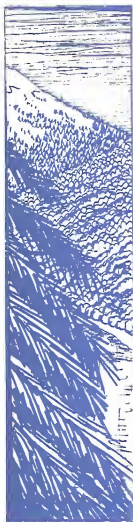
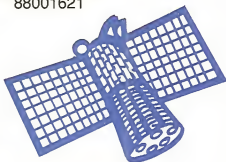
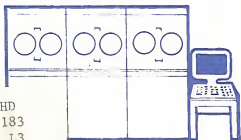




88001621



# PHASE I DRD Unit Resource Analysis



HD  
183  
.L3  
L37  
1977



User  
Requirement  
Specifications

Fire

# 48902

ID 88001621

4D  
183  
113  
1977

USER SPECIFICATIONS  
FOR A  
FIRE MANAGEMENT  
UNIT RESOURCE ANALYSIS  
DATA SYSTEM

PHASE I  
DETAILED REQUIREMENTS DEFINITION  
OCTOBER 1977

BUREAU OF LAND MANAGEMENT LIBRARY  
Denver, Colorado



88001621

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Library  
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Denver, CO 80225

IN ORDER TO VISUALIZE THE GENERAL CONCEPT  
OF INTERFACING WITH A LARGE SCALE AUTOMATED  
SYSTEM, THE REVIEWER(S) OF THIS DOCUMENT  
SHOULD BE FAMILIAR WITH THE "USER INTERFACE  
INTRODUCTION" UNDER SEPARATE COVER.

The following persons, from the offices indicated, contributed to the Phase I DRD effort to identify requirements for a Fire Management Inventory and URA System. Their participation in the program is appreciated.

TEAM 1

Joe Kastelic	Alaska State Office
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Pat Kidder	Bakersfield District Office

Bob Krumm

DRD Coordinator for Fire Management

## FIRE MANAGEMENT

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## Introduction

The purpose of this document is to describe a system concept related to Fire Management Inventory and URA. The concept has evolved from the DRD process. The products of the system should be reviewed, keeping in mind that they are restricted solely to data displays required for inventory and URA. Nevertheless, the data necessary to produce these products has application in most aspects of the Fire Management program. For example, the tables required for the Public Land Statistics can be produced from the data base, although they are not specifically shown as output.

The described system is evolutionary rather than static. It is intended to initially implement the best system possible based on the understanding developed in the DRD. However, it should be expected and planned that, with experience, the new system will change to better meet user needs

## General System Description

The DRD process indicated that the Fire Management Data Base should contain inventory data on: vegetation (fuel), soil, water, fish and wildlife, domestic animals, topography, climate, fire facilities and land status. URA data should include information on fire occurrence and fire behavior.

Recent proposals for amending Fire Management URA procedures indicate that additions to the data bank, such as fire effects, will be made in the near future; however, as the changes have not been approved yet, they are not described in the current system.

Some doubt may arise regarding the Fire program's need for detailed resource data such as fish and wildlife. Under the traditional suppression oriented philosophy, such doubts would have some validity. However, Fire Management has evolved far beyond strictly a suppression role. thus, much of the needed resource data will be acquired from other programs such as Watershed, Range, Wildlife, etc.

In order to assure comprehensive planning, all resource activities affected in some way by fire must obtain data on existing situations and identify fire management opportunities. For example, Range and Forestry must gather vegetative data concerning fire effects, fuel loading, etc., and identify situations or opportunities involving fire which will either enhance or adversely affect their activity objectives. Wildlife and Watershed must consider and identify critical habitat and sensitive watersheds DRD for Fire Management did not specifically identify the resource activities data needs involving fire. Rather it is assumed that their data sets will encompass the information needed for the consideration of the influence of fire on their respective activities.

## General Description of Data Sets

The Fire Management data base encompasses the following groups or sets of associated data:

### 1. Water Data

This data set identifies the location, type, quantity, quality, ownership and accessibility of water sources in relation to Fire Management. Various methods will be used to obtain the data, but primarily existing records and field inventory will be used.

The data will be used for both planning and operational purposes and will be rapidly available if needed for suppression activities.

### 2. Topography and Climate Data

The information provided by this data set includes percent and aspect of slope, amount and kind of precipitation and cloud cover, temperature, air movement, humidity and lightning intensity.

The slope information will be obtained by utilizing the USGS data base for topographic information. Climate data will be obtained through FIRDAT, an existing data program related to the Affirms program.



The data will be used to predict fire behavior and fire danger and for pre-suppression and fire rehabilitation planning.

3. Fire Facilities

This data set identifies the location, name, number, kind, elevation and physical characteristics of air and ground support fire facilities and equipment caches.

The data will be obtained from existing records and field inventory and will be used for planning and operational purposes.

4. Fire Behavior

Fire behavior data will be obtained from fuel model, topographic and climatologic station data. It will identify the fuel models, climatologic areas, slope class, rate of spread and fire behavior class.

The data will be used for presuppression planning.

5. Fire Occurrence

This data will be obtained from the Individual Fire Report - DI-530. It will identify date, location, cause, size class, acreage burned by ownership and suppression cost by fire name and number.

The data will be displayed in tables and on an overlay and will be used for presuppression planning.

### Specific Impacts

Current URA procedures require the preparation of an overlay displaying the relative resource values threatened if a fire should occur. Although initially identified as a necessary data set in the early DRD process, it has been dropped because a recent task force review of URA procedures is recommending that the identification of relative values at risk is more properly an MFP decision.

