

THE FIRE HISTORY TABULATOR

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TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| Introduction | 1 |
| Input Data Required | 1 |
| Fire Hours | 2 |
| User Options | 3 |
| Weather | 4 |
| Discussion | 4 |
| Appendix A Tabulator Tables | 5 |
| Appendix B Explanation of Terms Used | 35 |
| Appendix C Examples of Tabulator Tables | 37 |
| Appendix D Examples of Used Input Classes | 45 |
| Appendix E Maximum Values of Classes | 49 |

INTRODUCTION

Forest fire control agencies in Canada keep records of fire occurrences. Generally, these records summarize the characteristics of individual forest fires and are often stored on a computer-oriented device, usually magnetic tape. From these records, a computer program can accumulate and analyze the fire data and can generate fire distribution tables. The fire history tabulator program (TABULA) was developed to perform such a function.

Information is required for evaluation, planning, and research. TABULA generates information; the number of fires and acreage burned by cause, cover, and detecting agent, as well as fire hour, fire weather, and size class comparisons are typical statistics obtained for areas ranging from individual stations to Provinces. The 460 tables generated provide a fairly complete description of the fire history of the given study area; an information base useful in both fire management and fire research.

The tabulator tables are presentations of facts. The tables can be analysed, compared, and evaluated to assist in determining the following factors:

- 1) the effectiveness of the fire control operations
- 2) the severity of one fire season as related to past periods
- 3) the planning areas that require future concentration
- 4) the trends and patterns of fire occurrence
- 5) the relationships of various fire functions

The fire history tabulator is a modular computer program. It consists of a number of subroutines, each performing distinct and separate functions. The segregation of functions makes the program flexible in that functions may be added or deleted without major modification to the program structure.

Different fire management agencies use different storage formats and retain different information in the records. Thus, the first module in TABULA is a data decoder. A special decoder, which modifies the input data to conform to the requirements of TABULA, is written for each agency using the program. In this way, TABULA is kept as general as possible.

Input Data Required

The program uses the following items from the fire report data:

- 1) Forest location number¹
- 2) District number¹
- 3) Division number¹
- 4) Ignition time², day, and month
- 5) Detection time, day, month, and year
- 6) Attack (or Suppression Start) time, day, and month
- 7) Control time, day, and month
- 8) Action stop (out) time, day, and month

1. The terminology varies between agencies.

2. Time on the 24-hour clock; i.e., 2:25 = 14:25.

- 9) Detection area³
- 10) Attack area
- 11) Control area
- 12) Final area
- 13) Cause
- 14) Cover (fuel types)
- 15) Detecting agency
- 16) Fine fuel moisture code (FFMC)⁴
- 17) Drought code (DC)
- 18) Initial spread index (ISI)
- 19) Adjusted duff moisture code (ADMC)
- 20) Fire weather index (FWI)
- 21) Bearing from nearest forestry station⁵
- 22) Distance from nearest forestry station⁵
- 23) Total cost
- 24) Total damage

In many cases, a complete set of these statistics is not available from agency records. In these instances, the decoder module bypasses the data and the associated tables cannot be generated. For example, if the fire weather index codes (items 16-20) are not available, the program cannot produce tables dealing with these codes.

Fire Hours:

There is no completely acceptable measure of the severity of a fire season. The common measures - acres burned, estimated monetary damage, number of fires, size of fires, growth of fires, etc. - all have limiting shortcomings, particularly when applied in specific cases. For example, two seasons may have the same number of fires but differ markedly in acreage burned or in estimated monetary damage. There is no clear answer as to which was the more severe, although it is clear that they differed in severity.

This measurement difficulty arises, in part, from attempting to measure a multi-dimensional situation with a one-dimensional yardstick. Just as a cube has length, width, and height, so does a fire season have temporal length, number of fires, intensity of fires, and distribution of fires. Any of these fire season dimensions affects the performance of the fire management agency and thus reflects, to some degree, the severity of the season relative to the continuing capabilities of the agency.

A part of the motivation which led to TABULA was to evaluate a "fire hour" measure of season severity. We assume four significant time periods in the history of a fire. These are:

1. FH4 - the time (in hours and tenths of hours) from ignition to time of detection.
2. FH3 - the time from detection to attack.
3. FH2 - the time from attack to control.
4. FH1 - the total time from ignition to control.

3. Area is in acres and tenths of an acre.

4. Fire weather indices are from the nearest weather station.

5. Computed as necessary within TABULA.

Several sets of tables generated in TABULA provide information regarding fire hours relative to locations or to other, more conventional measures of season severity. Although such data may be of little current use to the operating fire manager, further analysis may well lead to improved measures of fire season severity.

User Options:

The TABULA user can specify a variety of data classes in the program and, in this way, has the flexibility to tailor the program to meet the needs of his area. The usual terms used are defined in Appendix B and typical examples of class specifications are given in Appendix D.

The classes which are user-specified include:

1. Number of stations
2. Cause classes
3. Cover (fuel type)
4. Detecting agent
5. Size classes
6. Elapsed Times
7. Months desired
8. Periods desired
9. Distance classes
10. Sector classes
11. FFMC classes
12. DC classes
13. ISI classes
14. ADMC classes
15. FWI classes

TABULA produces 460 tables. These are divided into sixteen sets; each set describes a general area of fire distributions. For example, set 12 analyzes fire weather indices by station while set 15 analyzes fire cost data under several classifications. A list of tables available is shown in Appendix A.

