

**Fire Program Analysis (FPA)**

**Business Rules**

**August 4, 2009**

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## Fire Statistics System (FIRESTAT)

Target FPA\_SUBMITTED table mapping to FIRESTAT (FIRE\_OCCURRENCES) source data:

<b>FIRE_OCCURRENCES</b>	<b>FPA_SUBMITTED</b>
'FO-'  FIRE_ID	FPA_ID
'FIRESTAT'	SOURCE_SYSTEM
DECODE(LENGTH(FIRE_MANAGEMENT_CODE),6,SUBSTR(FIRE_MANAGEMENT_CODE,3,6),FIRE_MANAGEMENT_CODE )	FIRECODE
FIRE_NAME	FIRE_NAME
PROTECTION_AGENCY	AGENCY
REPORT_UNIT	AGENCY_UNIT
ADMIN_UNIT	REPORTING_AGENCY
DISCOVERY (DATE PORTION)	DISCOVERY_DATE
DISCOVERY (TIME PORTION)	DISCOVERY_TIME
See derived LATITUDE below	LATITUDE
See derived LONGITUDE below	LONGITUDE
STATISTICAL_CAUSE	STATISTICAL_CAUSE_CODE
STATISTICALCAUSE_DESCR (pulled from FIRESTAT.FIRE_CAUSE_CODES lookup table)	STATISTICAL_CAUSE_DESCR
CONTAINED (DATE PORTION)	CONTAIN_DATE
CONTAINED (TIME PORTION)	CONTAIN_TIME
TOTAL_ACRES_BURNED	FIRE_SIZE
See derived FIRETYPE_PROTECTIONTYPE below	FIRETYPE_PROTECTIONTYPE
See derived SIZE_CLASS below	FIRE_SIZE_CLASS
See derived OWNER_DESCR below	OWNER_DESCR
See derived OWNER_CODE below	OWNER_CODE

FWS unique ID/Primary Key – FWSID – a sequence number generated by the FPA processing

Completeness Check – FIRE\_OCCURRENCE\_STATUS = 'Complete'

Initial Suppression Strategy:

This column has changed over the years as the following depicts:

**Background**

From 1970 through 1982, the initial suppression strategy field was populated with either a blank or the number 3. It is unknown what the meaning of the 3 is as compared to the blank value. The majority of the records are blank.

From 1983 through 1998, the initial suppression strategy values were altered, adding new definitions and values.

In 1999 the definitions for initial suppression strategy changed again; however, instead of adding new values, the old numbers were reused with different definitions. This has caused numerous conflicts in fire reporting numbers. By using Alpha rather than numerical characters, we allow for numerically incremented numbering if/when a new strategy name change is initiated in the Initial Suppression Strategy field.

**Proposed Changes to Historical Initial Suppression Strategy values**

1970 through 1882			1983 through 1998			1999 through the present		
Definition	From	To	Definition	From	To	Definition	From	To
Unknown	Blank <sup>1</sup>	D	Blank		U	Blank		U
Unknown	3	E	Confine	1	A	Wildfire	1	1
			Contain	2	B	Wildland Fire Use	2	2
			Control	3	C	Prescribed/RX	3	3
1911 - 1970								
	Blank	P <sup>2</sup>						

**Decision for FPA Processing:** Only load rows where Discover\_Year is greater than 1998, so that the current value can be assumed.

<sup>1</sup> With the number of fire records blank for these years far exceeding those with the number 3, we felt that these were probably the wildfires, and as such did not want to indicate that they were unknown (U) as indicated on the Blank fields for the years 1983 to the present.

<sup>2</sup> Indicates these blanks were records imported from the PCHA data upload in 2008.

Derived Columns:

LATITUDE:

round(LAT\_DEG + (LAT\_MIN /60.0) + (LAT\_SEC /3600.0),8)

LONGITUDE:

```

CASE
WHEN LONG_DEG > 0.0 THEN
    round((LONG_DEG + (LONG_MIN /60.0) + (LONG_SEC /3600.0)),8) * -1.0
ELSE
    round(LONG_DEG + (LONG_MIN /60.0) + (LONG_SEC /3600.0),8)
END