The Transportation Overlays that will be provided by Planning will probably not be sufficiently detailed to satisfy the requirement for a Fire Transportation Overlay. This necessitates retention of the FOCUS system and associated procedures. If possible, this software may be acquired from the Forest Service so that the entire procedure can be done on the BLM computer.

FIRE MANAGEMENT

Inputs

FIRDAT - Climate Data \_\_\_\_\_ 8101  
 Climatological Station Overlay \_\_\_\_\_ 8102  
 Slope Class Overlay \_\_\_\_\_ 8103  
 Fire Water Source \_\_\_\_\_ 8104  
 Seen-Area Overlay \_\_\_\_\_ 8105  
 Communications Coverage Overlay \_\_\_\_\_ 8106  
 Fuel Model Overlay \_\_\_\_\_ 8107  
 Individual Fire Report (DI 1201) \_\_\_\_\_ 8108  
 Facilities Data \_\_\_\_\_ 8109

F  
I  
R  
E  
  
M  
A  
N  
A  
G  
E  
M  
E  
N  
T

Outputs

8151 \_\_\_\_\_ Fire Attribute Comparison Matrix  
 8152 \_\_\_\_\_ Water Source Overlay  
 8153 \_\_\_\_\_ Water Source Table  
 8154 \_\_\_\_\_ Fire Behavior Overlay  
 8155 \_\_\_\_\_ Fire Occurrence Overlay  
 8156 \_\_\_\_\_ Fire Occurrence Year-end Tables  
 8157 \_\_\_\_\_ Fire Facilities Overlay  
 8158 \_\_\_\_\_ Fire Facilities Table

## Input/Output Descriptions

Nine input documents have been identified as required for creation and maintenance of the Fire Management data base. The frequency and volume figures are estimates of an operational system and therefore do not indicate the volume of data required to initially load the data base. In some locations this may be a considerable effort.

The data entry formats and procedures will be determined during System Design based on the architecture of the new computer and the data base system available on it. However, they will be subject to review prior to implementation.

The outputs that have been identified are not the only outputs that can be generated. They are the initial goal of the System Design phase. There will be an "English language" query capability for ad hoc reports and, as the need arises after system implementation, other outputs can be programmed.

The URA narrative will be based on the analysis of the Fire Management base. Until they are changed, the requirements of the URA manual (1605) are still the guidelines that should be followed. The automated system will provide, at a minimum, the supporting tables and overlays. However, the generation of the narrative may be aided by the text processing capability of the new computer.

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9/7/77

IO-8151

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Fire Attribute Comparison Matrix

OUTPUT FORM: Table

OUTPUT DESCRIPTION: Matrix showing the correlation or variability of one parameter relative to another parameter(s). For example, compare the time between the report of a fire and the time critical attack relative to fire size in acres at time of attack

USER(s): State and District Fire Management Officers      LOCATION(s): State Offices  
District Offices

USAGE: Compare statistical data for fire planning

ACCESS LIMITATIONS: None

RESPONSE TIMES: DESIRED: On line: 6 hours      REQUIRED: Hard copy: 6 hours

FREQUENCY OF PRODUCTION: Twice a year per Planning Unit

DEPENDENCIES: Fire plan preparation and review

REQUEST PARAMETERS: Planning unit

IQ-8151

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Attribute Comparison Matrix

SORT ORDER: NA

ESTIMATED VOLUME: 2 per Planning Unit

COMPUTATIONS/PROCESSES: Count the occurrence of one attribute based on the existence of another attribute

ACCURACY: NA

SCALE: NA

ANNOTATIONS: NA

LEGEND: NA

REMARKS: The REX program (revised EXIR) enables users to obtain information from Individual Fire Report DI 1201 and format as indicated in output description above. This capability would also be present in the "English language" query facility on the new computer.

## FIRE ATTRIBUTE MATRIX

For fires reported in July 1977, build a matrix of Attack Time and Fire Size at Attack

	Fire Size in Acres					
	0-5	6-10	11-15	16-20	21-30	31-45
5	14	10	3	2	0	0
10	9	10	8	4	1	1
15	7	9	4	1	1	0
20	6	7	9	3	0	0
30	0	2	5	3	1	2
45	1	3	6	9	4	1
60	0	0	1	8	12	5

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8152

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Water Source Overlay

OUTPUT FORM: Graphic.

OUTPUT DESCRIPTION: Point locations of water sources for fire suppression in the area of interest, accessibility and permanence of source.

USER(s): Fire Mgmt. Officer;                      LOCATION(s): DO, SO, Field Office.  
Fire Boss.

USAGE: Fire Presuppression and Suppression Planning - to orient the user to sources of water.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: 5 min - Online;      REQUIRED: 6 hour - hardcopy.  
for Fire Suppression: hardcopy needed  
on 6 hour notice to be taken to field.

FREQUENCY OF PRODUCTION: Per PU - Hardcopy: 1 per year - normal planning + per project fire (approx 100 per year per BLM). Online - 1 per quarter; often when reviewing plan.

DEPENDENCIES: Fire Plan Review; Activation of project fire overhead team.

REQUEST PARAMETERS: PU.



IO-8152

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Water Source Overlay

SORT ORDER: NA

ESTIMATED VOLUME: 1 overlay per PU.

COMPUTATIONS/PROCESSES: None.

ACCURACY: NA

SCALE: Must overlay standard PU map.

ANNOTATIONS: Use BLM standards - see attached sample.