All possible tables need not be printed in each run of TABULA. The user can set parameters to obtain:

- 1) all tables
- 2) any combination of sets of tables
- 3) any individual tables
- 4) any combination of the above

Examples of tables which can be generated are given in Appendix C. Each table contains both the information requested and a count of the total entries in the table relative to the total number of fire reports searched.

Weather

Much of the program section dealing with weather analysis is based on an earlier program written by Dr. P.H. Kourtz⁶ of the Forest Fire Research Institute. Although the Kourtz' program was extensively modified to adapt it to the modular form, the underlying logic remained unchanged.

Discussion

The program was designed to run on a large computer such as the Univac 1108 and requires approximately 50,000 storage locations. In a test run in which 780 fire reports were processed and all the tables were generated, the total cost was about \$35.00. Since the program was designed to provide a year-end fire history summary, this is a reasonable cost level.

The Tabulator program is available for use. A technical manual and deck listing will be published shortly. In the interim, any interested fire control agency can contact the Forest Fire Research Institute for further information or for technical assistance in putting TABULA on line.

6. A computer program to summarize forest fire report data - designed to assist in detection system evaluation and planning. Information Report No. FF-X-31. (1971)

APPENDIX A

THE TABULATOR TABLES

SET 1

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 1 | 1 | 1 | Station versus hour of ignition |
| | | 2 | " " " " hour of detection |
| | | 3 | " " " " hour of attack |
| | | 4 | " " " " hour of control |
| 1 | 2 | 1 | Detecting agency versus hour of ignition |
| | | 2 | " " " " " " hour of detection |
| | | 3 | " " " " " " hour of attack |
| | | 4 | " " " " " " hour of control |
| 1 | 3 | 1 | Cause versus hour of ignition |
| | | 2 | " " " hour of detection |
| | | 3 | " " " hour of attack |
| | | 4 | " " " hour of control |
| 1 | 4 | 1 | Cover versus hour of ignition |
| | | 2 | " " " hour of detection |
| | | 3 | " " " hour of attack |
| | | 4 | " " " hour of control |
| 1 | 5 | 1 | Control size versus hour of ignition |
| | | 2 | " " " " " hour of detection |
| | | 3 | " " " " " hour of attack |
| | | 4 | " " " " " hour of control |

NOTE: *The values of KDIVIS, ISECT, and ITABLE are parameters, that are used to obtain individual tables and sets of tables.*

SET 2

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---|---|
| 2 | 1 | 1 | Station versus fires by elapsed time to detect (FH4) |
| | | 2 | " " " " fires by elapsed time to attack (FH3) |
| | | 3 | " " " " fires by elapsed time to suppress (FH2) |
| | | 4 | " " " " fires by elapsed time to control (FH1) |
| | 2 | 1 | Detecting agency versus fires by elapsed time to detect (FH4) |
| | | 2 | " " " " " " " " fires by elapsed time to attack (FH3) |
| | | 3 | " " " " " " " " fires by elapsed time to suppress (FH2) |
| | | 4 | " " " " " " " " fires by elapsed time to control (FH1) |
| | 3 | 1 | Causes versus fires by elapsed time to detect (FH4) |
| | | 2 | " " " " fires by elapsed time to attack (FH3) |
| | | 3 | " " " " fires by elapsed time to suppress (FH2) |
| | | 4 | " " " " fires by elapsed time to control (FH1) |
| | 4 | 1 | Cover versus fires by elapsed time to detect (FH4) |
| | | 2 | " " " " fires by elapsed time to attack (FH3) |
| | | 3 | " " " " fires by elapsed time to suppress (FH2) |
| | | 4 | " " " " fires by elapsed time to control (FH1) |
| 5 | 1 | Control size versus fires by elapsed time to detect (FH4) | |
| | 2 | " " " " " " fires by elapsed time to attack (FH3) | |
| | 3 | " " " " " " fires by elapsed time to suppress (FH2) | |
| | 4 | " " " " " " fires by elapsed time to control (FH1) | |

SET 3

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 3 | 1 | 1 | Station versus fires by size at detection |
| | | 2 | " " " " fires by size at attack |
| | | 3 | " " " " fires by size at control |
| | 2 | 1 | Detecting agency versus fires by size at detection |
| | | 2 | " " " " " " " fires by size at attack |
| | | 3 | " " " " " " " fires by size at control |
| | 3 | 1 | Causes versus fires by size at detection |
| | | 2 | " " " " fires by size at attack |
| | | 3 | " " " " fires by size at control |
| | 4 | 1 | Cover versus fires by size at detection |
| | | 2 | " " " fires by size at attack |
| | | 3 | " " " fires by size at control |
| | 5 | 1 | Control size versus fires by size at detection |
| | | 2 | " " " " " fires by size at attack |

