMBINATION  ( Y/N )  N
```

LIST OF RECORDS OF THE SCENE IDENTIFICATION

FOR THE CRITERIA SELECTED

DATE	THE LIGHT CONDITION	THE FIRST WEATHER CONDITION	THE SECOND WEATHER CONDITION	THE AREA TYPE	THE SURFACE CONDITION
01/15/88	DAY	FAIR		RURAL/AGRIC	UNPAVED
01/15/88	DAY	FAIR		COMMERCIAL	PAVED
01/15/88	DARK	FAIR		RESIDENTIAL	UNPAVED
01/15/88	DAY	FAIR		INDUSTRIAL	PAVED

LIST OF RECORDS OF THE CAUSAL ELEMENTS

FOR THE CRITERIA SELECTED

DATE	THE INCIDENT TYPE	THE FIRST CONTAINER TYPE	THE SECOND CONTAINER TYPE
01/15/88	OTHER	PLASTIC DRUM	
01/15/88	LEAK	CYLINDER	
01/15/88	RELEASE	METAL DRUM	PLASTIC DRUM
01/15/88	FIRE	OTHER	

LIST OF RECORDS OF THE CAUSAL ELEMENTS

FOR THE CRITERIA SELECTED
(CONTINUED)

DATE	THE THIRD CONTAINER TYPE	THE FOURTH CONTAINER TYPE	THE SITE TYPE	THE TYPE OF INCIDENT SITE
01/15/88			FIXED	EASEMENT
01/15/88			FIXED	OFFICE
01/15/88			FIXED	VACANT LAND
01/15/88			FIXED	MFG.

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LIST OF RECORDS OF THE CAUSAL ELEMENTS

FOR THE CRITERIA SELECTED
(CONTINUED)

DATE	THE TYPE OF RELEASE CIRCUMSTANCE
01/15/88	UNAUTHORIZED DUMPING
01/15/88	DURING NORMAL END USE
01/15/88	WHILE ABANDONED
01/15/88	WHILE BEING MANUFACTURED

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THE LOCATION OF THE INCIDENT

FOR THE CRITERIA SELECTED

DATE	THE INCIDENT LOCATION
01/15/88	247 AVE., N/O DURANGO (100 YDS.)
01/15/88	7858 S. 35TH AVE., PHX
01/15/88	24813 W. WATKINS, BUCKEYE.
01/15/88	4310 E. BROADWAY

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LIST OF RECORDS OF THE HAZARDOUS MATERIAL

CLASS FOR THE CRITERIA SELECTED

DATE	THE FIRST HAZARDOUS MATERIAL CLASS	THE SECOND HAZARDOUS MATERIAL CLASS	THE THIRD HAZARDOUS MATERIAL CLASS
01/15/88	FLAMMABLE LIQUID	COMBUSTIBLE LIQUID	CORROSIVE
01/15/88	FLAMMABLE GAS		
01/15/88	POISON B	FLAMMABLE SOLID	
01/15/88	FLAMMABLE GAS		

LIST OF THE RESPONDING AGENCY

FOR THE CRITERIA SELECTED

DATE	THE RESPONDING AGENCIES
01/15/88	SHERIFF, CLEANUP CONTRACTOR
01/15/88	FIRE, HIRT TEAM
01/15/88	POLICE, DEQ, SHERIFF, CLEANUP CONTRACTOR
01/15/88	FIRE, POLICE, EMS, HIRT TEAM, DPS

LIST OF THE SUPPORTING AND NOTIFIED

AGENCIES FOR THE CRITERIA SELECTED

DATE	THE SUPPORTING AGENCIES	THE NOTIFIED AGENCIES
01/15/88	N/A OR N/D	HEALTH, EMS, DPS
01/15/88	N/A OR N/D	N/A OR N/D
01/15/88	ADES	N/A OR N/D
01/15/88	TOX./POISON CONTROL	DEQ, EPA

LIST OF RECORDS OF THE DAMAGE CONDITIONS

FOR THE CRITERIA SELECTED

DATE	THE DAMAGE ESTIMATE	ENVIRONMENTAL CONTAMINATION TYPE	THE FIRST DAMAGE ASSESSMENT	THE SECOND DAMAGE ASSESSMENT
01/15/88	$ 0-500000	PRIMARY	DESERT	
01/15/88	N/A OR N/D	N/A OR N/D	N/A OR N/D	
01/15/88	$ 0-500000	N/A OR N/D	N/A OR N/D	
01/15/88	UNKNOWN	PRIMARY	AIR	

LIST OF RECORDS OF THE COMMENTS

FOR THE CRITERIA SELECTED

DATE	COMMENTS
01/15/88	Az. Dept. of Environmental Quality responded to scene. Chemicals involved in illegal drug lab, - Ethl Ether Anhydrous, Petroleum Ether, Hydrochloric Acid. Company contact is Not Determined - unknown origin. See supplement attached.