LEGEND: Meaning of symbols upon request.

REMARKS: Associated with the Water Source Table.

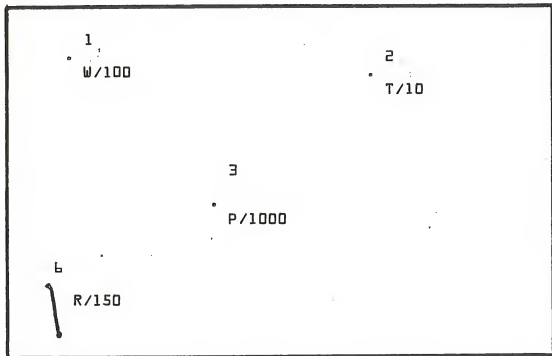
IO-8152

Water Source Overlay

State: 05

District: 131

Planning Unit: 1



FI-13

Legend

ID	Source
Type	
W	Well
P	Pond
L	Lake
C	Catchment
R	River
T	Tank
S	Spring
Volume of Water	
100	100 Gallons/Min

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8153

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Water Source Table

OUTPUT FORM: Table

OUTPUT DESCRIPTION: Table to be used in conjunction with water source overlay showing the details about each source; for example, volume, use limitations and duration.

USER(s): Fire Mgmt. Officer;  
Fire Boss.

LOCATION(s): DO, SO, Field.

USAGE: For Fire Presuppression and Suppression Planning - orientation as to the location of water.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: 30 seconds - online, for Fire Suppression -  
REQUIRED: 6 hour - hardcopy.  
hardcopy needed on 6 hour notice to be taken to field.

FREQUENCY OF PRODUCTION: Per PU - hardcopy: 1 per year - normal planning;  
1 per project fire (approx 100 per year per BLM). Online - 1 per quarter;  
often when reviewing plan.

DEPENDENCIES: Fire plan review, establishment of project fire overhead team.

REQUEST PARAMETERS: PU and other areal parameters.

IO-8153

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Water Source Table.

SORT ORDER: Water Source Identification Number and Coordinate.

ESTIMATED VOLUME: 25 pages average; 100 pages max.

COMPUTATIONS/PROCESSES: None.

ACCURACY: NA

SCALE: NA

ANNOTATIONS: NA

LEGEND: NA

REMARKS:

IO-8153

05 STATE (0100-0004)  
 130 DISTRICT (0100-0534)  
 1 PLANNING (0100-1075)

## WATER SOURCES FOR FIRE SUPPRESSION

PRINT DATE \_\_\_\_\_

SOURCE IDENT. NUMBER	LOCATION	ACCESSIBILITY (LARGEST)	OWNERSHIP DATA			TOTAL VOLUME	TYPE OF SOURCE	REMARKS
			NAME OF OWNER	ADDRESS	PHONE			
FI-16 05-130-1-1	503340N1101413W	2.5 TRUCK	J.D. LEE	134 RR #9 CRAIG, CO.	303-123- 1334	100,000 Gal's	POND	
0181 8545	0100 1236 0100 1237	0181 8513	0181 8511	0100 0935 0100 0934 0100 8600	0181 8554	0181 8510	0181 8574	0181 857

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8154

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Fire Behavior Overlay

OUTPUT FORM: Graphic.

OUTPUT DESCRIPTION: Based on slope, fuels and climate, display the Fire Behavior classes for area of concern.

USER(s): Fire Management Officer. LOCATION(s): DO, SO, Field Offices.

USAGE: Fire presuppression planning - to orient the user with fire behavior conditions.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: Overnight. REQUIRED: 3 days.

FREQUENCY OF PRODUCTION: Per PU. Hard copy: 1 per year normal planning;  
On line: 1 per quarter, often when reviewing plan.

DEPENDENCIES: Fire plan preparation and review.

REQUEST PARAMETERS: PU.

IO-8154

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Behavior Overlay

SORT ORDER: NA

ESTIMATED VOLUME: 1 overlay per PU.

COMPUTATIONS/PROCESSES: None.

ACCURACY: NA

SCALE: Must overlay standard planning unit map.

ANNOTATIONS: Use BLM standards - see attached sample.

LEGEND: Meaning of symbols upon request.

REMARKS: This will require manipulation of the slope overlay, fuel model overlay and climatological station overlay to produce.

FIRE, MANAGEMENT

I/O-8154

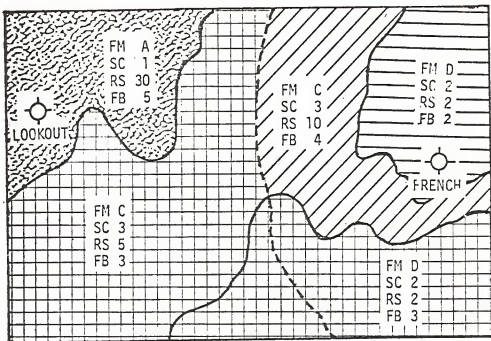
Narrative









By interrelating the two overlays (Fire Behavior and Fire Occurrence), identify and analyze the relative fire problem. (See BLM Manual Section 9211.)

1. Discuss present fire protection on area. Include name of agency of organization providing protection.
2. Discuss the potential fire problem as related to occurrence, i.e., type of occurrence, season of year, industry related problems, size increase in relationship to intensity of season.
3. Describe the present initial-attack operations and their effect on the natural resources, i.e., allowing increased sizes in low-value area, no formal protection of low-occurrence areas, immediate retardant attack, and areas in which heavy equipment use is restricted.



