Oregon/Washington Bureau of Land Management

Fire Water Sources

Spatial Data Standard

Air Attack during Cable Crossing Fire near Glide, Oregon. Photo by Jeffrey McEnroe, BLM, July 31, 2015.

Document Revisions

Revision	Date	Author	Description	Affected Pages
1.0	1999		Initial Release	All
1.0	3/31/2000	Ginny Vinson, Dan Wickwire, Lance Finnegan, Stan Frazier	Revised standard.	All
2.0	4/28/2020	Dana Baker-Allum, Jena Volpe, Jeremy Hruska, Stacy Fenton, Krisann Kosel, Shane Clark, Kim Gray	Initial Release	All

Navigation	
	This document uses hyperlinks to display additional information on topics. External links are displayed with an underline. Internal links are blue text, not underlined. After clicking on an internal link, press the **Alt**  **+left arrow**  keys to return to the original location from the target location.

Contents

1 General Information

This theme depicts sources of water for fire management purposes and indicates accessibility by firefighting equipment (e.g. engines, water tenders, pumps, or helicopters) and any maintenance needed to ensure access. Identified water sources are presumed to be useable during fire season and use restrictions, if applicable, are noted. This theme does not depict water for uses other than firefighting. For example, potable water is not identified in this theme.

- Dataset (Theme) Name: Fire Water Sources Points
- Dataset (Feature Class): FWTR_SRC_POINT

1.1 Roles and Responsibilities

Table 1 Roles and Responsibilities

Roles	Responsibilities
State Data Steward	The State Data Steward responsibilities include approving data standards and business rules, developing Quality Assurance/Quality Control procedures, identifying potential Privacy issues, and managing that data as a corporate resource. The State Data Steward coordinates with field office data stewards, the State Data Administrator, Geographic Information System (GIS) coordinators, and national data stewards. The State Data Steward reviews geospatial metadata for completeness and quality.
GIS Technical Lead	The GIS Technical Lead works with data stewards to convert business needs into GIS applications and derive data requirements and participates in the development of data standards. The GIS technical lead coordinates with system administrators and GIS coordinators to manage the GIS databases. The GIS technical lead works with data editors to ensure the consistency and accordance with the established data standards of data input into the enterprise Spatial Database Engine (SDE) geodatabase. The GIS technical lead provides technical assistance and advice on GIS analysis, query, and display of the dataset.
State Data Administrator	The State Data Administrator provides information management leadership, data modeling expertise, and custodianship of the state data models. The State Data Administrator ensures compliance with defined processes for development of data standards and metadata, and process consistency and completeness. The State Data Administrator is responsible for making data standards and metadata accessible to all users. The State Data Administrator coordinates with data stewards and GIS coordinators to respond to national spatial data requests.
State Records Administrator	The State Records Administrator assists the state data steward to identify any privacy issues related to spatial data. The state records administrator also provides direction and guidance on data release and fees. The state records administrator classifies data under the proper records retention schedule and determines the appropriate Freedom of Information Act category.

1.2 FOIA Category

Public

1.3 Records Retention Schedule

The DRS/GRS/BLM Combined Records Schedule, under Schedule 20/52a3 (Electronic Records/Geographic Information Systems), does not list this theme as one of the system-centric themes that are significant for BLM's mission that must be permanently retained.

TEMPORARY. Delete when no longer needed for administrative, legal, audit, or other operational purposes (subject to any records freeze or holds that may be in place).

· Annual snapshots are stored online for a minimum of 12 years after which the data are copied offline, with format and readability maintained in a five-year "tech refresh" cycle in order to retain full functionality.

· Cutoff at the end of each Fiscal Year (FY), or, when significant changes and additions have been made, before and after the change. Use BLM 20/52a.

· Transfer to the National Archives every three years after cutoff. Under the instruction in 36 CFR 1235.44-50, or whichever guidance is in place at the time of the transfer.

· Submissions are full datasets and are in addition to, not replacements, of earlier submissions."

Oregon/Washington (OR/WA) Bureau of Land Management (BLM) Guidebook for Management of Geospatial Data (v1) Section 15.2 - Corporate Data Online Archives prescribes:

"Vector annual archives are retained online for 12 years. Each year, data that has reached 12 years old is copied off-line to be retained until no longer needed (determined by data stewards and program leads) with format and readability maintained in a five (5) year "tech refresh" update cycle."

1.4 Security/Access/Sensitivity

The Fire Water Sources theme does not require any additional security other than that provided by the General Support System (the hardware/software infrastructure of the OR/WA BLM).

This dataset is not sensitive and there are no restrictions on access to this data, either from within the BLM or external to the BLM. This dataset falls under the standard Records Access Category 1A-Public Data.

There are no privacy issues or concerns associated with these data themes. A privacy impact assessment was submitted for this dataset on 3/9/2020.

1.5 Keywords

Keywords that can be used to locate this dataset include:

- BLM Thesaurus: Fire, Hydrology
- Additional keywords: Wildfire, Wildland Fire, Fire Pond, Pump Chance
- ISO Thesaurus: environment, inlandWaters, structure

1.6 Subject Function Codes

BLM Subject Function codes used to describe this dataset include:

- 1283 - Data Administration
- 9209 - Fire Information Resources Management
- 9167 - Geography and Mapping

2 Dataset Overview

2.1 Usage

This data is used for depicting the spatial location where water resources may be available for firefighting.

Only water sources that have been assessed for firefighting access and/or equipment are included in this dataset. Water sources are selected for inclusion based on opportunistic inventory.

The quality of the water source for firefighting can be determined by:

- HELI_TYPE, TENDER, ENGINE indicate the type of equipment that can access the water source.
- SUSTAINABILITY indicates the ability of the water source to support fire suppression activities.
- RESTRICT_TYPE indicate the limiting reasons for exclusion of water sources, such as Port Orford Cedar, Sudden Oak Death, Contamination, or Fish Disease.

Some water sources identified within this dataset may have been identified on non-BLM administered lands. Refer to the FAC_ADMIN attribute within the dataset to see which management entity has administrative responsibility for the water source.