SET 4

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 4 | 1 | 1 | Station versus FH4 by size at detection |
| | | 2 | " " " " FH3 by size at detection |
| | | 3 | " " " " FH2 by size at detection |
| | | 4 | " " " " FH1 by size at detection |
| | | 5 | Station versus FH4 by size at attack |
| | | 6 | " " " " FH3 by size at attack |
| | | 7 | " " " " FH2 by size at attack |
| | | 8 | " " " " FH1 by size at attack |
| | | 9 | Station versus FH4 by size at control |
| | | 10 | " " " " FH3 by size at control |
| | | 11 | " " " " FH2 by size at control |
| | | 12 | " " " " FH1 by size at control |
| | 2 | 1 | Detecting agency versus FH4 by size at detection |
| | | 2 | " " " " " " " FH3 by size at detection |
| | | 3 | " " " " " " " FH2 by size at detection |
| | | 4 | " " " " " " " FH1 by size at detection |
| | | 5 | Detecting agency versus FH4 by size at attack |
| | | 6 | " " " " " " " FH3 by size at attack |
| | | 7 | " " " " " " " FH2 by size at attack |
| | | 8 | " " " " " " " FH1 by size at attack |
| | | 9 | Detecting agency versus FH4 by size at control |
| | | 10 | " " " " " " " FH3 by size at control |
| | | 11 | " " " " " " " FH2 by size at control |
| | | 12 | " " " " " " " FH1 by size at control |

SET 4

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|---------------------------------------|
| 4 | 3 | 1 | Cause versus FH4 by size at detection |
| | | 2 | " " " " FH3 by size at detection |
| | | 3 | " " " " FH2 by size at detection |
| | | 4 | " " " " FH1 by size at detection |
| | | 5 | Cause versus FH4 by size at attack |
| | | 6 | " " " " FH3 by size at attack |
| | | 7 | " " " " FH2 by size at attack |
| | | 8 | " " " " FH1 by size at attack |
| | | 9 | Cause versus FH4 by size at control |
| | | 10 | " " " " FH3 by size at control |
| | | 11 | " " " " FH2 by size at control |
| | | 12 | " " " " FHL by size at control |
| | 4 | 1 | Cover versus FH4 by size at detection |
| | | 2 | " " " " FH3 by size at detection |
| | | 3 | " " " " FH2 by size at detection |
| | | 4 | " " " " FH1 by size at detection |
| | | 5 | Cover versus FH4 by size at attack |
| | | 6 | " " " " FH3 by size at attack |
| | | 7 | " " " " FH2 by size at attack |
| | | 8 | " " " " FH1 by size at attack |
| | | 9 | Cover versus FH4 by size at control |
| | | 10 | " " " " FH3 by size at control |
| | | 11 | " " " " FH2 by size at control |
| | | 12 | " " " " FH1 by size at control |

SET 4

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 4 | 5 | 1 | Control size versus FH4 by size at detection |
| | | 2 | " " " " " FH3 by size at detection |
| | | 3 | " " " " " FH2 by size at detection |
| | | 4 | " " " " " FH1 by size at detection |
| | | 5 | Control size versus FH4 by size at attack |
| | | 6 | " " " " " FH3 by size at attack |
| | | 7 | " " " " " FH2 by size at attack |
| | | 8 | " " " " " FH1 by size at attack |

SET 5

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|---|
| 5 | 1 | 1 | Station versus average FH4/fire by size at detection |
| | | 2 | " " " " average FH3/fire by size at detection |
| | | 3 | " " " " average FH2/fire by size at detection |
| | | 4 | " " " " average FH1/fire by size at detection |
| | | 5 | Station versus average FH4/fire by size at attack |
| | | 6 | " " " " average FH3/fire by size at attack |
| | | 7 | " " " " average FH2/fire by size at attack |
| | | 8 | " " " " average FH1/fire by size at attack |
| | | 9 | Station versus average FH4/fire by size at control |
| | | 10 | " " " " average FH3/fire by size at control |
| | | 11 | " " " " average FH2/fire by size at control |
| | | 12 | " " " " average FH1/fire by size at control |
| | 2 | 1 | Detecting agency versus average FH4/fire by size at detection |
| | | 2 | " " " " " " average FH3/fire by size at detection |
| | | 3 | " " " " " " average FH2/fire by size at detection |
| | | 4 | " " " " " " average FH1/fire by size at detection |
| | | 5 | Detecting agency versus average FH4/fire by size at attack |
| | | 6 | " " " " " " average FH3/fire by size at attack |
| | | 7 | " " " " " " average FH2/fire by size at attack |
| | | 8 | " " " " " " average FH1/fire by size at attack |
| | | 9 | Detecting agency versus average FH4/fire by size at control |
| | | 10 | " " " " " " average FH3/fire by size at control |
| | | 11 | " " " " " " average FH2/fire by size at control |
| | | 12 | " " " " " " average FH1/fire by size at control |

SET 5

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 5 | 3 | 1 | Cause versus average FH4/fire by size at detection |
| | | 2 | " " " " average FH3/fire by size at detection |
| | | 3 | " " " " average FH2/fire by size at detection |
| | | 4 | " " " " average FH1/fire by size at detection |
| | | 5 | Cause versus average FH4/fire by size at attack |
| | | 6 | " " " " average FH3/fire by size at attack |
| | | 7 | " " " " average FH2/fire by size at attack |
| | | 8 | " " " " average FH1/fire by size at attack |
| | | 9 | Cause versus average FH4/fire by size at control |
| | | 10 | " " " " average FH3/fire by size at control |
| | | 11 | " " " " average FH2/fire by size at control |
| | | 12 | " " " " average FH1/fire by size at control |
| 4 | 4 | 1 | Cover versus average FH4/fire by size at detection |
| | | 2 | " " " " average FH3/fire by size at detection |
| | | 3 | " " " " average FH2/fire by size at detection |
| | | 4 | " " " " average FH1/fire by size at detection |
| | | 5 | Cover versus average FH4/fire by size at attack |
| | | 6 | " " " " average FH3/fire by size at attack |
| | | 7 | " " " " average FH2/fire by size at attack |
| | | 8 | " " " " average FH1/fire by size at attack |
| | | 9 | Cover versus average FH4/fire by size at control |
| | | 10 | " " " " average FH3/fire by size at control |
| | | 11 | " " " " average FH2/fire by size at control |
| | | 12 | " " " " average FH1/fire by size at control |