## Fire Behavior Overlay



MAP SYMBOL	NARRATIVE DESCRIPTION	NUMBER CODE	ABBR.	MEANING
	Fuel Model Bdry.		FM	Fuel Model
	Climatological Station Boundary		SC	Slope Class
	Climatological Station Locations		RS	Rate of Spread
	<b>FIRE BEHAVIOR CLASS</b>		FB	Fire Behavior Rating
	Extreme			
	Very High			
	High			
	Moderate			
	Low			

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8155

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Fire Occurrence Overlay

OUTPUT FORM: Graphic

OUTPUT DESCRIPTION: Map showing the location, cause, size, and month/year of the fires that occurred in the area of concern.

USER(s): State & District Fire Management Officers. LOCATION(s): SO, DO.

USAGE: Fire Management planning.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: Overnight. REQUIRED: 3 days.

FREQUENCY OF PRODUCTION: Annually.

DEPENDENCIES: Fire Plan Preparation & Review.

REQUEST PARAMETERS: PU.

IO-8155

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Occurrence Overlay

SORT ORDER: NA

ESTIMATED VOLUME: 1/PU/year.

COMPUTATIONS/PROCESSES: NA

ACCURACY: NA

SCALE: Must overlay standard PU map.

ANNOTATIONS: NA

LEGEND: NA

REMARKS: Associated with Fire Occurrence Table.

## FIRE MANAGEMENT

I/O-8155

### Narrative

By interrelating the two overlays (Fire Behavior and Fire Occurrence), identify and analyze the relative fire problem. (See BLM Manual Section 9211.)

1. Discuss present fire protection on area. Include name of agency of organization providing protection.
2. Discuss the potential fire problem as related to occurrence, i.e., type of occurrence, season of year, industry related problems, size increase in relationship to intensity of season.
3. Describe the present initial-attack operations and their effect on the natural resources, i.e., allowing increased sizes in low-value area, no formal protection of low-occurrence areas, immediate retardant attack, and areas in which heavy equipment use is restricted.

10-8155

Fire Occurrence Overlay 1963-67

State \_\_\_\_\_

District \_\_\_\_\_

Planning Unit \_\_\_\_\_

b7  
·  
7 Je

b3  
·  
1 Au

b6  
·  
6 Au

FI-24

Legend

Cause of Fire

Lighting	1
Campfire	2
Smoking	3
Debris Burning	4
Incendiary	5
Equipment Use	6
Railroad	7
Children	8
Miscellaneous	9

Month of Fire

Jan-April	AP
May	M
June	Je
July	Jy
August	Aug
September	S
October	O
Nov.-Dec.	N

Year b7

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8156

OUTPUT DESCRIPTION

Page 1 of 2

OUTPUT TITLE: Fire Occurrence - Year End Tables.

OUTPUT FORM: Tables

OUTPUT DESCRIPTION: For 1 year, 5 year, or 10 year periods, list the location; size; cause; and acreage burned of the fires in the area of concern, i.e., State, District, Planning Unit.

USER(s): District Fire Mgmt.  
Officer, Area Manager.

LOCATION(s): DO, SO.

USAGE: Presuppression Planning; Annual Statistical Reports.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: Overnight. REQUIRED: 3 days.

FREQUENCY OF PRODUCTION: One/PU/year - more often when reviewing plans.

DEPENDENCIES: Fire plan review.

REQUEST PARAMETERS: State, District, PU and other areal parameters. In addition, the type protection element may be used to retrieve acreage burned under force account or contract protection.

IQ-8156

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Occurrence - Year End Tables.

SORT ORDER: NA

ESTIMATED VOLUME: 1 table per PU of 10 to 50 pages.

COMPUTATIONS/PROCESSES: None.

ACCURACY: NA

SCALE: NA

ANNOTATIONS: NA

LEGEND: NA

REMARKS:

IO-8156

Fire Occurance Table

Year End

State \_\_\_\_\_

District \_\_\_\_\_

Year 0006 0488

Planning Unit

Fire No.	Fire Name	Location	Cause	Size Class	Acreage Burned				Suppression Cost
					BLM	Other Fed	State	P'vt.	
9402	Larch Peak	543021N 14050 30W	Light- ing	C	52		16	30	\$72,520
0006-0489	0006-0493	0100-1236 0100-1237	0181- 0497	0006-0495	0100- 6595	0100-41 34	0100- 6595	0100- 6596	0181-8540

FI-27



Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8157

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Fire Facilities Overlay

OUTPUT FORM: Graphic

OUTPUT DESCRIPTION: An overlay showing the fire facilities in the PU.

USER(s): State & District Fire Management Officer. LOCATION(s): SO, DO, Area Office.

USAGE: Fire Management Planning.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: Overnight. REQUIRED: 3 days.

FREQUENCY OF PRODUCTION: Annually.

DEPENDENCIES: Fire plan preparation and review.

REQUEST PARAMETERS: PU

IO-8157

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Facilities Overlay

SORT ORDER: NA

ESTIMATED VOLUME: One per PU.

COMPUTATIONS/PROCESSES: NA

ACCURACY: NA

SCALE: Must overlay standard PU map.

ANNOTATIONS: Use BLM standards.

LEGEND: Meaning of symbols upon request.

REMARKS: The Seen Area Boundary will be shown for lookouts; the Communication Obstructed Area Boundary will be shown when radio facilities are displayed.