These data are provided by BLM "as is" and might contain errors or omissions. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use. The information contained in these data is dynamic and may change over time. The data are not better than the sources from which they were derived, and both scale and accuracy may vary across the data set. These data might not have the accuracy, resolution, completeness, timeliness, or other characteristics appropriate for applications that potential users of the data may contemplate. The User is encouraged to carefully consider the content of the metadata file associated with these data. These data are neither legal documents nor land surveys and must not be used as such. Official records may be referenced at most BLM offices. Please report any errors in the data to the BLM office from which it was obtained. The BLM should be cited as the data source in any products derived from these data. Any Users wishing to modify the data should describe the types of modifications they have performed. The User should not misrepresent the data, nor imply that changes made were approved or endorsed by BLM. This data may be updated by the BLM without notification.

2.2 Sponsor/Affected Parties

The sponsor for this data set is the Deputy State Director for the Division of Resources, Lands, and Mineral. Affected parties include fire management resources and landowners/permittees where water sources are located and identified for use.

2.3 Relationship to Other Datasets, Databases, or Files

Features represented by points in the Fire Water Sources dataset may also occur in the USGS National Hydrography Dataset (NHD) Waterbody or Water Point datasets.

2.4 Data Category/Architecture Link

This data theme is a portion of the Oregon Data Framework (ODF) shown in Figure 1, Oregon Data Framework (ODF) Overview on page 9. The illustration is a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The ODF utilizes the concept of inheritance to define specific instances of data. The ODF divides all OR/WA resource-related data into three general categories:

- Activities

- Resources
- Boundaries

These data themes are a portion of the Oregon Data Framework (ODF). The ODF utilizes the concept of inheritance to define specific instances of data. All OR/WA resource-related data are divided into three general categories: Activities, Resources, and Boundaries.

These general categories are broken into sub-categories that inherit spatial characteristics and attributes from their parent category. These sub-categories may be further broken into more specific groups until the basic data set cannot be further sub-divided. Those basic data sets inherit all characteristics of all groups/categories above them. The basic data sets are where physical data gets populated. Those groups/categories above them do not contain actual data but set parameters which all data of that type must follow.

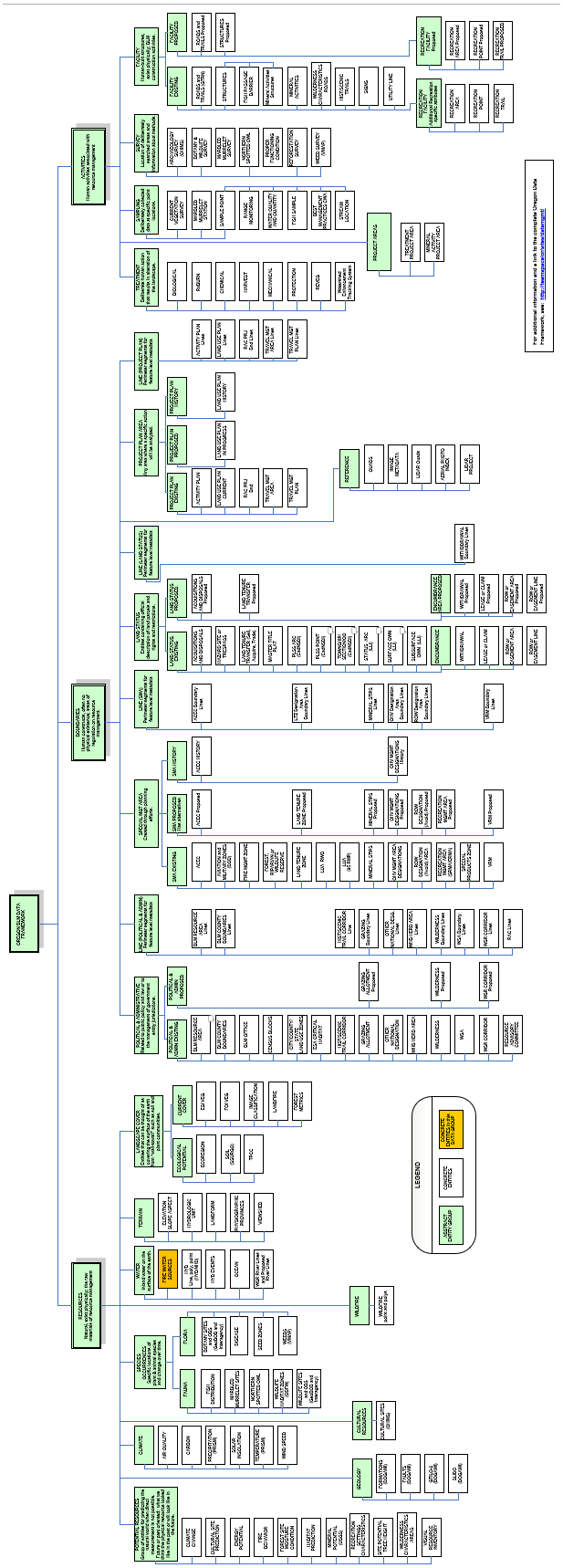

Figure 1 Oregon Data Framework Overview

Physical data is populated in the basic data sets. Those groups/categories above them do not contain actual data but set parameters that all data of that type must follow. See Figure 2, Data Organization Structure for a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The Fire Water Sources entities are highlighted. For additional information about the ODF, contact the State Data Administrator. The State Data Administrator's contact information can be found at the following link:

https://www.blm.gov/about/data/oregon-data-management

In the ODF, Fire Water Sources is considered a natural resource and categorized as follows:

ODF

Resources

Water

FWTR_SRC_POINT

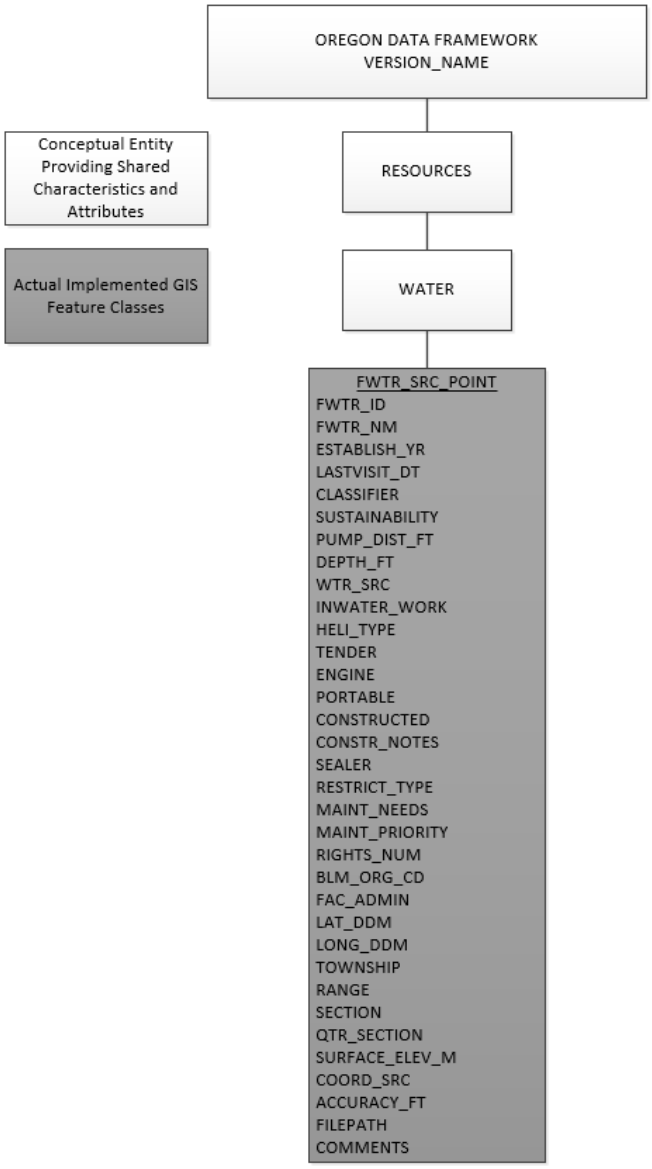

Figure 2 Data Organization Structure

2.5 Relationship to DOI Enterprise Architecture Data Resource Mode

The Department of the Interior (DOI) Enterprise Architecture contains a component called the Data Resource Model. This model addresses the concepts of data sharing, data description, and data context. This data standard provides information needed to address each of those areas. Data sharing is addressed through complete documentation and simple data structures which make sharing easier. Data description is addressed through the section on Attribute Descriptions. Data context is addressed through the data organization and structure portions of this document. In addition, the DOI Data Resource Model categorizes data by use of standardized Data Subject Areas and Information Classes. For this data set, the Data Subject Area and Information Class are:

- Data Subject Area: Geospatial
- Information Class: Location

3 Data Management Protocols

3.1 Accuracy Requirements

A wide range of positional accuracy is acceptable within the Fire Water Sources theme. The attribute ACCURACY_FT provides the accuracy of each point. This schema allows for a variety of data to be included within the theme yet allows for lower quality data to be excluded where appropriate for using or sharing the data.

3.2 Collection, Input, and Maintenance Protocols

Most points are input from GPS coordinates or while using Digital Raster Graphic (DRG) or Digital Orthoquad (DOQ) backdrops during heads-up digitizing. In addition, mobile data collection has been enabled for this theme using the S1 Mobile Mapper and OR/WA Sync and Submit processes. The source of the coordinates is captured in the attribute COORD_SRC.

Resource specialists have the option of entering data from survey field forms in the office using Desktop ArcGIS or field-going staff may collect Fire Water Sources data using the S1 Mobile for Android application.

To collect mobile data, a staff member must first obtain the appropriate mobile editor user account within the BLM ArcGIS Online (AGOL) organization. Then, administrators will add Fire Water Sources mobile editors to the designated group in AGOL which allows them to access the editable feature service. Specific decisions about how to manage AGOL users can be made at the District or Field Office level.

Once added to the correct group, users can log in to the S1 Mobile for Android Application and download an editable replica of the Fire Water Sources dataset to their device for offline use in the field. This application allows users to create Fire Water Sources features.

When the user returns to the office and re-establishes wireless internet connectivity on the device, they will then choose the option to sync and submit their data from the mobile application. This will add the created, updated, and/or deleted features/records to a BLM SDE Version queue. Authorized editors will then import this mobile version into ArcGIS Desktop, where they will review the data, perform any needed corrections or updates, and submit the version for automated Quality Assurance/Quality Control (QAQC), reconcile, and posting. The automated QAQC process performed during version submission will check the version for missing values in required fields, values outside of applied range and/or coded value domains, and other data rules.

3.3 Update Frequency and Archival Protocols

Staff will create and update Fire Water Sources data as needed, but at least annually.

Data is archived annually at the end of the fiscal year.

3.4 Statewide Monitoring

The State Data Stewards, assisted by the GIS Technical Lead, are responsible for checking consistency across districts for the theme. The State Data Steward is responsible for coordinating the response to national BLM and interagency data calls.

Each year, the Resource Science Group of the BLM Division of Resources, Lands, Minerals, and Fire meets with the state data stewards and technical leads for every corporate geospatial theme to conduct an annual review of the data. During the annual review, geospatial staff present the state data stewards and technical leads with a report detailing QAQC results performed on the data. The QAQC checks include:

- All attribute values conform to the range or coded-value domains to which they are applied.

- All attributes marked as required in the data standard have values.
- Duplicate features (or records) which have the same geometry and attributes.
- Invalid geometry (such as self-intersections or null geometry).
- Other checks, as necessary (can be customized according to the data standard).

In addition to this report, geospatial staff conduct a qualitative needs assessment with the data steward and technical lead to identify any unmet needs or problems with the status of the data. At the conclusion of the review, the team records the data steward's and technical lead's approval of the datasets reviewed. Data administration staff note this approval in the official corporate metadata.