SET 5

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|---|
| 5 | 5 | 1 | Control size versus average FH4/fire by size at detection |
| | | 2 | " " " " " average FH3/fire by size at detection |
| | | 3 | " " " " " average FH2/fire by size at detection |
| | | 4 | " " " " " average FH1/fire by size at detection |
| | | 5 | Control size versus average FH4/fire by size at attack |
| | | 6 | " " " " " average FH3/fire by size at attack |
| | | 7 | " " " " " average FH2/fire by size at attack |
| | | 8 | " " " " " average FH1/fire by size at attack |

SET 6

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 6 | 1 | 1 | Station versus fires by detecting agency |
| | | 2 | " " " " fires by cause |
| | | 3 | " " " " fires by cover |
| | | 4 | " " " " fires by month |
| | 2 | 5 | Detecting agency versus fires by cause |
| | | 6 | " " " " " " " " fires by cover |
| | | 7 | " " " " " " " " fires by month |
| | 3 | 8 | Cause versus fires by cover |
| | | 9 | " " " "fires by month |
| | 4 | 10 | Cover versus fires by month |
| | 5 | 11 | Control size versus fires by month |

SET 7

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 7 | 1 | 1 | Station versus FHl by detecting agency |
| | | 2 | " " " " FHl by cause |
| | | 3 | " " " " FHl by cover |
| | | 4 | " " " " FHl by month |
| | 2 | 5 | Detection agency versus FHl by cause |
| | | 6 | " " " " " " " FHl by cover |
| | | 7 | " " " " " " " FHl by month |
| | 3 | 8 | Cause versus FHl by cover |
| | | 9 | " " " FHl by month |
| | 4 | 10 | Cover versus FHl by month |
| | 5 | 11 | Control size versus FHl by month |

SET 8

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 8 | 1 | 1 | Total number of fires/station |
| | | 2 | Total number of FH4/station |
| | | 3 | Total number of FH3/station |
| | | 4 | Total number of FH2/station |
| | | 5 | Total number of FH1/station |
| | | 6 | Average FH4/fire/station |
| | | 7 | Average FH3/fire/station |
| | | 8 | Average FH1/fire/station |
| | 2 | 1 | Station versus number of fires by period classes |
| | | 2 | " " " " per cent of fires by period classes |
| | | 3 | " " " " FH1 by period classes |
| | | 4 | " " " " per cent of FH1 by period classes |
| | | 5 | " " " " average FH1/fire by period classes |
| | 3 | 1 | Station versus number of fires by distance classes |
| | | 2 | " " " " per cent of fires by distance classes |
| | | 3 | " " " " FH1 by distance classes |
| | | 4 | " " " " per cent of FH1 by distance classes |
| | | 5 | " " " " average FH1/fire by distance classes |
| | 4 | 1 | Station versus number of fires by sector classes |
| | | 2 | " " " " per cent of fires by sector classes |
| | | 3 | " " " " FH1 by sector classes |
| | | 4 | " " " " per cent of FH1 by sector classes |
| | | 5 | " " " " average FH1/fire by sector classes |

SET 9

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|-------------------------------------|
| 9 | 1 | 1 | Fire acreage comparisons by station |
| | | 2 | " " " " " " by periods |
| | | 3 | " " " " " " by month |
| | | 4 | " " " " " " by cover |
| | | 5 | " " " " " " by cause |
| | | 6 | " " " " " " by detecting agency |
| | | 7 | " " " " " " by control size |

SET 10

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 10 | 1 | 1 | FFMC versus fires by hour of ignition |
| | | 2 | DC " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " |
| | 2 | 1 | FFMC versus fires by hour of detection |
| | | 2 | DC " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " |
| | 3 | 1 | FFMC versus fires by hour of attack |
| | | 2 | DC " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " |
| | 4 | 1 | FFMC versus fires by hour of control |
| | | 2 | DC " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " |

SET 11

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|---|
| 11 | 1 | 1 | FFMC versus fires by cause |
| | | 2 | DC " " " " " |
| | | 3 | ISI " " " " " |
| | | 4 | ADMC " " " " " |
| | | 5 | FWI " " " " " |
| | 2 | 1 | FFMC versus fires by cover type |
| | | 2 | DC " " " " " " |
| | | 3 | ISI " " " " " " |
| | | 4 | ADMC " " " " " " |
| | | 5 | FWI " " " " " " |
| | 3 | 1 | FFMC versus fires by detecting agency |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 4 | 1 | FFMC versus fires by month |
| | | 2 | DC " " " " " |
| | | 3 | ISI " " " " " |
| | | 4 | ADMC " " " " " |
| | | 5 | FWI " " " " " |
| | 5 | 1 | FFMC versus fires by elapsed time to detect |
| | | 2 | DC " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " |

SET 11

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|---|
| 11 | 6 | 1 | FFMC versus fires by elapsed time to attack |
| | | 2 | DC " " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " " |
| | 7 | 1 | FFMC versus fires by elapsed time to suppress |
| | | 2 | DC " " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " " |
| | 8 | 1 | FFMC versus fires by elapsed time to control |
| | | 2 | DC " " " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " " " |

SET 12

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|------------------------------|
| 12 | 1 | 1 | FFMC versus fires by station |
| | | 2 | DC " " " " " " |
| | | 3 | ISI " " " " " " |
| | | 4 | ADMC " " " " " " |
| | | 5 | FWI " " " " " " |

SET 13

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|--|
| 13 | 1 | 1 | FFMC versus fires by size at detection |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 2 | 1 | FFMC versus fires by size at attack |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 3 | 1 | FFMC versus fires by size at control |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |

SET 14

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|-----------------------------------|--------------------------------------|
| 14 | 1 | 1 | FFMC versus FH4 by size at detection |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 2 | 1 | FFMC versus FH3 by size at detection |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 3 | 1 | FFMC versus FH2 by size at detection |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 4 | 1 | FFMC versus FH1 by size at detection |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| 5 | 1 | FFMC versus FH4 by size at attack | |
| | 2 | DC " " " " " " " " | |
| | 3 | ISI " " " " " " " " | |
| | 4 | ADMC " " " " " " " " | |
| | 5 | FWI " " " " " " " " | |

SET 14

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|------------------------------------|
| 14 | 6 | 1 | FFMC versus FH3 by size at attack |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 7 | 1 | FFMC versus FH2 by size at attack |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 8 | 1 | FFMC versus FH1 by size at attack |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 9 | 1 | FFMC versus FH4 by size at control |
| | | 2 | DC " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " |
| | 10 | 1 | FFMC versus FH3 by size at control |
| | | 2 | DC " " " " " " " " " |
| | | 3 | ISI " " " " " " " " " |
| | | 4 | ADMC " " " " " " " " " |
| | | 5 | FWI " " " " " " " " " |

SET 14

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|------------------------------------|
| 14 | 11 | 1 | FFMC versus FH2 by size at control |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |
| | 12 | 1 | FFMC versus FH1 by size at control |
| | | 2 | DC " " " " " " " " |
| | | 3 | ISI " " " " " " " " |
| | | 4 | ADMC " " " " " " " " |
| | | 5 | FWI " " " " " " " " |

SET 15

| <u>KDIVIS</u> | <u>Isect</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|--|--|
| 15 | 1 | 1 | Cost versus hour of ignition |
| | | 2 | " " hour of detection |
| | | 3 | " " hour of attack |
| | | 4 | " " hour of control |
| | 2 | 1 | Cost versus elapsed time to detect (FH4) |
| | | 2 | " " elapsed time to attack (FH3) |
| | | 3 | " " elapsed time to suppress (FH2) |
| | | 4 | " " elapsed time to control (FH1) |
| | 3 | 1 | Cost versus fires by station |
| | | 2 | " " fires by cover |
| | | 3 | " " fires by cause |
| | | 4 | " " fires by detecting agency |
| 5 | | " " fires by month | |
| 4 | 1 | Cost versus fires by size at detection | |
| | 2 | " " fires by size at attack | |
| | 3 | " " fires by size at control | |
| 5 | 1 | Cost versus FH1 by station | |
| | 2 | " " FH1 by cover | |
| | 3 | " " FH1 by cause | |
| | 4 | " " FH1 by detecting agency | |
| | 5 | " " FH1 by month | |
| 6 | 1 | Cost versus FH4 by size at detection | |
| | 2 | " " FH3 by size at detection | |
| | 3 | " " FH2 by size at detection | |
| | 4 | " " FH1 by size at detection | |

SET 15

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | |
|---------------|--------------|---|---|
| 15 | 7 | 1 | Cost versus FH4 by size at attack |
| | | 2 | " " FH3 by size at attack |
| | | 3 | " " FH2 by size at attack |
| | | 4 | " " FH1 by size at attack |
| | 8 | 1 | Cost versus FH4 by size at control |
| | | 2 | " " FH3 by size at control |
| | | 3 | " " FH2 by size at control |
| | | 4 | " " FH1 by size at control |
| | 9 | 1 | Cost versus average FH4/fire by size at detection |
| | | 2 | " " " FH3/fire by size at detection |
| | | 3 | " " " FH2/fire by size at detection |
| | | 4 | " " " FH1/fire by size at detection |
| | 10 | 1 | Cost versus average FH4/fire by size at attack |
| | | 2 | " " " FH3/fire by size at attack |
| | | 3 | " " " FH2/fire by size at attack |
| | | 4 | " " " FH1/fire by size at attack |
| 11 | 1 | Cost versus average FH4/fire by size at control | |
| | 2 | " " " FH3/fire by size at control | |
| | 3 | " " " FH2/fire by size at control | |
| | 4 | " " " FH1/fire by size at control | |
| 12 | 1 | Cost versus fire acreage comparisons | |

SET 15

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRITPION</u> |
|---------------|--------------|---------------|---------------------------|
| 15 | 13 | 1 | Cost versus fires by FFMC |
| | | 2 | " " fires by DC |
| | | 3 | " " fires by ISI |
| | | 4 | " " fires by ADMC |
| | | 5 | " " fires by FWI |