10-8157

## Fire Facilities Overlay

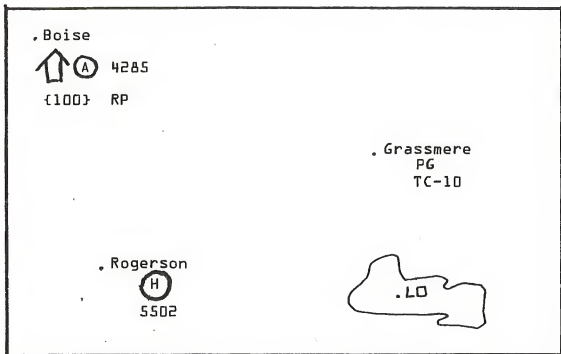
State \_\_\_\_\_

Date \_\_\_\_\_

District \_\_\_\_\_

Planning Unit \_\_\_\_\_

FI-30

Legend

Lookout	LD
Fire Station	FS
Retardant Plant	RP
Warehouse	WH
Per Diem Guard	PG
Tool Cache	TC
No. of Fighters accommodated	{12}

Airport (A)

Heliport (H)

4842 Elevation



Seen-Area or  
 Communications  
 Boundary

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8158

OUTPUT DESCRIPTION  
Page 1 of 2

OUTPUT TITLE: Fire Facilities Tables.

OUTPUT FORM: Tables.

OUTPUT DESCRIPTION: A table describing each facility shown on the  
Fire Facility Overlay.

USER(s): Fire Mgmt. Officers. LOCATION(s): SO, DO, Area Offices.

USAGE: Presuppression and Suppression Planning.

ACCESS LIMITATIONS: None.

RESPONSE TIMES: DESIRED: Overnight. REQUIRED: 3 days.

FREQUENCY OF PRODUCTION: Annual.

DEPENDENCIES: Fire Plan Review.

REQUEST PARAMETERS: PU.

IO-8158

OUTPUT DESCRIPTION  
Page 2 of 2

OUTPUT TITLE: Fire Facilities Tables.

SORT ORDER: NA

ESTIMATED VOLUME: 1 overlay per PU.

COMPUTATIONS/PROCESSES: None.

ACCURACY: NA

SCALE: NA

ANNOTATIONS: Use BLM standards.

LEGEND: Meaning of symbols upon request.

REMARKS: Associated with Fire Facilities overlay.



10-8158

## Ground Support Facilities

State \_\_\_\_\_

Date \_\_\_\_\_

District \_\_\_\_\_

Planning Unit \_\_\_\_\_

Facility No.	Facility Name	Type	Location	No. of station Personnel	Size of Tool Cache	No. of ground Pumpers	No. of Bulldozers
4108	Graesmere Station	Fire Station	545130N 10 45515W	12	100 man	3	1
0181	0181	0181	0100-1236	0181	0181	0181	0181
8501	8502	8503	0100-1237	8506	8517	8519	8520

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

10-8101

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: FIRDAT - Climate Data.

FORM: Mag tape.

DESCRIPTION: Weather Station number, Spread Component and Energy Release  
Component data for each weather station.

PREPARATION RESPONSIBILITY: District Fire Management Officer by use of AFFIRMS.

FORMAT: Attached.

DATA ENTRY PROCEDURE: Taken from AFFIRMS.

FREQUENCY OF UPDATE: Annually.

VOLUME OF UPDATE: One for each station in the PU (average 2).

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: None.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: An attempt will be made to get a magnetic tape on a timely basis to update any BLM-developed system. This will be needed to develop the Fire Behavior Overlay. The instructions for completing this form are found on pages 107-117 in the National Fire Danger Rating System - 1978.



10 DAY  
FIRE DANGER AND FIRE  
WEATHER RECORD  
10-8101

Agency ✓  
**FOREST SERVICE**  
Station Elevation ✓  
2070

Unit  
**LIBBY DISTRICT**  
Fuel Model ✓  
G  
Annual-Perennial  
P  
Slope Class ✓  
3  
Climate Class  
3

Station Name ✓  
**LIBBY**  
Station Number ✓  
240107  
Period of Record (Month, Day, Year)  
From 7/1/75 To 7/10/75

Day of Month	State of weather	Temperature			Relative Humidity	Observed Windy	10-hr TL Fuel Moisture	1-hr TL Fuel Moisture	Wet. Veg. Condition	Fine Fuel Moisture	Burning Index					Occurrence Index					Observer Checked By LRSF = .85 MRSF = .18 Remarks
		Dry Bulb	Wet Bulb	Dew Point							Dirrec-tion	Speed	Spread Component	Energy Release Component	Ignition Component	Lightning Risk	Lightning Occurrence Index	Non-caused Risk	Non-Occurrence Index	Fire Load Index	
1	1	79		39	10	7	13			2	4	33	28	20	11	18	9	2	24	1/2" FM STICKS ARE 3 MOS. OLD	
2	2	81		32	7	10	6	12		2	4	37	30	17	0	4	24	4	22		
3	3	69		34	8	11	7	13		2	4	37	30	19	0	1	26	5	22		
4	4	65		34	21	26	23	25		1	0	23	0	0	0	32	0	0			
5	5	61		39	28	33	16	19		1	3	20	20	3	0	0	20	1	14		
6	6	64		53	19	23	12	17		1	3	24	22	7	0	0	13	1	15		
7	7	72		40	11	14	8	15		4	4	32	28	17	0	0	15	2	20		
8	8	078		41	9	12	7	15		2	3	26	23	18	43	11	12	2	24		
9	9	52		100	21	26	25	25		2	0	16	0	0	11	3	23	0	0		
10	10	57		67	26	31	16	19		3	3	16	18	3	11	2	25	1	13		