4 Fire Water Sources Schema (simplified)

General Information: Attributes are listed in the order they appear in the geodatabase feature class. The order is an indication of the importance of the attribute for theme definition and use. There are no aliases unless specifically noted. The domains used in this data standard can be found in Appendix A. These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site: https://www.blm.gov/about/data/oregon-data-management

For domains not listed at that site contact: State Data Administrator.

4.1 FWTR_SRC_POINT Feature Class (Fire Water Sources Points)

For domain and default values, see Section o, **None**

Attribute Characteristics and Definition (In alphabetical order)in this document.

Attribute Name	Data Type	Length	Default Value	Required	Domain
FWTR_ID	Long Integer			Yes *	
FWTR_NM	String	60		Yes	
ESTABLISH_YR	String	4		No	
4.2 INWATER_WORK Geodatabase Name BLM Structured Na Inheritance Alias Name Feature Class Use/I Definition Required/Optional Domain (Valid Val Data Type LASTVISIT_DT	String	8		No	
CLASSIFIER	String	30		No	
SUSTAINABILITY	String	20		Yes	dom_FWTR_SUSTAIN
PUMP_DIST_FT	Short Integer			No	
DEPTH_FT	Short Integer			No	
WTR_SRC	String	20		Yes	dom_FWTR_SRC
INWATER_WORK	String	30		No	
HELI_TYPE	String	15		Yes	dom_FWTR_HELI_TYPE
TENDER	String	1		Yes	dom_YN
ENGINE	String	1		Yes	dom_YN
PORTABLE	String	1		Yes	dom_YN
CONSTRUCTED	String	1		Yes	dom_YN

CONSTR_NOTES	String	100		No **	
SEALER	String	10		No	
RESTRICT_TYPE	String	20		No	dom_FWTR_RESTRICT
MAINT_NEEDS	String	20		No	dom_FWTR_MAINT
MAINT_PRIORITY	String	10		No	dom_FWTR_PRIORITY
RIGHTS_NUM	String	7		No	
BLM_ORG_CD	String	5		Yes *	dom_BLM_ORG_CD
FAC_ADMIN	String	3		No	dom_JURIS_CODE
LAT_DDM	String	20		Yes *	
LONG_DDM	String	20		Yes *	
TOWNSHIP	String	6		Yes *	
RANGE	String	6		Yes *	
SECTION	String	30		Yes *	
QTR_SECTION	String	2		No *	
SURFACE_ELEV_M	Long Integer			Yes *	
COORD_SRC	String	7		No	dom_COORD_SRC **A.1 dom_COORD_SRC** **A.2 dom_COORD_SRC** **A.3 dom_COORD_SRC** **A.4 dom_COORD_SRC**
ACCURACY_FT	Short Integer			No	
FILEPATH	String	150		No	
COMMENTS	String	255		No	
VERSION_NAME	String	50	InitialLoad	Yes *	

* Values automatically generated

** Enforced during quality control, may appear in data as not required

5 Projection and Spatial Extent

All feature classes and feature datasets are in Geographic, North American Datum 83. Units are decimal degrees. Spatial extent (area of coverage) includes all lands managed by the BLM OR/WA in Western Oregon. See the metadata for this data for a more precise description of the extent.

6 Spatial Entity Characteristics

- FIRE WATER SOURCES POINTS (FWTR_SRC_POINT)
  - Description: An instance of the Water Resources group.
  - Geometry: Simple point features; scattered small areas; points may be coincident
  - Topology: No topology rules enforced.
  - Integration Requirements: None

7 Attribute Characteristics and Definition (In alphabetical order)

7.1 ACCURACY_FT

Geodatabase Name	ACCURACY_FT
BLM Structured Name	Accuracy_Feet_Measure
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	How close, in feet, the spatial GIS depiction is to the actual location on the ground. There are several factors to consider in GIS error: scale and accuracy of map-based sources, accuracy of GPS equipment, and the skill level of the data manipulators. A value of "0" indicates no entry was made. This is the correct value when the COORD_SRC is another GIS theme (Digital Line Graph, Cadastral National Spatial Data Infrastructure and Digital Elevation Model) because the accuracy is determined by that theme. However, if COORD_SRC is MAP (digitized from a paper map) or GPS, a value of "0" indicates a missing value that should be filled in either with a non-zero number or "-1." A value of "-1" indicates that the accuracy is unknown, and no reliable estimate can be made.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 3 (for high accuracy GPS), 40 (best possible for USGS 24K topo map), 200
Data Type	Short Integer

7.2 BLM_ORG_CD

Geodatabase Name	BLM_ORG_CD
BLM Structured Name	Administrative_Unit_Organization_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	A combination of the BLM administrative state and field office that have administrative responsibility for the spatial entity that includes which office covers the entity for planning purposes and which office is the lead for GIS edits. Another agency or individual may have the physical management responsibility for the on-the-ground entity. This field applies particularly when a spatial entity crosses resource area or district boundaries and the administrative responsibility is assigned to one or the other rather than splitting the spatial unit. Similarly, OR/WA BLM may have administrative responsibility over some area that is physically located in Nevada, Idaho, and California and vice versa. When appropriate, identify the office to the district or state level rather than to the resource area level.
Required/Optional	Required
Domain (Valid Values)	dom_BLM_ORG_CD
Data Type	String (5)

7.3 CLASSIFIER

Geodatabase Name	CLASSIFIER
BLM Structured Name	Classifier_Name
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Name (mixed case, first and last) of the person or agency who provided the fire water source data.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: Mary Smith, John Doe
Data Type	String (30)

7.4 COMMENTS

Geodatabase Name	COMMENTS
BLM Structured Name	Comments_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Free text for comments about the fire water source feature.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “Seasonal Reservoir, so equipment type varies”, “Small pond someone mucked out”
Data Type	String (255)

7.5 CONSTR_NOTES

Geodatabase Name	CONSTR_NOTES
BLM Structured Name	Fire_Water_Source_Construction_Notes_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The general type of constructed features at the water source (i.e. access ramp, reservoir). This field is required if the field CONSTRUCTED is populated with Y (Yes).
Required/Optional	Conditional
Domain (Valid Values)	No domain. Examples: “PUMP CHANCE”, “RESERVOIR – EASEMENT”
Data Type	String (100)