SET 16

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|------------------------------|--|
| 16 | 1 | 1 | Damage versus hour of ignition |
| | | 2 | " " hour of detection |
| | | 3 | " " hour of attack |
| | | 4 | " " hour of control |
| | 2 | 1 | Damage versus elapsed time to detect (FH4) |
| | | 2 | " " elapsed time to attack (FH3) |
| | | 3 | " " elapsed time to suppress (FH2) |
| | | 4 | " " elapsed time to control (FH1) |
| | 3 | 1 | Damage versus fires by station |
| | | 2 | " " fires by cover |
| | | 3 | " " fires by cause |
| | | 4 | " " fires by detecting agency |
| | | 5 | " " fires by month |
| | 4 | 1 | Damage versus fires by size at detection |
| | | 2 | " " fires by size at attack |
| | | 3 | " " fires by size at control |
| | 5 | 1 | Damage versus FH1 by station |
| | | 2 | " " FH1 by cover |
| | | 3 | " " FH1 by cause |
| | | 4 | " " FH1 by detecting agency |
| | | 5 | " " FH1 by month |
| | 6 | 1 | Damage versus FH4 by size at detection |
| | | 2 | " " FH3 by size at detection |
| | | 3 | " " FH2 by size at detection |
| 4 | | " " FH1 by size at detection | |

SET 16

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---|---|
| 16 | 7 | 1 | Damage versus FH4 by size at attack |
| | | 2 | " " FH3 by size at attack |
| | | 3 | " " FH2 by size at attack |
| | | 4 | " " FH1 by size at attack |
| | 8 | 1 | Damage versus FH4 by size at control |
| | | 2 | " " FH3 by size at control |
| | | 3 | " " FH2 by size at control |
| | | 4 | " " FH1 by size at control |
| | 9 | 1 | Damage versus average FH4/fire by size at detection |
| | | 2 | " " " FH3/fire by size at detection |
| | | 3 | " " " FH2/fire by size at detection |
| | | 4 | " " " FH1/fire by size at detection |
| | 10 | 1 | Damage versus average FH4/fire by size at attack |
| | | 2 | " " " FH3/fire by size at attack |
| | | 3 | " " " FH2/fire by size at attack |
| | | 4 | " " " FH1/fire by size at attack |
| 11 | 1 | Damage versus average FH4/fire by size at control | |
| | 2 | " " " FH3/fire by size at control | |
| | 3 | " " " FH2/fire by size at control | |
| | 4 | " " " FH1/fire by size at control | |
| 12 | 1 | Damage versus fire acreage comparisons | |

SET 16

| <u>KDIVIS</u> | <u>ISECT</u> | <u>ITABLE</u> | <u>TABLE DESCRIPTION</u> |
|---------------|--------------|---------------|-----------------------------|
| 16 | 13 | 1 | Damage versus fires by FFMC |
| | | 2 | " " fires by DC |
| | | 3 | " " fires by ISI |
| | | 4 | " " fires by ADMC |
| | | 5 | " " fires by FWI |

APPENDIX B

Explanation of Terms Used

1. FH - refers to fire hours expressed in hours and tenths of an hour.
 - a) FH4 - the number of fire hours from ignition time to time of detection.
 - b) FH3 - the number of fire hours from detection time to time of attack.
 - c) FH2 - the number of fire hours from attack time to time of control.
 - d) FH1 - the number of fire hours from detection time to time of control
2. Fire data - is the information on the individual fire report forms.
3. Elapse time class - is an hour class category. The program delegates the above four fire hours into the appropriate hour category for table comparisons.
 - a) Elapsed time to detect - the amount of time that passed between ignition and detection time.
 - b) Elapsed time to attack - the amount of time that passed between detection and attack time.
 - c) Elapsed time to suppress - the amount of time that passed between attack and control time.
 - d) Elapsed time to control - the amount of time that passed between detection and control time.
4. Period class - is the breakdown of a fire season into periods, that have so many days per period. (i.e., 300 days = 20 periods with 15 days/period).

5. Distance class - is the breakdown of the area around the stations into a number of concentric circle classes, with so many miles per circle. (i.e., 100 miles from station = 10 circles, with 10 miles per circle).
6. Sector Class - is the breakdown of the area around the stations into a number of study quadrants. (i.e., 180 degrees = 6 sectors with 30 degrees per sector).
7. Size class - is the breakdown of acres into a set of size categories.

APPENDIX C

EXAMPLES OF TABULATOR TABLES

CAUSE VS FIRES BY HOUR OF IGNITION

| CAUSE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | TOTAL |
|-------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| LIG | 4 | 10 | 20 | 14 | 20 | 12 | 20 | 9 | 8 | 8 | 17 | 11 | 25 | 7 | 14 | 17 | 9 | 9 | 16 | 1 | 20 | 10 | 10 | 15 | 324 |
| REC | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 6 | 6 | 8 | 22 | 40 | 13 | 10 | 17 | 12 | 10 | 10 | 3 | 0 | 0 | 0 | 0 | 165 |
| RES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 4 | 5 | 3 | 8 | 8 | 13 | 5 | 4 | 5 | 1 | 2 | 0 | 1 | 0 | 64 |
| MIS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 4 | 3 | 5 | 6 | 2 | 0 | 2 | 2 | 0 | 1 | 0 | 40 |
| RLY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 3 | 5 | 4 | 6 | 7 | 2 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 39 |
| IDF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| IDU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 1 | 5 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 19 |
| INC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| UNK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| MID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 4 | 10 | 20 | 14 | 20 | 12 | 20 | 16 | 16 | 30 | 35 | 51 | 82 | 44 | 44 | 56 | 37 | 28 | 32 | 11 | 24 | 10 | 12 | 15 | |