RECALCULATE XXXX

FI-36

Day of Month	Daily (24 Hour) Data														1000-hr TL Fuel Moisture				Living Fuel Moistures				A	B	C	D
	Temperature		Relative Humidities		Precipitation				lightning		100-hr TL Fuel Moisture	Today's 1000-hr Fuel Value	1000-hr Fuel Value 7 Days	Change 1000-hr Fuel Moisture	1000-hr TL Fuel Moisture	Woody Fuel Moisture	X1000 Fuel Value	Moist Fuel Value	Moist Fuel Moisture							
	Maximum	Minimum	Maximum	Minimum	Average	Kind	Began	Ended	Duration	Amount										Began	Ended	Activity Level				
1	79	44	99	39	69					0		2	16	14	17	+1	15	110	14	100						
2	82	40	90	22	56					0		1	14	11	-	-	15	110	14	100						
3	84	44	99	20	60					0		1	13	12	-	-	15	110	14	100						
4	69	48	99	30	65	5	1200	2000	8	.16		1	16	41	-	-	15	110	14	100						
5	61	45	99	69	84	5	2100	0100	10	.32		1	20	54	-	-	15	110	14	100						
6	66	46	99	52	76	5	1600	1800	2	.05		1	19	22	-	-	15	110	14	100						
7	72	47	99	40	70	6	0800	0900	1	.04		1	18	17	-	-	15	110	14	100						
8	78	45	99	40	70					0		4	17	14	24	+3	18	140	16	110						
9	85	52	99	32	66	6	1300	1800	5	.29		2	18	29	-	-	18	140	16	110						
10	76	42	99	67	83	6	1600	1800	2	.12		2	19	24	-	-	18	140	16	110						

Prog. Area: Fire

Prep. By: Krumm et al

Date: 9-7-77

IO-8102

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Climatological Station Overlay.

FORM: Graphic.

DESCRIPTION: Annotated map showing point locations of climatological stations station name and number, and area of measurement applicability.

PREPARATION RESPONSIBILITY: Fire Mgmt. Officer - State Office.

FORMAT: Attached.

DATA ENTRY PROCEDURE: Digitized.

FREQUENCY OF UPDATE: Annually - due to new stations being added.

VOLUME OF UPDATE: 1 to 5 new sources per year.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Mgmt. Staff only.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: These can be determined from the National Weather Service.

10-8102

Climatological Station Overlay

State \_\_\_\_\_

District \_\_\_\_\_

102902

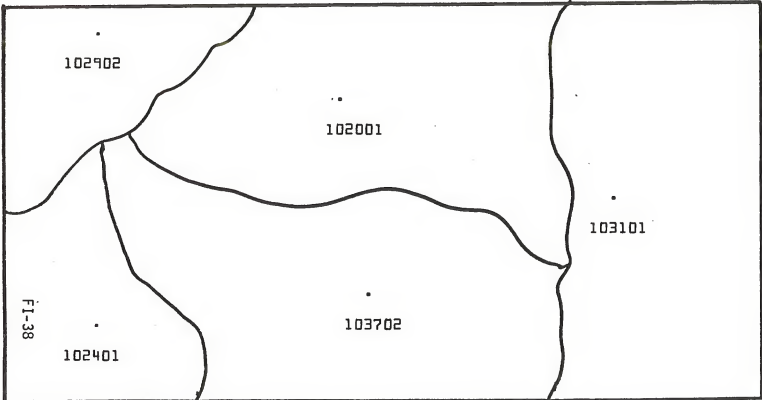
102001

103101

FI-38

102401

103702



Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8103

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Slope Class Overlay

FORM: Graphic.

DESCRIPTION: Identify areas that have common slope classes.

PREPARATION RESPONSIBILITY: ADP DSC - from USGS topog quads. (topcon tapes),  
army computer prog.

FORMAT: Attached.

DATA ENTRY PROCEDURE: Digitizing.

FREQUENCY OF UPDATE: No update after initial entry. Data will not change.

VOLUME OF UPDATE: None.

ARCHIVING REQUIREMENTS: None - maintain original data in system.

ACCESS LIMITATIONS: None.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS:

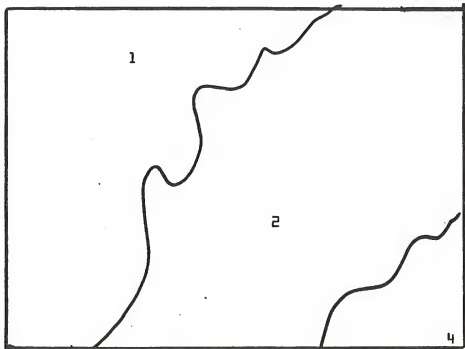
10-8103

Slope Class Overlay

State \_\_\_\_\_

District \_\_\_\_\_

Planning Unit \_\_\_\_\_



Legend

Slope Class = Slope Percent

1	0 to 25
2	26 to 40
3	41 to 55
4	56 to 75
5	76+

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8104

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Fire Water Source

FORM: Coding Sheet.

DESCRIPTION: Based on a review of water sources and their proximity to transportation systems, identify water sources for suppression action; determine the accessibility by fire equipment.