```

FIRETYPE\_PROTECTIONTYPE:

```

CASE
    WHEN (INIT_SUPPR_STRATEGY = '1' OR INIT_SUPPR_STRATEGY = '2') AND
    (PROTECTION_AGENCY IS NULL OR PROTECTION_AGENCY = 'FS')
    THEN '11'
    WHEN (INIT_SUPPR_STRATEGY = '1' OR INIT_SUPPR_STRATEGY = '2') AND
    (PROTECTION_AGENCY IS NOT NULL AND PROTECTION_AGENCY <> 'FS')
    THEN '12'
    WHEN (INIT_SUPPR_STRATEGY = '1' OR INIT_SUPPR_STRATEGY = '2') AND
    FEDERAL_PROT_AGENCY IS NULL
    THEN '13'
    WHEN INIT_SUPPR_STRATEGY = '3'
    THEN '49'
    ELSE NULL
END

```

SIZE\_CLASS:

```

CASE
WHEN TOTAL_ACRES_BURNED < 0.3 then 'A'
WHEN TOTAL_ACRES_BURNED >= 0.3 and TOTAL_ACRES_BURNED < 10 then 'B'
WHEN TOTAL_ACRES_BURNED >= 10 and TOTAL_ACRES_BURNED < 100 then 'C'
WHEN TOTAL_ACRES_BURNED >= 100 and TOTAL_ACRES_BURNED < 300 then 'D'
WHEN TOTAL_ACRES_BURNED >= 300 and TOTAL_ACRES_BURNED < 1000 then 'E'
WHEN TOTAL_ACRES_BURNED >= 1000 and TOTAL_ACRES_BURNED < 5000 then 'F'
WHEN TOTAL_ACRES_BURNED >= 5000 then 'G'
ELSE NULL
END

```

OWNER\_CODE:

```

CASE
WHEN OWNERSHIP_ORIGIN = 1 THEN 5
WHEN OWNERSHIP_ORIGIN = 2 THEN 7
WHEN OWNERSHIP_ORIGIN = 3 THEN 8

```

```
WHEN OWNERSHIP_ORIGIN = 4 THEN 6  
ELSE NULL  
END
```

OWNER\_DESCR:

```
CASE  
WHEN OWNER_CODE = 0 THEN 'Foreign'  
WHEN OWNER_CODE = 1 THEN 'BLM'  
WHEN OWNER_CODE = 2 THEN 'BIA'  
WHEN OWNER_CODE = 3 THEN 'NPS'  
WHEN OWNER_CODE = 4 THEN 'FWS'  
WHEN OWNER_CODE = 5 THEN 'USFS'  
WHEN OWNER_CODE = 6 THEN 'Other Federal'  
WHEN OWNER_CODE = 7 THEN 'State'  
WHEN OWNER_CODE = 8 THEN 'Private'  
WHEN OWNER_CODE = 9 THEN 'Tribal'  
WHEN OWNER_CODE = 10 THEN 'BOR'  
ELSE NULL  
END
```

Business rule particulars beyond what is stated in the FPA document:

Latitude/Longitude:

A row is considered invalid and will be rejected if:

- Both latitude and longitude are NULL.
- It has a null latitude OR null longitude.
- Either latitude or longitude is 0.

Business Rule 4:

This business rule can be skipped for any row where there is no FIRECODE.

Duplicates exist in FIRESTAT source data, so load this source data first into FPA\_SUBMITTED.

Match Score Processing:

For the matchscore rule (business rule 5), a row is considered a duplicate if and only if the final matchscore = 5 (all 5 checks match). If the final matchscore is 1, 2, 3, or 4 the row is NOT a duplicate.

For matching fire name business rule 5(c), use UPPER (FIRE\_NAME). Since the NFIRS data does not have FIRE\_NAME, the check can only be done for non-null fire names.

For matching location business rule 5(d), the following spatial assumptions were made. Please note that we only found values in the Aleutian Islands in Alaska that were affected by this.

1. The state abbreviation in the record is assumed to be correct.
2. If the state abbreviation is within the U.S., excluding Alaska, Marshal Islands, Guam and the Mariana Islands, ensure that the latitude is positive and the longitude is negative before spatial processing. We output the negative longitude values to the FPA file.

- If the state abbreviation is Alaska, Marshal Islands, Guam and the Mariana Islands, do nothing to the latitude/longitude values in the record and continue with the spatial processing.