7.6 CONSTRUCTED

Geodatabase Name	CONSTRUCTED
BLM Structured Name	Fire_Water_Source_Constructed_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Indicates if the fire water source has constructed improvements vs. a natural feature.
Required/Optional	Required
Domain (Valid Values)	dom_YN
Data Type	String (1)

7.7 COORD_SRC

Geodatabase Name	COORD_SRC
BLM Structured Name	Coordinate_Source_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The actual source of the GIS coordinates for the points. If the point is copied from another theme, and already has COORD_SRC, it should be reviewed and may need to be changed for use in this dataset. When the data is collected in a field mobile collection application, the value in this field will be automatically calculated. The field will calculate the quality of the GPS coordinate source used.
Required/Optional	Optional
Domain (Valid Values)	dom_COORD_SRC
Data Type	String (7)

7.8 DEPTH_FT

Geodatabase Name	DEPTH_FT
BLM Structured Name	Fire_Water_Source_Depth_Feet_Measure
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The average depth of the water source in feet.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 1, 12, 650

Data Type	Short Integer

7.9 ENGINE

Geodatabase Name	ENGINE
BLM Structured Name	Fire_Water_Source_Utilization_Engine_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Indicates if the water source can be used by fire engines to fill their water tanks.
Required/Optional	Required
Domain (Valid Values)	dom_YN
Data Type	String (1)

7.10 ESTABLISH_YR

Geodatabase Name	ESTABLISH_YR
BLM Structured Name	Fire_Water_Source_Established_Year_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Year the water source was established or first used for fire suppression activities. Four-character year beginning with 19 or 20 (YYYY).
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “1982”, “1994”
Data Type	String (4)

7.11 FAC_ADMIN

Geodatabase Name	FAC_ADMIN
BLM Structured Name	Facility_Administration_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Broad governmental or private organization with administrative responsibility for the fire water source.
Required/Optional	Optional
Domain (Valid Values)	dom_JURIS_CODE

Data Type	String (5)

7.12 FILEPATH

Geodatabase Name	FILEPATH
BLM Structured Name	Filename_Path_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Computer storage location for a photo file (e.g., jpg), Word document, spreadsheet or another associated document. The value in this field serves as a hyperlink to that location and the file it opens. Could also be a directory or dataset that opens for further browsing (where multiple files are being referenced).
Required/Optional	Optional
Domain (Valid Values)	No domain. Example: Distributed File System (DFS) path.
Data Type	String (150)

7.13 FWTR_ID

Geodatabase Name	FWTR_ID
BLM Structured Name	Fire_Water_Source_Identifier
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Unique number identifier for the fire water source point.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: 66, 1001
Data Type	Long Integer

7.14 FWTR_NM

Geodatabase Name	FWTR_NM
BLM Structured Name	Fire_Water_Source_Name
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The name of the water source that can be used for firefighting purposes. If the name is unknown, enter “Unknown.” Text can be mixed case.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: “Grumpy’s Pond”, “Hubbard Creek”
Data Type	String (60)

7.15 HELI_TYPE

Geodatabase Name	HELI_TYPE
BLM Structured Name	Fire_Water_Source_Helicopter_Type_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Indicates the type of helicopter that can be used by the water source to fill large water carrying buckets. If the water source cannot be used by helicopters, record None in this field.
Required/Optional	Optional
Domain (Valid Values)	dom_FWTR_HELI_TYPE
Data Type	String (15)

7.16 INWATER_WORK

Geodatabase Name	INWATER_WORK
BLM Structured Name	Fire_Water_Source_In_Water_Work_Period_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Preferred work period for in-water work to minimize impacts to fish species. Editor should enter a date range into this field. For more information on in-stream work periods, see: https://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_Work2008.pdf.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: "November 1 - February 28", "July 15 - September 15"
Data Type	String (30)

7.17 LASTVISIT_DT

Geodatabase Name	LASTVISIT_DT
BLM Structured Name	Last_Visit_Date
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The date the water source was last visited, and its condition assessed. If populated, this field must contain 8 characters (YYYYMMDD).
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 20200105, 20190815

Data Type	String (8)

7.18 LAT_DDM

Geodatabase Name	LAT_DDM
BLM Structured Name	Location_Geographic_Coordinate_Latitude_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The latitude of the point in degrees decimal minutes. Latitude is a geographic coordinate that specifies the north-south position of a point on the Earth's surface. Values are auto calculated by the application when features are created or modified. Positive values are north, negative values south.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: "42° 58.8097'", "42° 55.3817'"
Data Type	String (20)

7.19 LONG_DDM

Geodatabase Name	LONG_DDM
BLM Structured Name	Location_Geographic_Coordinate_Longitude_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The longitude of the point in degrees decimal minutes. Longitude is a geographic coordinate that specifies the east-west position of a point on the Earth's surface. Values are auto calculated by the application when features are created or modified. Positive values are east, negative values west.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: "-118° 30.0484'", "-118° 28.4426'"
Data Type	String (20)

7.20 MAINT_NEEDS

Geodatabase Name	MAINT_NEEDS
BLM Structured Name	Fire_Water_Source_Maintenance_Needs_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Identifies the type of maintenance needed at the water source.
Required/Optional	Optional
Domain (Valid Values)	dom_FWTR_MAINT

Data Type	String (20)

7.21 MAINT_PRIORITY

Geodatabase Name	MAINT_PRIORITY
BLM Structured Name	Fire_Water_Source_Maintenance_Needs_Priority_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Identifies the priority of the needed maintenance at the water source. This field should be left empty if the MAINT_NEEDS field is empty.
Required/Optional	Optional
Domain (Valid Values)	dom_FWTR_PRIORITY
Data Type	String (10)

7.22 PORTABLE

Geodatabase Name	PORTABLE
BLM Structured Name	Fire_Water_Source_Utilization_Portable_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Indicates if the water source can be used by portable water carrying devices.
Required/Optional	Required
Domain (Valid Values)	dom_YN
Data Type	String (1)