PREPARATION RESPONSIBILITY: Fire Mgmt. Officer in District is responsible assisted by anyone on the District or Resource Area Staff who is in the field.

FORMAT: To be developed - See attached list of data elements that will be on the form.

DATA ENTRY PROCEDURE: To be developed.

FREQUENCY OF UPDATE: Per PU: 1 per year depending on location of new sources.

VOLUME OF UPDATE: 1 to 5 new sources.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Mgmt. Staff only although data can be collected by anyone in the office.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: A Possible Procedure: Utilizing the Water Resource Overlay in conjunction with the Transportation Overlay, identify possible water sources in the area of concern. Review the attributes, e.g., volume of flow, duration, etc., of those systems in the Watershed System. If the source qualifies as a source for fire, transcribe the data to input sheet; add data about addition attributes, e.g., Accessibility by Equipment, and enter into Fire-Water Inventory.

IO-8105

Fire Water Source Data

State, Admin.	0100 0004
District	0100 0534
Resource Area	0100 0418
Planning Unit	0100 1075
ID No., Water Source	0181 8545
Latitude	0100 1236
Longitude	0100 1237
Accessibility of Water	0181 8513
Name, Owner	0181 8511
Address, Owner	0100 0935
	0100 0934
	0100 8600
Phone No., Water Source Owner	0181 8554
Volume of Water	0181 8510
Type Water Source	0181 8574
Remarks, Water Source	0181 8575

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8105

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Seen-Area Overlay

FORM: Graphic

DESCRIPTION: Overlay showing the location and viewing horizon of each fire lookout.

PREPARATION RESPONSIBILITY: District Fire Management Officer.

FORMAT: Attached.

DATA ENTRY PROCEDURE: Digitized.

FREQUENCY OF UPDATE: Will not need updating unless there is a change in the view from the lookout or a new lookout is built.

VOLUME OF UPDATE: 1 new overlay.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Mgmt. Staff only.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: Will be done District-wide. The USGS VIEW-IT program could be used to generate the Seen-Area overlay. This data will be associated with the appropriate Facility record.

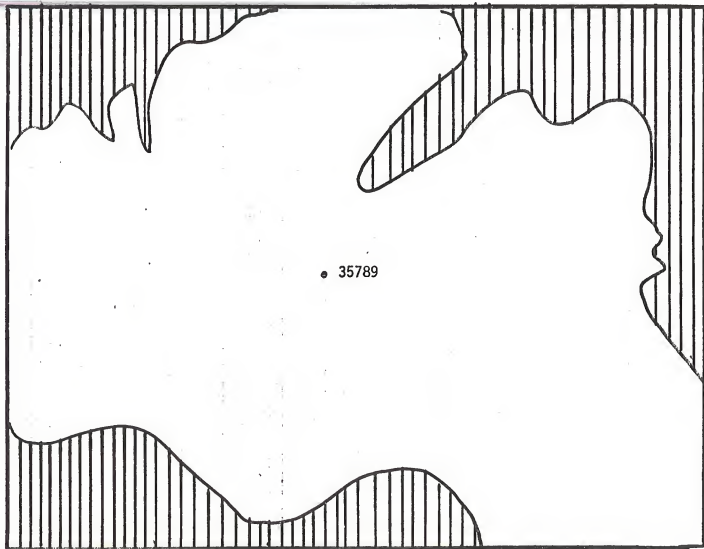



IO-8105

Seen-Area Overlay

State -----  
District-----  
Resource Area-  
---

FI-44



 = Obstructed Area

• 35789 = Facility Identifier

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8106

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Communications Coverage Overlay

FORM: Graphic.

DESCRIPTION: Overlay showing the location and coverage and blind areas of each radio site (base, repeater, etc.).

PREPARATION RESPONSIBILITY: District Fire Management Officers; District Communications Offices (where available).

FORMAT: Attached.

DATA ENTRY PROCEDURE: Digitized.

FREQUENCY OF UPDATE: Will not need updating unless there is a change in radio coverage from the location, or new radio sites are established.

VOLUME OF UPDATE: One new overlay.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Mgmt. Staff only.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: Will be done District-wide. This will be associated with the appropriate Facility record.