## Fish and Wildlife Service (FWS) Fire Management Information System (FMIS)

Target FPA\_SUBMITTED table mapping to FWS source data:

<b>FWS</b>	<b>FPA_SUBMITTED</b>
'FWS-'   FWSID	FPA_ID
'FWS'	SOURCE_SYSTEM
FIRECODE	FIRECODE
FIRENAME	FIRE_NAME
ORGANIZATION	AGENCY
UNITIDENTIFIER	AGENCY_UNIT
NULL	REPORTING_AGENCY
STARTTIME (DATE PORTION); IF NULL then use INITATTTIME (DATE PORTION)*	DISCOVERY_DATE
STARTTIME (TIME PORTION); IF NULL then use INITATTTIME (TIME PORTION)*	DISCOVERY_TIME
LATITUDE	LATITUDE
LONGITUDE	LONGITUDE
GENERALCAUSE (single digit code) – see below	STATISTICAL_CAUSE_CODE
see derived GENERALCAUSE_DESCR below	STATISTICAL_CAUSE_DESCR
CONTROLTIME (DATE PORTION)*	CONTAIN_DATE
CONTROLTIME (TIME PORTION)	CONTAIN_TIME
CONTROLACRES	FIRE_SIZE
FIRETYPE    PROTECTIONTYPE	FIRETYPE_PROTECTIONTYPE
See derived SIZE_CLASS below	FIRE_SIZE_CLASS
See derived OWNER_DESCRIPTION below	OWNER_DESCR
See derived OWNER_CODE below	OWNER_CODE

\*Convert single space in source data where found to NULL first for all time columns.

FWS unique ID/Primary Key – FWSID – a sequence number generated by the FPA processing

Completeness Check – COMPLETECODE = ‘Complete’ or ‘COMPLETE’

Derived Columns:

GENERALCAUSE:

```
CASE
WHEN GENERALCAUSE = 2 THEN 4
WHEN GENERALCAUSE = 3 THEN 3
WHEN GENERALCAUSE = 4 THEN 5
WHEN GENERALCAUSE = 5 THEN 7
WHEN GENERALCAUSE = 6 THEN 2
WHEN GENERALCAUSE = 7 THEN 6
WHEN GENERALCAUSE = 8 THEN 8
WHEN GENERALCAUSE = 9 THEN 9
WHEN GENERALCAUSE = 1 THEN 1
ELSE NULL
END
```

GENERALCAUSE\_DESCR:

```
CASE
WHEN GENERALCAUSE = 1 then 'Lightning'
WHEN GENERALCAUSE = 2 then 'Equipment Use'
WHEN GENERALCAUSE = 3 then 'Smoking'
WHEN GENERALCAUSE = 4 then 'Campfire'
WHEN GENERALCAUSE = 5 then 'Debris Burning'
WHEN GENERALCAUSE = 6 then 'Railroad'
WHEN GENERALCAUSE = 7 then 'Arson'
WHEN GENERALCAUSE = 8 then 'Children'
WHEN GENERALCAUSE = 9 then 'Miscellaneous'
WHEN GENERALCAUSE = 10 then 'Fireworks'
WHEN GENERALCAUSE = 11 then 'Powerline'
WHEN GENERALCAUSE = 12 then 'Structure'
ELSE NULL
END
```

OWNER\_CODE:

```
CASE
WHEN OWNER = '00' THEN 0
WHEN OWNER = '01' THEN 1
WHEN OWNER = '02' THEN 2
WHEN OWNER = '03' THEN 3
WHEN OWNER = '04' THEN 4
WHEN OWNER = '05' THEN 5
WHEN OWNER = '06' THEN 6
WHEN OWNER = '07' THEN 7
WHEN OWNER = '08' THEN 8
```

```
WHEN OWNER = '09' THEN 9  
WHEN OWNER = '10' THEN 10  
ELSE NULL  
END
```

OWNER\_DESCRIPTION:

```
CASE  
WHEN OWNER_CODE = 0 THEN 'Foreign'  
WHEN OWNER_CODE = 1 THEN 'BLM'  
WHEN OWNER_CODE = 2 THEN 'BIA'  
WHEN OWNER_CODE = 3 THEN 'NPS'  
WHEN OWNER_CODE = 4 THEN 'FWS'  
WHEN OWNER_CODE = 5 THEN 'USFS'  
WHEN OWNER_CODE = 6 THEN 'Other Federal'  
WHEN OWNER_CODE = 7 THEN 'State'  
WHEN OWNER_CODE = 8 THEN 'Private'  
WHEN OWNER_CODE = 9 THEN 'Tribal'  
WHEN OWNER_CODE = 10 THEN 'BOR'  
ELSE NULL  
END
```

SIZE\_CLASS:

```
CASE  
WHEN CONTROLACRES < 0.3 then 'A'  
WHEN CONTROLACRES >= 0.3 and CONTROLACRES < 10 then 'B'  
WHEN CONTROLACRES >= 10 and CONTROLACRES < 100 then 'C'  
WHEN CONTROLACRES >= 100 and CONTROLACRES < 300 then 'D'  
WHEN CONTROLACRES >= 300 and CONTROLACRES < 1000 then 'E'  
WHEN CONTROLACRES >= 1000 and CONTROLACRES < 5000 then 'F'  
WHEN CONTROLACRES >= 5000 then 'G'  
ELSE NULL  
END
```

Business rule particulars beyond what is stated in the FPA document:

Latitude/Longitude:

A row is considered invalid and will be rejected if:

- Both latitude and longitude are NULL.
- It has a null latitude OR null longitude.
- Either latitude or longitude is 0.