THIS TABLE WAS REFERENCED 662 00- OF A POSSIBLE 780 TIMES

FFMC VS FIRES BY CAUSE

| FFMC | LTG | KEC | RFS | MTS | RLY | IDF | IDO | INC | UNK | MID | TOTAL |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| 40 | 9 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 50 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 60 | 10 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 70 | 22 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 26 |
| 75 | 15 | 8 | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 29 |
| 80 | 47 | 16 | 5 | 3 | 10 | 1 | 0 | 0 | 0 | 0 | 82 |
| 85 | 105 | 36 | 8 | 5 | 6 | 1 | 3 | 0 | 0 | 0 | 164 |
| 90 | 150 | 93 | 33 | 22 | 18 | 4 | 11 | 0 | 2 | 0 | 333 |
| + | 26 | 35 | 11 | 9 | 12 | 1 | 5 | 1 | 2 | 0 | 102 |
| TOTAL | 367 | 194 | 63 | 43 | 47 | 7 | 19 | 1 | 6 | 0 | |

THIS TABLE WAS REFERENCED 767 OUT OF A POSSIBLE 780 TIMES

FIRE ACREAGE COMPARISONS BY CAUSE

| CAUSE | NUM. OF FIRES | % OF TOTAL FIRES | ACREAGE BURNED | % OF ACREAGE BURNED |
|-------|---------------|------------------|----------------|---------------------|
| LTG | 387 | .490 | 13956.19 | .667 |
| REC | 197 | .253 | 452.80 | .022 |
| RES | 72 | .092 | 5288.80 | .253 |
| MIS | 43 | .055 | 48.00 | .002 |
| RLY | 47 | .060 | 85.30 | .004 |
| IDF | 7 | .009 | 446.80 | .021 |
| IDO | 20 | .026 | 270.60 | .013 |
| INC | 1 | .001 | 4.00 | .000 |
| UNK | 6 | .008 | 373.30 | .018 |
| MID | 0 | .000 | .00 | .000 |
| TOTAL | 780 | | 20925.80 | |

THIS TABLE WAS REFERENCED 780 OUT OF A POSSIBLE 780 TIMES

CAUSE VS FIRES BY SIZE AT DETECTION

| CAUSE | 0.9 | 3.0 | 10 | 20 | 50 | 100 | 250 | 500 | + | MID | TOTAL |
|-------|-----|-----|----|----|----|-----|-----|-----|---|-----|-------|
| LTO | 310 | 69 | 4 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 597 |
| REC | 176 | 10 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 187 |
| RES | 45 | 21 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 72 |
| MIS | 39 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| RLY | 37 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| LOF | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| LOO | 10 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| INC | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| UNK | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| MID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 620 | 133 | 11 | 4 | 4 | 1 | 0 | 1 | 0 | 0 | |

THIS TABLE WAS REFERENCED 740 DDT OF A POSSIBLE 780 TIMES

CAUSE VS FHM BY SIZE AT DETECTION

| CAUSE | 11.9 | 3.0 | 10 | 20 | 50 | 100 | 250 | 500 | + | MID | TOTAL |
|-------|---------|---------|-------|-------|--------|-------|-----|-----|-----|-----|---------|
| 11.9 | 730.50 | 1501.10 | 30.30 | 3.30 | 45.50 | 15.50 | .00 | .00 | .00 | .00 | 9010.70 |
| 3.0 | 940.00 | 60.80 | 4.20 | .00 | 49.90 | .00 | .00 | .00 | .00 | .00 | 1101.50 |
| 10 | 101.00 | 70.40 | .00 | 11.20 | 22.50 | .00 | .00 | .00 | .00 | .00 | 273.10 |
| 20 | 57.10 | 5.10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 57.10 |
| 50 | 57.00 | 203.40 | .60 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 321.60 |
| 100 | .10 | .10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .20 |
| 250 | 1.10 | 470.40 | 1.50 | .50 | .00 | .00 | .00 | .00 | .00 | .00 | 482.50 |
| 500 | .00 | .30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .30 |
| + | 4.00 | 14.50 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 19.10 |
| MID | .00 | .00 | .00 | .00 | .10 | .00 | .00 | .00 | .00 | .00 | .00 |
| TOTAL | 8020.00 | 2460.10 | 36.60 | 15.00 | 117.90 | 15.50 | .00 | .00 | .00 | .00 | |

THIS TABLE WAS REFERENCED 602 OUT OF A POSSIBLE 780 TIMES

CAUSE VS FINES BY ELAPSED TIME TO DETECT (FH4)

| CAUSE | 1 | 2 | 4 | 6 | 8 | 10 | 15 | 20 | 50 | 100 | TOTAL |
|-------|-----|----|----|----|----|----|----|----|----|-----|-------|
| LTG | 27 | 32 | 31 | 20 | 11 | 15 | 42 | 35 | 55 | 56 | 324 |
| REC | 53 | 36 | 31 | 8 | 3 | 2 | 5 | 4 | 19 | 2 | 165 |
| KES | 45 | 4 | 7 | 1 | 1 | 2 | 0 | 1 | 2 | 1 | 64 |
| MIS | 31 | 4 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 40 |
| RLY | 15 | 8 | 11 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 39 |
| IDF | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| LDU | 9 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 19 |
| INC | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| UNB | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 |
| MID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 169 | 89 | 87 | 33 | 16 | 19 | 49 | 41 | 77 | 62 | |