10-8106

COMMUNICATIONS COVERAGE OVERLAY

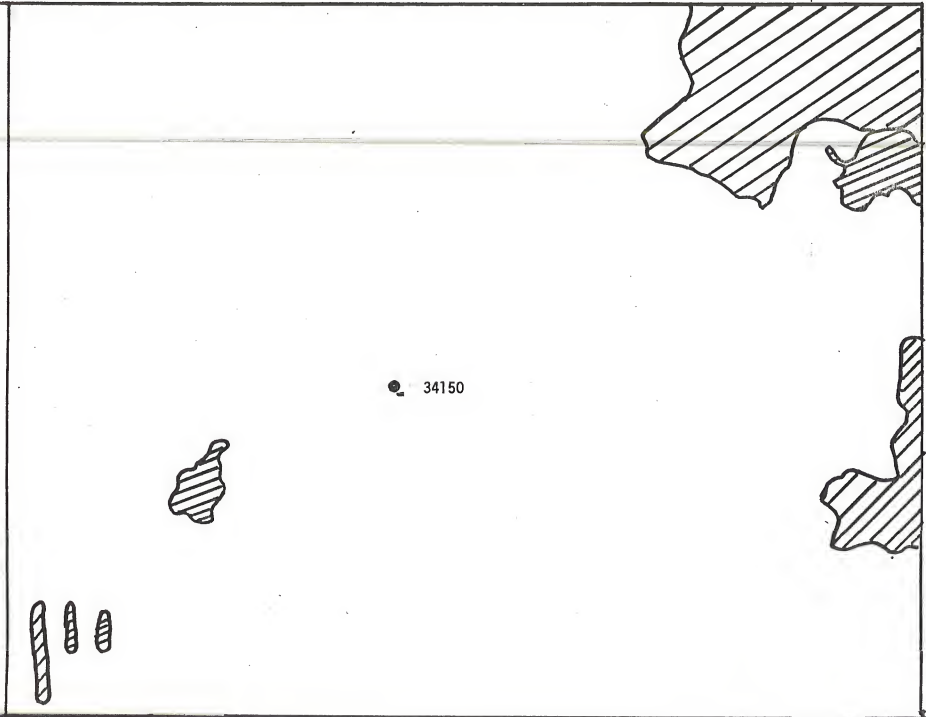
State  
District

● Radio  
Site

▨ Blind  
Area

● 34150

FI-46



Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8107

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Fuel Model Overlay

FORM: Graphic

DESCRIPTION: Annotated map showing the Fuel Model areas and the Fuel Model type.

PREPARATION RESPONSIBILITY: DO.

FORMAT: Attached.

DATA ENTRY PROCEDURE: Preferably by a computer program that would link Fuel Model types with vegetation inventories - otherwise it must be done at the District level by hand.

FREQUENCY OF UPDATE: Annually.

VOLUME OF UPDATE: 1 to 5 fuel type changes per year per PU.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Management Staff only.

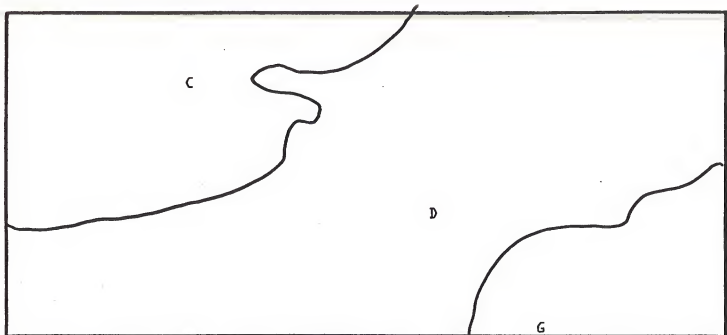
SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS: Techniques For The Selection of Fuel Models is found in the National Fire Danger Rating System-1978, Appendix B, pages 53-64.

10-8107

Fuel Model Overlay

State \_\_\_\_\_  
District \_\_\_\_\_  
Planning Unit \_\_\_\_\_



FI-48

See National Fire Danger Rating System-1978 for definition of fuel models

Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9/7/77

IO-8108

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Individual Fire Report (DI 1201 Feb 73)

FORM: Coding Sheet

DESCRIPTION: Reports data about a fire: The location, area burned, suppression data and resource damage.

PREPARATION RESPONSIBILITY: Personnel in District or Area Office

FORMAT: Attached

DATA ENTRY PROCEDURE: See attached instructions

FREQUENCY OF UPDATE: 1-2 per fire

VOLUME OF UPDATE: 3,500 annually

ARCHIVING REQUIREMENTS: 10 years minimum

ACCESS LIMITATIONS: None

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None

REMARKS: The location of the fire for graphic purposes will be determined from latitude and longitude reported on this form. The data elements for this form have already been defined in the existing BLM Fire Reporting data base. The relationship to this system will be determined during system design.



Prog. Area: Fire  
Prep. By: Krumm et al  
Date: 9-7-77

IO-8109

DATA SOURCE DESCRIPTION  
(DATA BASE MAINTENANCE)

TITLE/DESIGNATION: Facilities Data

FORM: Coding Sheet.

DESCRIPTION: Point location of fire facilities in the PU showing type, size, and other specific information.

PREPARATION RESPONSIBILITY: District Fire Management Officer.

FORMAT: To be determined. See accompanying data element list.

DATA ENTRY PROCEDURE: To be developed.

FREQUENCY OF UPDATE: Annually.

VOLUME OF UPDATE: 1 per PU.

ARCHIVING REQUIREMENTS: None.

ACCESS LIMITATIONS: Update by Fire Mgmt. Staff only.

SPECIAL EDIT/AUDIT/VALIDATION REQUIREMENTS: None.

REMARKS:



IO-8109

FACILITIES DATA

Facility Number . . . . .	0181 8501
Facility Name . . . . .	0181 8502
Facility Location (Lat./Long.) . . . . .	0100 1236 0100 1237
Facility Type . . . . .	0181 8503
Size of Facility (Number of fire fighters that can be accommodated) . . . . .	0181 8506

Airports

Surface of Runways . . . . .	0181 8507
Length of Runways . . . . .	0181 8508
Elevation . . . . .	0100 0431
Lighting of Runways . . . . .	0181 8509

Heliports

Size (Number of Helicopters Accommodated) . . . . .	0181 8579
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BORROWER'S CARD

Specifications for a fire management unit  
fire analysis data system.

BORROWER	OFFICE	DATE RETURNED

(Continued on reverse)

BUREAU OF LAND MANAGEMENT  
LIBRARY, D-245A  
3LDG. 50, DENVER FEDERAL CENTER  
DENVER, CO 80225