Business Rule 4:

This business rule can be skipped for any row where there is no FIRECODE.

Match Score Processing:

For the matchscore rule (business rule 5), a row is considered a duplicate if and only if the final matchscore = 5 (all 5 checks match). If the final matchscore is 1, 2, 3, or 4 the row is NOT a duplicate.

For matching fire name business rule 5(c), use UPPER (FIRENAME). Since the NFIRS data does not have FIRE\_NAME, the check can only be done for non-null fire names.

For matching location business rule 5(d), the following spatial assumptions were made. Please note that we only found values in the Aleutian Islands in Alaska that were affected by this.

1. The state abbreviation in the record is assumed to be correct.
2. If the state abbreviation is within the U.S., excluding Alaska, Marshal Islands, Guam and the Mariana Islands, ensure that the latitude is positive and the longitude is negative before spatial processing. We output the negative longitude values to the FPA file.
3. If the state abbreviation is Alaska, Marshal Islands, Guam and the Mariana Islands, do nothing to the latitude/longitude values in the record and continue with the spatial processing.

## National Association of State Foresters (NASF)

Target FPA\_SUBMITTED table mapping to NASF (STATE\_FIRE\_OCCURRENCES) source data:

<b>STATE_FIRE_OCCURRENCES</b>	<b>FPA_SUBMITTED</b>
'SFO-'  FIRE_ID	FPA_ID
'NASF'	SOURCE_SYSTEM
NULL	FIRECODE
FIRE_NAME	FIRE_NAME
'State'	AGENCY
STATE    DISTRICT	AGENCY_UNIT
REPORTING_AGENCY	REPORTING_AGENCY
DISCOVERY_DATE	DISCOVERY_DATE
DISCOVERY_TIME	DISCOVERY_TIME
LATITUDE	LATITUDE
LONGITUDE	LONGITUDE
See derived CAUSE_CODE below	STATISTICAL_CAUSE_CODE
See derived CAUSE_CODE_DESCRIPTION below	STATISTICAL_CAUSE_DESCR

<b>STATE_FIRE_OCCURRENCES</b>	<b>FPA_SUBMITTED</b>
CONTAINED_DATE	CONTAIN_DATE
CONTAINED_TIME	CONTAIN_TIME
TOTAL_ACRES_BURNED	FIRE_SIZE
NULL	FIRETYPE_PROTECTIONTYPE
See derived FIRE_SIZE_CLASS below	FIRE_SIZE_CLASS
See derived OWNERSHIP_DESCRIPTION below	OWNER_DESCR
See derived OWNER_CODE below	OWNER_CODE

NASF unique ID/Primary Key – FIRE\_ID

Completeness Check – FIRE\_ID, FIRE\_DATE and TOTAL\_ACRES\_BURNED are not null

Derived Columns:

CAUSE\_CODE:

```

CASE
WHEN CAUSE_CODE = '1' THEN 1
WHEN CAUSE_CODE = '2' THEN 4
WHEN CAUSE_CODE = '3' THEN 3
WHEN CAUSE_CODE = '4' THEN 5
WHEN CAUSE_CODE = '5' THEN 7
WHEN CAUSE_CODE = '6' THEN 2
WHEN CAUSE_CODE = '7' THEN 6
WHEN CAUSE_CODE = '8' THEN 8
WHEN CAUSE_CODE = '9' THEN 9
WHEN CAUSE_CODE = '10' THEN 9
WHEN CAUSE_CODE = '0' THEN 9
WHEN CAUSE_CODE = '13' THEN 11
WHEN CAUSE_CODE = '14' THEN 10
WHEN CAUSE_CODE = '15' THEN 12
WHEN CAUSE_CODE = '16' THEN 5
WHEN CAUSE_CODE = '18' THEN 12
WHEN CAUSE_CODE = '19' THEN 5
WHEN CAUSE_CODE IS NULL THEN NULL
ELSE 1000
END

```

CAUSE\_CODE\_DESCRIPTION:

```

CASE
WHEN CAUSE_CODE = 1 then 'Lightning'
WHEN CAUSE_CODE = 2 then 'Equipment Use'