THIS TABLE WAS REFERENCED 602 OUT OF A POSSIBLE 780 TIMES

APPENDIX D

Class Examples

| <u>Part A</u> | - | <u>Code</u> | <u>Cause</u> | <u>Abbreviation</u> |
|---------------|---|-------------|---------------------|---------------------|
| | | 1 | Lightning | LTG |
| | | 2 | Recreation | REC |
| | | 3 | Resident | RES |
| | | 4 | Miscellaneous | MIS |
| | | 5 | Railway | RLY |
| | | 6 | Industrial (forest) | IDF |
| | | 7 | Industrial (other) | IDØ |
| | | 8 | Incendiary | INC |
| | | 9 | Unknown | UNK |
| | | 10 | Missing Data | MID |

| <u>Part B</u> | - | <u>Code</u> | <u>Cover</u> | <u>Abbreviation</u> |
|---------------|---|-------------|---|---------------------|
| | | 1 | Grass | GRA |
| | | 2 | Slash | SLA |
| | | 3 | Shrubs or hardwood brush | BRU |
| | | 4 | Insect killed conifer | ISC |
| | | 5 | Conifer, crown continuous from surface. | CCC |
| | | 6 | Conifer, crown separated from surface. | CCS |
| | | 7 | Mixedwood | MIX |
| | | 8 | Hardwood | HWD |
| | | 9 | Other | OTH |
| | | 10 | Missing Data | MID |

Class Examples

| <u>Part C</u> - <u>Code</u> | <u>Detecting Agency</u> | <u>Abbreviation</u> |
|-----------------------------|--|---------------------|
| 1 | Ministry Tower | TOW |
| 2 | Detection Aircraft, Ministry | DAM |
| 3 | Detection Aircraft, Hired or Contracted. | DAC |
| 4 | Other Ministry Organized Detection. | MOD |
| 5 | Other Agency Organized Detection. | OOD |
| 6 | Ministry Aircraft, not on Detection. | MAC |
| 7 | Other Aircraft | CAC |
| 8 | Public | PUB |
| 9 | Miscellaneous | MIS |
| 10 | Missing Data | MID |

| <u>Part D</u> - <u>Code</u> | <u>Month</u> | <u>Abbreviation</u> |
|-----------------------------|----------------------|---------------------|
| 1 | March | MAR |
| 2 | April | APR |
| 3 | May | MAY |
| 4 | June | JUN |
| 5 | July | JUL |
| 6 | August | AUG |
| 7 | September | SEP |
| 8 | October | OCT |
| 9 | November | NOV |
| 10 | December to February | DEC |

Class Examples

| <u>Part E</u> | - | <u>Code</u> | <u>Elapsed Time</u> (in hours) | <u>Abbreviation</u> |
|---------------|---|-------------|-----------------------------------|---------------------|
| | | 1 | 0.1 to 1.0 | 1 |
| | | 2 | 1.1 to 2.0 | 2 |
| | | 3 | 2.1 to 4.0 | 4 |
| | | 4 | 4.1 to 6.0 | 6 |
| | | 5 | 6.1 to 8.0 | 8 |
| | | 6 | 8.1 to 10.0 | 10 |
| | | 7 | 10.1 to 15.0 | 15 |
| | | 8 | 15.1 to 20.0 | 20 |
| | | 9 | 20.1 to 50.0 | 50 |
| | | 10 | 50.1 to 100.0 + | 100 |

Part F

Fire Weather Indices

| <u>Code</u> | <u>FFMC</u> | <u>ISI</u> | <u>DC</u> | <u>ADMC</u> | <u>FWI</u> |
|-------------|-------------|------------|-----------|-------------|------------|
| 1 | 40 | 1 | 100 | 30 | 3 |
| 2 | 50 | 2 | 120 | 40 | 6 |
| 3 | 60 | 3 | 140 | 50 | 9 |
| 4 | 70 | 4 | 160 | 60 | 12 |
| 5 | 75 | 5 | 180 | 70 | 15 |
| 6 | 80 | 7 | 200 | 80 | 20 |
| 7 | 85 | 10 | 220 | 90 | 25 |
| 8 | 90 | 15 | 240 | 100 | 30 |
| 9 | + | + | + | + | + |

Class Examples

| <u>Part G</u> - <u>Code</u> | <u>Size Class</u> (in acres) | <u>Abbreviation</u> |
|-----------------------------|---------------------------------|---------------------|
| 1 | 0.1 to 0.9 | 0.9 |
| 2 | 1.0 to 5.0 | 5.0 |
| 3 | 5.1 to 10.0 | 10 |
| 4 | 10.1 to 20.0 | 20 |
| 5 | 20.1 to 50.0 | 50 |
| 6 | 50.1 to 100 | 100 |
| 7 | 100 to 250 | 250 |
| 8 | 250 to 500 | 500 |
| 9 | 500 + | + |
| 10 | Missing Data | MID |

APPENDIX E

Maximum Values of Classes

| <u>Maximum Value</u> | <u>Class</u> |
|----------------------|------------------|
| 10 | Station |
| 10 | Cause |
| 10 | Cover |
| 10 | Detecting agency |
| 10 | Size class |
| 10 | Elapsed time |
| 10 | Month |
| 23 | Period |
| 20 | Distance |
| 10 | Sector |
| 9 | FFMC |
| 9 | DC |
| 9 | ISI |
| 9 | ADMC |
| 9 | FWI |