7.23 PUMP_DIST_FT

Geodatabase Name	PUMP_DIST_FT
BLM Structured Name	Fire_Water_Source_Pumping_Distance_Feet_Measure
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The distance (in feet) that water must be pumped from the water source to the fire equipment (engines and tenders).
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 300, 5, 20
Data Type	Short Integer

7.24 QTR_SECTION

Geodatabase Name	QTR_SECTION
BLM Structured Name	Location_Quarter_Section_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Public Land Survey quarter section, normally 160 acres. This attribute is auto calculated from the CadNSDI theme where possible when new features are created. Auto calculated values can be overwritten if needed.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “NE”, “SW”
Data Type	String (2)

7.25 RANGE

Geodatabase Name	RANGE
BLM Structured Name	Location_Township_Range_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The Range location of the fire water source. This attribute is auto calculated from the CadNSDI theme when new features are created. The format is RXXY where X’s are numbers and Y is direction.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: “R09W”, “R14.5E”
Data Type	String (6)

7.26 RESTRICT_TYPE

Geodatabase Name	RESTRICT_TYPE
BLM Structured Name	Fire_Water_Source_Restriction_Type_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Indicates the type of restriction on the use of the water source, such as a pathogen or contamination.
Required/Optional	Optional
Domain (Valid Values)	dom_FWTR_RESTRICT
Data Type	String (20)

7.27 RIGHTS_NUM

Geodatabase Name	RIGHTS_NUM
BLM Structured Name	Water_Rights_Number_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The State Water Right application number, if applicable, for the water source (A-NNNNN) where A = R or P and NNNNN = a number assigned by the Oregon Dept. of Water Resources.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “R-79242”, “R-83302”
Data Type	String (7)

7.28 SEALER

Geodatabase Name	SEALER
BLM Structured Name	Fire_Water_Source_Sealer_Text
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Material used to line the water source.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “UNKNOWN”, “CONCRETE”, “NONE”
Data Type	String (10)

7.29 SECTION

Geodatabase Name	SECTION
BLM Structured Name	Location_Section_Number
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	A section is a major subdivision of a Public Land Survey System township, normally one mile by one mile in size, containing 640 acres. Non-rectangular subdivisions (such as lots) are also listed under this attribute. This attribute is auto calculated from the CadNSDI theme when new features are created. Typically, the format is any number between 1-36. Single digit numbers should be preceded with a zero (0). However, PLSS Special Survey labels can be up to 26 characters.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: “05”, “24”

Data Type	String (30)

7.30 SURFACE_ELEV_M

Geodatabase Name	SURFACE_ELEV_M
BLM Structured Name	Fire_Water_Source_Surface_Elevation_Meters_Measure
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The surface elevation of water source in meters. This is used primarily to determine whether the source can be utilized by helicopters. For new records, this value is auto calculated from DEM. Auto calculated values can be overwritten if needed.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: 343, 474, 37
Data Type	Short Integer

7.31 SUSTAINABILITY

Geodatabase Name	SUSTAINABILITY
BLM Structured Name	Fire_Water_Source_Sustainability_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The ability of the water source to support fire suppression activities.
Required/Optional	Required
Domain (Valid Values)	dom_FWTR_SUSTAIN
Data Type	String (20)

7.32 TENDER

Geodatabase Name	TENDER
BLM Structured Name	Fire_Water_Source_Utilization_Tender_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Water source that can used by tenders (large tanker trucks used to refill smaller trucks with water).
Required/Optional	Required
Domain (Valid Values)	dom_YN

Data Type	String (1)

7.33 TOWNSHIP

Geodatabase Name	TOWNSHIP
BLM Structured Name	Location_Township_Name
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	The Township location of the fire water source. This attribute is auto calculated from the CadNSDI theme when new features are created. The format is TXXY where X's are numbers and Y is direction.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: "T27S", "T41S"
Data Type	String (6)

7.34 VERSION_NAME

Geodatabase Name	VERSION_NAME
BLM Structured Name	Geodatabase_Version_Text
Inheritance	Inherited from entity ODF
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Name of the corporate geodatabase version previously used to edit the record. This field is auto populated by the software.
Required/Optional	Required
Domain (Valid Values)	No domain. Example: sfrazier.GRA-121211-111034
Data Type	String (50)

7.35 WTR_SRC

Geodatabase Name	WTR_SRC
BLM Structured Name	Fire_Water_Source_Origin_Code
Inheritance	Not Inherited
Alias Name	None
Feature Class Use/Entity Table	FWTR_SRC_POINT
Definition	Water source refers to the descriptive data category assigned to a water source such as a lake, river, guzzler, etc.
Required/Optional	Required
Domain (Valid Values)	dom_FWTR_SRC
Data Type	String (20)

8 Layer Files (Publication Views)

8.1 General

Master corporate feature classes/datasets maintained in the edit database (currently ORSOEDIT) are "published" to the user database (currently ORSOVCTR) in several ways:

- Copied completely with no changes (replicated).
- Copied with no changes except to omit one or more feature classes from a feature dataset.
- Minor changes made (e.g., clip, dissolve, union with ownership) in order to make the data easier to use. Feature classes that have been changed are indicated by "PUB" in their name. They are created through scripts that can be automatically executed and are easily rebuilt from the master (ORSOEDIT) data whenever necessary.

Layer files are not new data requiring storage and maintenance but point to existing data. They have appropriate selection and symbolization for correct use and display of the data. They provide the guidance for data published on the web. Layer files are created by simple, documented processes, and can be deleted and recreated at any time.

8.2 Specific to This Dataset

Fire Water Sources are published to the BLMReplication area and the web. Data published have the attribute VERSION_NAME removed because it has no meaning outside of the internal editing environment. Data published to the web will have the CLASSIFIER name removed for privacy.

9 Editing Procedures

9.1 Managing Overlap (General Guidance)

"Overlap" means there are potentially more than one feature in the same feature class that occupies the same space ("stacked" polygons). Depending on the query, acres will be double counted.