```

```

WHEN CAUSE_CODE = 3 then 'Smoking'
WHEN CAUSE_CODE = 4 then 'Campfire'
WHEN CAUSE_CODE = 5 then 'Debris Burning'
WHEN CAUSE_CODE = 6 then 'Railroad'
WHEN CAUSE_CODE = 7 then 'Arson'
WHEN CAUSE_CODE = 8 then 'Children'
WHEN CAUSE_CODE = 9 then 'Miscellaneous'
WHEN CAUSE_CODE = 10 then 'Fireworks'
WHEN CAUSE_CODE = 11 then 'Powerline'
WHEN CAUSE_CODE = 12 then 'Structure'
ELSE NULL
END

```

FIRE\_SIZE\_CLASS:

```

CASE
WHEN TOTAL_ACRES_BURNED < 0.3 then 'A'
WHEN TOTAL_ACRES_BURNED >= 0.3 and TOTAL_ACRES_BURNED < 10 then 'B'
WHEN TOTAL_ACRES_BURNED >= 10 and TOTAL_ACRES_BURNED < 100 then 'C'
WHEN TOTAL_ACRES_BURNED >= 100 and TOTAL_ACRES_BURNED < 300 then 'D'
WHEN TOTAL_ACRES_BURNED >= 300 and TOTAL_ACRES_BURNED < 1000 then 'E'
WHEN TOTAL_ACRES_BURNED >= 1000 and TOTAL_ACRES_BURNED < 5000 then 'F'
WHEN TOTAL_ACRES_BURNED >= 5000 then 'G'
ELSE NULL
END

```

OWNER\_CODE:

```

CASE
WHEN OWNERSHIPCODE = 'D' THEN 7
WHEN OWNERSHIPCODE = 'CO' THEN 8
WHEN OWNERSHIPCODE = 'Co' THEN 8
WHEN OWNERSHIPCODE = 'C' THEN 7
WHEN OWNERSHIPCODE = 'F' THEN 6
WHEN OWNERSHIPCODE = 'X' THEN 8
WHEN OWNERSHIPCODE = 'M' THEN 7
WHEN OWNERSHIPCODE = 'U' THEN 8
WHEN OWNERSHIPCODE = 'L' THEN 8
WHEN OWNERSHIPCODE = 'OX' THEN 8
WHEN OWNERSHIPCODE = 'O' THEN 7
WHEN OWNERSHIPCODE = 'P' THEN 8
WHEN OWNERSHIPCODE = 'S' THEN 7
WHEN OWNERSHIPCODE = 'SL' THEN 7
WHEN OWNERSHIPCODE = 'SU' THEN 8
WHEN OWNERSHIPCODE = 'T' THEN 9
WHEN OWNERSHIPCODE = 'N' THEN 8
WHEN OWNERSHIPCODE IS NULL THEN NULL
ELSE 1000
END

```

OWNER\_DESCRIPTION:

```

CASE
WHEN OWNER_CODE = 0 THEN 'Foreign'
WHEN OWNER_CODE = 1 THEN 'BLM'
WHEN OWNER_CODE = 2 THEN 'BIA'
WHEN OWNER_CODE = 3 THEN 'NPS'
WHEN OWNER_CODE = 4 THEN 'FWS'
WHEN OWNER_CODE = 5 THEN 'USFS'
WHEN OWNER_CODE = 6 THEN 'Other Federal'
WHEN OWNER_CODE = 7 THEN 'State'
WHEN OWNER_CODE = 8 THEN 'Private'
WHEN OWNER_CODE = 9 THEN 'Tribal'
WHEN OWNER_CODE = 10 THEN 'BOR'
ELSE NULL
END

```

Business rule particulars beyond what is stated in the FPA document:

Latitude/Longitude:

A row is considered invalid and will be rejected if:

- Both latitude and longitude are NULL.
- It has a null latitude OR null longitude.
- Either latitude or longitude is 0.

Business Rules 2 through 4:

Because all NASF fires are suppression, these business rule checks are bypassed.

Match Score Processing:

For the matchscore rule (business rule 5), a row is considered a duplicate if and only if the final matchscore = 5 (all 5 checks match). If the final matchscore is 1, 2, 3, or 4 the row is NOT a duplicate.

For matching fire name business rule 5(c), use UPPER (FIRENAME). Since the NFIRS data does not have FIRE\_NAME, the check can only be done for non-null fire names.

For matching location business rule 5(d), the following spatial assumptions were made. Please note that we only found values in the Aleutian Islands in Alaska that were affected by this.