01/15/88	Leaking propane cylinder, leak secured, HIRT TEAM cancelled enroute.
01/15/88	Abandoned drug lab.
01/15/88	This was a fire on the roof in a scrubber.

THE PERCENTAGES FOR THE LIGHT CONDITION

CONDITION	NUMBER	PERCENTAGE
DAWN	0	0.00
DAY	3	75.00
DUSK	0	0.00
DARK	1	25.00
N/A OR N/D	0	0.00
UNKNOWN	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE WEATHER CONDITION

CONDITION	NUMBER	PERCENTAGE
FOG	0	0.00
RAIN	0	0.00
SNOW	0	0.00
WIND	0	0.00
DUST	0	0.00
HOT	0	0.00
COLD	0	0.00
FAIR	4	100.00
N/A OR N/D	0	0.00
UNKNOWN	0	0.00
OTHER	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE AREA TYPE

TYPE	NUMBER	PERCENTAGE
INDUSTRIAL	1	25.00
COMMERCIAL	1	25.00
RESIDENTIAL	1	25.00
RURAL/AGRIC	1	25.00
WILDLANDS	0	0.00
N/A OR N/D	0	0.00
OTHER	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE SURFACE CONDITION

CONDITION	NUMBER	PERCENTAGE
PAVED	2	50.00
UNPAVED	2	50.00
SLIPPERY	0	0.00
ROUGH	0	0.00
ROAD CONSTRUC.	0	0.00
N/A OR N/D	0	0.00
OTHER	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE INCIDENT TYPE

TYPE	NUMBER	PERCENTAGE
FIRE	1	25.00
SPILL	0	0.00
LEAK	1	25.00
RELEASE	1	25.00
EXPLOSION	0	0.00
REACTION	0	0.00
PICKUP	0	0.00
ACCID. W/O	0	0.00
N/A OR N/D	0	0.00
OTHER	1	25.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE CONTAINER TYPE

TYPE	NUMBER	PERCENTAGE
ANY BOTTLE TYPE	0	0.00
PLASTIC BOTTLE TYPE	0	0.00
PAIL	0	0.00
BAG	0	0.00
CYLINDER	1	20.00
FIBERBOARD DRUM	0	0.00
METAL DRUM	1	20.00
PLASTIC DRUM	2	40.00
CARBOY	0	0.00
ALUMINIUM PORT TANK	0	0.00
STEEL PORT TANK	0	0.00
ALUMIN. STORAGE TANK	0	0.00
PLASTIC STORAGE TANK	0	0.00
STEEL STORAGE TANK	0	0.00
PIPELINE	0	0.00
FIXED SYSTEM	0	0.00
HOPR. CAR	0	0.00
N/A OR N/D	0	0.00
OTHER	1	20.00
TOTAL	5	100.00

THE PERCENTAGES FOR THE SITE TYPE

TYPE	NUMBER	PERCENTAGE
PASSENGER / P.U.	0	0.00
TANK TRUCK	0	0.00
FREIGHT VAN	0	0.00
FLATBED	0	0.00
RAILROAD BOX	0	0.00
RAILROAD FLAT	0	0.00
RAILROAD TANK	0	0.00
AIRCRAFT	0	0.00
GARBAGE/TRASH TRUCK	0	0.00
AIRPORT	0	0.00
RESIDENCE	0	0.00
TANK FARM	0	0.00