In this discussion, an area entity may consist of more than one polygon, and a line entity may consist of more than one arc. They would have multiple records in the spatial table (with identical attributes). Multi-part features are not allowed. Multi-part features are easily created inadvertently and not always easy to identify. If they are not consciously and consistently avoided, feature classes will end up with a mixture of single and multi-part features. Multi-part features can be more difficult to edit, query, and select, along with impacting overall performance.

Overlap is only allowed in the ODF in limited and controlled scenarios. In each case, the "cause" of the overlap (the attribute changes that "kick off" a new feature which may overlap an existing feature) is carefully defined and controlled. In other words, in feature classes that permit overlap for a change in spatial extent, there is always a new feature created which may overlap an existing feature, but in addition there are certain attribute(s) that will result in a new feature even if there is no spatial change. The feature classes (and the one feature dataset) that allow overlap, and the attributes that lead to a new, possibly overlapping feature, are described below.

9.1.1 Overlapping Points

Generally, these are allowed and do not cause a problem since points have no spatial extent. However, it is easy to inadvertently create more than one point making it important to search for and delete duplicates. Overlapping points should only occur when the attributes are significantly different between the features.

9.2 Editing Quality Control

Duplicate features. Checking for undesired duplicates is critical. Polygons or arcs that are 100% duplicate are easily found by searching for identical attributes along with identical Shape_Area and/or Shape_Length. Searching for partially overlapping arcs or polygons is harder, and each case must be inspected to determine if the overlap is desired or not.

To avoid overlapping polygons on the same area, polygons from different input themes are incorporated with the Union spatial overlay tool, not copied.

Union rather than Intersect is used to prevent unintended data loss.

Gap and overlap slivers. These can be hard to find if there are no topology rules. A temporary map topology can be created to find overlap slivers. Gap slivers can be found by constructing polygons from all arcs and checking polygons with very small area.

Buffer and dissolve considerations. Where polygons are created with the buffer tool, the correct option must be selected. The default option is "None," which means overlap will be retained. Sometimes the overlap should be dissolved, and the option changed to "All." Lines resulting from buffer have vertices too close together, especially around the end curves. They should be generalized to thin the vertices. If the dissolve tool is used on polygons or arcs, the "Create multipart features" should be unchecked.

GPS considerations. GPS linework is often messy and should always be checked and cleaned up as necessary. Often vertices need to be thinned (generalize) especially at line ends. Multi-part polygons are sometimes inadvertently created when GPS files with vertices too close together or crossing lines or spikes are brought into ArcGIS. Tiny, unwanted polygons are created but are "hidden" because they are in a multi-part.

Be careful when merging lines. Multi-part lines will be created if there are tiny unintentional (unknown) gaps and it can be difficult to find these unless the multi-parts are exploded.

Null geometry. Check any features that have 0 or very small Shape_Area or Shape_Length. If a feature has 0 geometry and you can't zoom to it, it is probably an inadvertently created "Null" feature and should be deleted. Very small features may also be unintended, resulting from messy line work.

Check tolerances. In general, set Cluster Tolerance as small as possible. This is 0.000000009 Degree (0.000007 degree is approximately 1 meter).

Snapping considerations. Where line segments with different COORD_SRC meet, the most accurate or important (in terms of legal boundary representation) are kept unaltered, and other lines snapped to them. In general, the hierarchy of importance is PLSS (CadNSDI points/lines) first, with DLG or SOURCEL next, then DEM, and MAP last. When snapping to the data indicated in COORD_SRC (as opposed to duplicating with copy/paste), be sure there are the same number of vertices in the target, and source theme arcs. When the DEF_FEATURE is "SUBDIVISION," snap the line segment to PLSS points, and make sure there are the same number of vertices in the line as PLSS points.

Check that all date fields contain valid dates in YYYYMMDD, YYYYMM or YYYY format. If an attribute has a domain, check for invalid values. The values must be exact.

Check for capitalization and spacing differences in attribute values that should be the same. Check for leading or trailing blanks what will make a different value even if it looks identical.

9.3 Theme Specific Guidance

There is much in the data standard that addresses editing and provides guidance especially in the Data Management Protocols (Section 3).

It is suggested, but not required, that editors display the Hydrography Publication dataset as a background reference layer while editing this theme.

FWTR_ID is a unique identifier within the dataset. Assign new FWTR_ID's using the "Get Unique ID" tool.

10 Abbreviations and Acronyms

Does not include abbreviations/acronyms used as codes for data attributes or domain values.

Table 2 Abbreviations/Acronyms Used

Abbreviations	Descriptions
ARC	GIS line feature
BLM	Bureau of Land Management, U.S. Department of the Interior
CadNSDI	Cadastral National Spatial Data Infrastructure
DEM	Digital Elevation Model
DLG	Digital Line Graphs
FOIA	Freedom of Information Act
FOIVEG	Forest Operations Inventory
GIS	Geographic Information System
GPS	Global Positioning System
GTRN	Ground Transportation GIS dataset
IDP	Interdisciplinary
NAD	North American Datum
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
POLY	GIS polygon feature
PUB	Publication
RMP	Resource Management Plan
ODF	Oregon Data Framework
OR/WA	Oregon/Washington BLM Administrative State
USFS	United States Forest Service, U.S. Department of Agriculture
USGS	United States Geological Survey, U.S. Department of the Interior
SDE	Spatial Database Engine
WEB	Worldwide Web (internet)
WODDB	Western Oregon Digital Database

B Domains (Valid Values)

These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site: http://www.blm.gov/or/datamanagement/index.php

For domains not listed at that site contact: contact the State Data Administrator.

B.1 dom_BLM_ORG_CD

Administrative Unit Organization Code. Standard BLM organization codes generated from the national list. This is a subset of OR/WA administrative offices and those in other states that border.

This is a lengthy domain used by multiple datasets. For the full list of values go to: https://gis.blm.gov/ORDownload/Domains/dom_BLM_ORG_CODE.xls.

B.2 dom_COORD_SRC

Coordinate Source Code. The source of the geographic coordinates- lines, points, polygons.