1. The state abbreviation in the record is assumed to be correct.
2. If the state abbreviation is within the U.S., excluding Alaska, Marshal Islands, Guam and the Mariana Islands, ensure that the latitude is positive and the longitude is negative before spatial processing. We output the negative longitude values to the FPA file.
3. If the state abbreviation is Alaska, Marshal Islands, Guam and the Mariana Islands, do nothing to the latitude/longitude values in the record and continue with the spatial processing.

## National Fire Incident Reporting System (NFIRS)

Target FPA\_SUBMITTED table mapping to NFIRS (WILDLAND\_NFIRS) source data:

<b>WILDLAND_NFIRS</b>	<b>FPA_SUBMITTED</b>
'NFIRS-'    STATE    FDID    INC_DATE    INC_NO    EXP_NO	FPA_ID
'NFIRS'	SOURCE_SYSTEM
NULL	FIRECODE
NULL	FIRE_NAME
'State'	AGENCY
STATE    FDID	AGENCY_UNIT
NULL	REPORTING_AGENCY
INC_DATE	DISCOVERY_DATE
NULL	DISCOVERY_TIME
LATITUDE	LATITUDE
LONGITUDE	LONGITUDE
See derived CAUSE_CODE below	STATISTICAL_CAUSE_CODE
See derived STATISTICALCAUSE_DESCR below	STATISTICAL_CAUSE_DESCR
NULL	CONTAIN_DATE
NULL	CONTAIN_TIME
ACRES_BURN	FIRE_SIZE
NULL	FIRETYPE_PROTECTIONTYPE
See derived FIRE_SIZE_CLASS below	FIRE_SIZE_CLASS
See derived OWNERSHIP_DESCR below	OWNER_DESCR
See derived OWNER_CODE below	OWNER_CODE

NFIRS unique ID/Primary Key – STATE, FDID, INC\_DATE, INC\_NO, EXP\_NO

Completeness Check – INC\_DATE and ACRES\_BURN are not null

Derived Columns:

CAUSE\_CODE:

```

CASE
WHEN FIRE_CAUSE = '1' THEN 1
WHEN FIRE_CAUSE = '2' THEN 2
WHEN FIRE_CAUSE = '3' THEN 3
WHEN FIRE_CAUSE = '4' THEN 4
WHEN FIRE_CAUSE = '5' THEN 5
WHEN FIRE_CAUSE = '6' THEN 12
WHEN FIRE_CAUSE = '7' THEN 7
WHEN FIRE_CAUSE = '8' THEN 7
WHEN FIRE_CAUSE = '0' THEN 9
WHEN FIRE_CAUSE = 'U' THEN 9
ELSE NULL
END

```

STATISTICALCAUSE\_DESCR:

```

CASE
WHEN CAUSE_CODE = 1 then 'Lightning'
WHEN CAUSE_CODE = 2 then 'Equipment Use'
WHEN CAUSE_CODE = 3 then 'Smoking'
WHEN CAUSE_CODE = 4 then 'Campfire'
WHEN CAUSE_CODE = 5 then 'Debris Burning'
WHEN CAUSE_CODE = 6 then 'Railroad'
WHEN CAUSE_CODE = 7 then 'Arson'
WHEN CAUSE_CODE = 8 then 'Children'
WHEN CAUSE_CODE = 9 then 'Miscellaneous'
WHEN CAUSE_CODE = 10 then 'Fireworks'
WHEN CAUSE_CODE = 11 then 'Powerline'
WHEN CAUSE_CODE = 12 then 'Structure'
ELSE NULL
END

```

FIRE\_SIZE\_CLASS:

```

CASE
WHEN ACRES_BURN < 0.3 then 'A'
WHEN ACRES_BURN >= 0.3 and ACRES_BURN < 10 then 'B'
WHEN ACRES_BURN >= 10 and ACRES_BURN < 100 then 'C'
WHEN ACRES_BURN >= 100 and ACRES_BURN < 300 then 'D'
WHEN ACRES_BURN >= 300 and ACRES_BURN < 1000 then 'E'
WHEN ACRES_BURN >= 1000 and ACRES_BURN < 5000 then 'F'
WHEN ACRES_BURN >= 5000 then 'G'
ELSE NULL
END

```

OWNER\_CODE:

```
CASE
WHEN PROP_MANAG = '1' THEN 8
WHEN PROP_MANAG = 'U' THEN 8
WHEN PROP_MANAG = '3' THEN 7
WHEN PROP_MANAG = '6' THEN 6
WHEN PROP_MANAG = '0' THEN 7
WHEN PROP_MANAG = '8' THEN 6
WHEN PROP_MANAG = '5' THEN 8
WHEN PROP_MANAG = '7' THEN 0
WHEN PROP_MANAG = '2' THEN 8
WHEN PROP_MANAG = '4' THEN 7
ELSE NULL
END
```