TRUCK TERM	0	0.00
RAILROAD YARD	0	0.00
LAB	0	0.00
MFG	1	25.00
OFFICE	1	25.00
REFINERY	0	0.00
SERVICE STATION	0	0.00
STORAGE	0	0.00
EASEMENT	1	25.00
VACANT LAND	1	25.00
WATER	0	0.00
SCHOOL	0	0.00
HOSPITAL	0	0.00
LANDFILL	0	0.00
N/A OR N/D	0	0.00
UNKNOWN	0	0.00
OTHER	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE RELEASE CIRCUMSTANCE

CIRCUMSTANCE	NUMBER	PERCENTAGE
WHILE BEING MANUFACTURED	1	25.00
WHILE IN STORAGE	0	0.00
DURING NORMAL END USE	1	25.00
WHILE BEING LOADED	0	0.00
WHILE BEING UNLOADED	0	0.00
DURING CAR CONNECT	0	0.00
DURING CAR DISCONNECT	0	0.00
WHILE IN TRANSIT	0	0.00
DURING CAR DERAILMENT	0	0.00
WHILE VEHICLE PARKED	0	0.00
DURING VEHICLE ACCIDENT	0	0.00
DURING FIRE/EXPLOSION	0	0.00
DURING AIR CRASH	0	0.00
WHILE ABANDONED	1	25.00
UNAUTHORIZED DUMPING	1	25.00
REPAIR/MAINT. OPERATIONS	0	0.00
CONTAINER FAILURE	0	0.00
THIRD PARTY DAMAGE	0	0.00
N/A OR N/D	0	0.00
UNKNOWN	0	0.00
OTHER	0	0.00
TOTAL	4	100.00

THE PERCENTAGES FOR THE HAZARDOUS MATERIAL CLASS

CLASS TYPE	NUMBER	PERCENTAGE
EXPLOSIVE	0	0.00
BLASTING AGENT	0	0.00
POISON A	0	0.00
POISON B	1	14.29
RADIOACTIVE	0	0.00
CHLORINE	0	0.00
AMMONIA	0	0.00
OXIDIZER	0	0.00
ORGANIC PEROXIDE	0	0.00
FLAMMABLE GAS	2	28.57
NON-FLAMMABLE GAS	0	0.00
FLAMMABLE LIQUID	1	14.29
COMBUSTIBLE LIQUID	1	14.29
FLAMMABLE SOLID	1	14.29
CORROSIVE	1	14.29
ETIOLOGIC AGENT	0	0.00
N/A OR N/D	0	0.00
OTHER	0	0.00
TOTAL	7	100.00

THE PERCENTAGES FOR THE DAMAGE ASSESSMENT

DAMAGE AREA	NUMBER	PERCENTAGE
AIR	1	25.00
WATERWAY	0	0.00
LAKE / POND	0	0.00
HARBOR	0	0.00
SOIL	0	0.00
CROPS	0	0.00
LIVESTOCK	0	0.00
WILDLIFE	0	0.00
WOODED AREA	0	0.00
DESERT	1	25.00
BRUSHLAND	0	0.00
N/A OR N/D	2	50.00
OTHER	0	0.00
TOTAL	4	100.00

TOTAL QUANTITIES INVOLVED IN INCIDENTS SELECTED

	GAL	LBS	CFT
LOAD	500	500	0
QTY. INVOLVED	500	500	0
QTY. EXPOSED	0	0	0

TOTAL HUMAN CASUALTIES INVOLVED IN THE SELECTED CRITERIA

	FATALITIES	INJURIES	EVACUATED	DECONTAMIN.
RESPONDER CASUALTIES	0	0	0	8
WORKER CASUALTIES	0	0	0	0
PUBLIC CASUALTIES	0	0	0	0