Code	Description
CADNSDI	CADNSDI - Coordinates from or snapped to the CADNSDI dataset.
CFF	CFF - Lines duplicated or buffered from Cartographic Feature Files (USFS).
DEM	DEM - Digital Elevation Model (30 m or better accuracy) used for creation of contours.
DIS	DIS - Lines generated to connect discontinuous features.
DIS	DIS - Lines duplicated or buffered from (24K scale accuracy) USGS Digital Line Graphs.
DOQ	DOQ - Screen digitized linework over Digital Orthoquad backdrop.
DRG	DRG - Screen digitized linework over Digital Raster Graphic backdrop.
GCD	GCD - Lines snapped to (pre-CadNSDI) Geographic Coordinate Database Points.
GPS	GPS - Lines obtained from a Global Positioning System device.
IMG	IMG - Linework derived from interpretation of satellite or other non-photographic imagery.
LiDAR	LiDAR - LiDAR points, lines, or polygons generated through interpretation or analysis.
MAP	MAP - Digitized linework from hardcopy map.
MTP	MTP - Lines duplicated from Digital Master Title Plat
SOURCEL	SOURCEL - Source Layer from BLM GIS.
SRV	SRV - Survey methods were used to create the linework (e.g., COGO).
TIGER	TIGER - Tiger Data
TRS	TRS - Coordinates only given as a legal description (township, range, section).
UNK	UNK - Unknown coordinate source
WOD	WOD - WODDB Photogrammetric

B.3 dom_JURIS_CODE

Jurisdictional Organization Code. Management entity that has administrative responsibilities or jurisdiction for a geographic location.

Code	Description
BL	BL - Bureau of Land Management
BP	BP - Bonneville Power Administration
BR	BR - Bureau of Reclamation
CE	CE - Corps of Engineers
CG	CG - U.S. Coast Guard
DA	DA - U.S. Dept. of Agriculture (Except the Forest Service)
DD	DD - U.S. Dept. of Defense (Except the Corps of Engineers)
FA	FA - Federal Aviation Administration
FC	FC - Federal Energy Regulatory Commission
FS	FS - U.S. Forest Service
FW	FW - U.S. Fish and Wildlife Service
GS	GS - U.S. Geological Survey
GSA	GSA - General Services Administration
IA	IA - Bureau of Indian Affairs and Tribal Units
LG	LG - Local Government
NP	NP - National Park Service
PV	PV - Private Lands
PVI	PVI - Private, Industrial
PVN	PVN - Private, NonIndustrial
PVU	PVU - Private, Urban
SDT	SDT - State Transportation Department
ST	ST - State Managed Lands
STF	STF - State Forests
STL	STL - State Division of Lands
STP	STP - State Parks
STW	STW - State Wildlife Refuges
UN	UN - Undetermined

B.4 dom_FWTR_HELI_TYPE

Fire Water Sources Helicopter Type Code. Indicates the type of helicopter that can be used by the water source to fill large water carrying buckets. This list is sorted in a logical order to facilitate data entry and mobile data collection. It should not be sorted alphabetically.

Code	Description
Type 1	Type 1 – Helicopter capable of carrying up to 700 gallons of water.
Type 2	Type 2 – Helicopter capable of carrying up to 300 gallons of water.
Type 3	Type 3 – Helicopter capable of carrying up to 100 gallons of water.
Undetermined	Undetermined –The feature has been evaluated for use by a helicopter, but the type cannot be determined.

Code	Description
Unknown	Unknown – It is unknown if the water source can be used by helicopters to fill a water carrying bucket.
None	None – The water source cannot be used by helicopters to fill a water carrying bucket.

B.5 dom_FWTR_MAINT

Fire Water Sources Maintenance Code. Identifies the type of maintenance needed at the water source. This list is sorted in a logical order to facilitate data entry and mobile data collection. It should not be sorted alphabetically.

Code	Description
Brushing	Brushing
Dredging	Dredging
Outlet Replacement	Outlet Replacement
Resealing	Resealing
Rebuilding	Rebuilding
Multiple	Multiple (see comments)
Other	Other

B.6 dom_FWTR_PRIORITY

Fire Water Sources Maintenance Priority Code. Priority of the maintenance needed at the water source. This list is sorted in a logical order to facilitate data entry and mobile data collection. It should not be sorted alphabetically.

Code	Description
Low	Low
Medium	Medium
High	High
None	None

B.7 dom_FWTR_RESTRICT

Fire Water Sources Restriction Code. The type of restriction on the water source. This list is sorted in a logical order to facilitate data entry and mobile data collection. It should not be sorted alphabetically.

Code	Description
Contamination	Contamination - includes mining contamination
Invasives	Invasives - Invasive or non-native species (fish, plants, or mussels) that could potentially spread and/or negatively affect the water source.
Port Orford Cedar	Port Orford Cedar - tree root disease caused by the plant pathogen Phytophthora lateralis.
Sudden Oak Death	Sudden Oak Death - tree disease caused by the plant pathogen Phytophthora ramorum.
Other	Other - see comments

B.8 dom_FWTR_SRC

Fire Water Source Code. Descriptive data category assigned to a water source.

Code	Description
Lakes	Lakes - natural or artificial standing (not flowing) body of water. This code therefore includes lakes, ponds, bays, estuaries, wetlands, and impoundments.
Spring/Seep	Springs/Seeps - Springs Seeps and wells. An issue of water flowing from the earth onto the land or into a body of surface water. There is no distinction made between man-made/enhanced and those which are natural therefore includes guzzler. Also includes standpipes and hydrants or any other point source of water.
Streams	Streams - all natural or artificial channels of flowing water. This code therefore includes colloquial names such as river, gully, stream, creek, wash, channel, ditch and canals.
Unclassified	Unclassified - code is used to represent water bodies that have not been classified.

B.9 dom_FWTR_SUSTAIN

Fire Water Source Sustainability Code. Describes the ability of the water source to support fire suppression activities.

Code	Description
Initial Attack	Initial Attack – Use for initial attack only
Seasonal	Seasonal - Not guaranteed to have water
Sustainable	Sustainable –
Unknown	Unknown –

B.10 dom_YN

Yes/No Code. Generic domain for Yes/No/Unknown coding

Code	Description
Y	Y – Yes
N	N – No
U	U – Unknown