OWNER\_DESCR:

```
CASE
WHEN OWNER_CODE = 0 THEN 'Foreign'
WHEN OWNER_CODE = 1 THEN 'BLM'
WHEN OWNER_CODE = 2 THEN 'BIA'
WHEN OWNER_CODE = 3 THEN 'NPS'
WHEN OWNER_CODE = 4 THEN 'FWS'
WHEN OWNER_CODE = 5 THEN 'USFS'
WHEN OWNER_CODE = 6 THEN 'Other Federal'
WHEN OWNER_CODE = 7 THEN 'State'
WHEN OWNER_CODE = 8 THEN 'Private'
WHEN OWNER_CODE = 9 THEN 'Tribal'
WHEN OWNER_CODE = 10 THEN 'BOR'
ELSE NULL
END
```

Business rule particulars beyond what is stated in the FPA document:

Latitude/Longitude:

A row is considered invalid and will be rejected if:

- Both latitude and longitude are NULL.
- It has a null latitude OR null longitude.
- Either latitude or longitude is 0.

Business Rules 2 through 4:

Because there is no fire type/protection type classification for NFIRS data, these business rule checks are bypassed.

Match Score Processing:

For the matchscore rule (business rule 5), a row is considered a duplicate if and only if the final matchscore = 5 (all 5 checks match). If the final matchscore is 1, 2, 3, or 4 the row is NOT a duplicate.

For matching fire name business rule 5(c), use UPPER (FIRENAME). Since the NFIRS data does not have FIRE\_NAME, the check can only be done for non-null fire names.

For matching location business rule 5(d), the following spatial assumptions were made. Please note that we only found values in the Aleutian Islands in Alaska that were affected by this.

1. The state abbreviation in the record is assumed to be correct.
2. If the state abbreviation is within the U.S., excluding Alaska, Marshal Islands, Guam and the Mariana Islands, ensure that the latitude is positive and the longitude is negative before spatial processing. We output the negative longitude values to the FPA file.
3. If the state abbreviation is Alaska, Marshal Islands, Guam and the Mariana Islands, do nothing to the latitude/longitude values in the record and continue with the spatial processing.

## Wildland Fire Management Information System (WFMI)

Target FPA\_SUBMITTED table mapping to WFMI source data:

<b>WFMI</b>	<b>FPA_SUBMITTED</b>
'W-'  FIREID	FPA_ID
'WFMI'	SOURCE_SYSTEM
FIRECODE	FIRECODE
FIRENAME	FIRE_NAME
ORGANIZATION	AGENCY
UNITIDENTIFIER	AGENCY_UNIT
NULL	REPORTING_AGENCY
STARTTIME (DATE PORTION); IF NULL then use INITATTTIME (DATE PORTION)	DISCOVERY_DATE
STARTTIME (TIME PORTION); IF NULL then use INITATTTIME (TIME PORTION)	DISCOVERY_TIME
LATITUDE	LATITUDE
LONGITUDE	LONGITUDE
GENERALCAUSE (single digit code) – see below	STATISTICAL_CAUSE_CODE

<b>WFMI</b>	<b>FPA_SUBMITTED</b>
see derived GENERALCAUSE_DESCR below	STATISTICAL_CAUSE_DESCR
CONTROLTIME (DATE PORTION)	CONTAIN_DATE
CONTROLTIME (TIME PORTION)	CONTAIN_TIME
CONTROLACRES	FIRE_SIZE
FIRETYPE    PROTECTIONTYPE	FIRETYPE_PROTECTIONTYPE
See derived SIZE_CLASS below	FIRE_SIZE_CLASS
See derived OWNER_DESCRIPTION below	OWNER_DESCR
See derived OWNER_CODE below	OWNER_CODE

WFMI unique ID/Primary Key – FIRE ID

Completeness Check – COMPLETECODE = 'Complete' or 'COMPLETE'

Derived Columns:

GENERALCAUSE:

```

CASE
WHEN GENERALCAUSE = 2 THEN 4
WHEN GENERALCAUSE = 3 THEN 3
WHEN GENERALCAUSE = 4 THEN 5
WHEN GENERALCAUSE = 5 THEN 7
WHEN GENERALCAUSE = 6 THEN 2
WHEN GENERALCAUSE = 7 THEN 6
WHEN GENERALCAUSE = 8 THEN 8
WHEN GENERALCAUSE = 9 THEN 9
WHEN GENERALCAUSE = 1 THEN 1
ELSE NULL
END

```

GENERALCAUSE\_DESCR:

```

CASE
WHEN GENERALCAUSE = 1 then 'Lightning'
WHEN GENERALCAUSE = 2 then 'Equipment Use'
WHEN GENERALCAUSE = 3 then 'Smoking'
WHEN GENERALCAUSE = 4 then 'Campfire'
WHEN GENERALCAUSE = 5 then 'Debris Burning'
WHEN GENERALCAUSE = 6 then 'Railroad'
WHEN GENERALCAUSE = 7 then 'Arson'
WHEN GENERALCAUSE = 8 then 'Children'
WHEN GENERALCAUSE = 9 then 'Miscellaneous'

```

```
WHEN GENERALCAUSE = 10 then 'Fireworks'  
WHEN GENERALCAUSE = 11 then 'Powerline'  
WHEN GENERALCAUSE = 12 then 'Structure'  
ELSE NULL  
END
```

OWNER\_CODE:

```
CASE  
WHEN OWNER = '00' THEN 0  
WHEN OWNER = '01' THEN 1  
WHEN OWNER = '02' THEN 2  
WHEN OWNER = '03' THEN 3  
WHEN OWNER = '04' THEN 4  
WHEN OWNER = '05' THEN 5  
WHEN OWNER = '06' THEN 6  
WHEN OWNER = '07' THEN 7  
WHEN OWNER = '08' THEN 8  
WHEN OWNER = '09' THEN 9  
WHEN OWNER = '10' THEN 10  
ELSE NULL  
END
```

OWNER\_DESCRIPTION:

```
CASE  
WHEN OWNER_CODE = 0 THEN 'Foreign'  
WHEN OWNER_CODE = 1 THEN 'BLM'  
WHEN OWNER_CODE = 2 THEN 'BIA'  
WHEN OWNER_CODE = 3 THEN 'NPS'  
WHEN OWNER_CODE = 4 THEN 'FWS'  
WHEN OWNER_CODE = 5 THEN 'USFS'  
WHEN OWNER_CODE = 6 THEN 'Other Federal'  
WHEN OWNER_CODE = 7 THEN 'State'  
WHEN OWNER_CODE = 8 THEN 'Private'  
WHEN OWNER_CODE = 9 THEN 'Tribal'  
WHEN OWNER_CODE = 10 THEN 'BOR'  
ELSE NULL  
END
```

SIZE\_CLASS:

```
CASE  
WHEN CONTROLACRES < 0.3 then 'A'  
WHEN CONTROLACRES >= 0.3 and CONTROLACRES < 10 then 'B'  
WHEN CONTROLACRES >= 10 and CONTROLACRES < 100 then 'C'  
WHEN CONTROLACRES >= 100 and CONTROLACRES < 300 then 'D'  
WHEN CONTROLACRES >= 300 and CONTROLACRES < 1000 then 'E'
```

```
WHEN CONTROLACRES >= 1000 and CONTROLACRES < 5000 then 'F'  
WHEN CONTROLACRES >= 5000 then 'G'  
ELSE NULL  
END
```

Business rule particulars beyond what is stated in the FPA document:

Latitude/Longitude:

A row is considered invalid and will be rejected if:

- Both latitude and longitude are NULL.
- It has a null latitude OR null longitude.
- Either latitude or longitude is 0.

Business Rule 4:

This business rule can be skipped for any row where there is no FIRECODE.

Match Score Processing:

For the matchscore rule (business rule 5), a row is considered a duplicate if and only if the final matchscore = 5 (all 5 checks match). If the final matchscore is 1, 2, 3, or 4 the row is NOT a duplicate.

For matching fire name business rule 5(c), use UPPER (FIRENAME). Since the NFIRS data does not have FIRE\_NAME, the check can only be done for non-null fire names.

For matching location business rule 5(d), the following spatial assumptions were made. Please note that we only found values in the Aleutian Islands in Alaska that were affected by this.

1. The state abbreviation in the record is assumed to be correct.
2. If the state abbreviation is within the U.S., excluding Alaska, Marshal Islands, Guam and the Mariana Islands, ensure that the latitude is positive and the longitude is negative before spatial processing. We output the negative longitude values to the FPA file.
3. If the state abbreviation is Alaska, Marshal Islands, Guam and the Mariana Islands, do nothing to the latitude/longitude values in the record and continue with the spatial processing.