

**NHD Update Project**  
Metadata Guidelines  
Idaho Dept. Water Resources

Last Update: **12/17/15**

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**I. Overview:**

Metadata in the NHD is stored at the Feature level. Feature level metadata consists of Metadata Sessions. A Metadata Session can be applied to many feature edits. An NHD Job may have many Metadata Sessions. The name of each Metadata Session is an entry in the XML file that contains all of the user-generated metadata sessions. There are two primary tabs associated with each Metadata Session; the NHD Metadata Tab and the NHD Source Citation Tab.

**II. NHD Metadata Tab:**

*a.* **Dataset Credit** - Identify those who did the editing on the dataset. This should be an agency, not an individual. If a cooperative effort, you can recognize it here. You can enter a new value or choose one from the list of stored values.

*b.* **Metadata Section:**

- **Metadata Standard Name** - Name of the metadata used to document the dataset.
  - For the NHD, use *FGDC Content Standard for Digital Geospatial Metadata, Vers. 2*.
- **Metadata Standard Version** - Version of the metadata standard used to document the dataset.
  - For the NHD, use *FGDC-STD-001-1998*.
- **Process Date** - The date you began editing the NHD, which is typically the day you are creating the metadata.
- **Metadata Date** - The date the metadata was created or last updated, which is typically the day you are creating or updating the metadata.

c. **Contact Information:**

- **Contact Organization** - The organization for which the editor's/relevant person/organization's works.
- **Address, City, State or Province, Postal Code** - The editor's/relevant person/organization's address.
- **Contact Voice Telephone** - The editor's/relevant person/organization's contact phone number.
- **Contact E-mail Address** - The editor's/relevant person/organization's contact e-mail address.
- **Contact Instructions** - Time during which the editor may be contacted for information about the edits completed.
- **Address Type** - Is the work editor's work address provided a physical or mailing address, or both?

The most important parts of the NHD Feature level metadata are the Process Description, Attribute Accuracy Report, Logical Consistency Report, Completeness Report, & Horizontal Positional Accuracy Report. These fields are the most complicated and tend to be specific to each editing project. It is best to write the text for these fields in a separate document before you open the NHD job to create the metadata. Although each field for these values will hold about 32,000 characters, be as concise as you can. Use the past tense while writing. Remember, these fields are just one big text block. Returns, bullets, and other formatting will tend to display strangely if at all. Write each category as one big paragraph. Incorporate number lists into sentences in your paragraph. Try not to repeat yourself from field to field. Instead, reference the other fields with statements like "Please see Attribute Accuracy Report for additional information."

Once you have your text for the Process Description, Attribute Accuracy Report, Logical Consistency Report, Completeness Report, & Horizontal Positional Accuracy Report, you will need to paste your text into the Value Details Box in the Lookup Dialog Box for each field. Don't try to paste it into the field directly in the Metadata Session. The paste may be incomplete or if there was already text in the field, it may not overwrite properly. To open the appropriate Lookup Dialog box, click on the black arrow on the right side of each field. Paste your text into Values Details Box, then OK to close the Lookup Values Dialog Box.

- d. **Process Description:** A detailed description of the work completed. Describe what you did including what features you are or are not editing, minimum mapping units, etc. Should be a mini-technical document. If you have a business rules document, this is where to reference it.

**The Process Description is very important!** This is where people will search to figure out what you did to a feature and why.

Some General Tips:

- Develop a Best Practices/Business Rules document for your project. It will help immensely with the metadata.
- Use the same terminology over multiple jobs.
- Use searchable terms.

### GNIS NHD Update Process Description Example

Updated NHD waterbody, flowline, and area features using GNIS names. (1.) State GAZ points were procured from *National Map Gazetteer*. *The National Map Gazetteer draws from the Geographic Names Information System (GNIS)*. Further information is available at:

<http://geonames.usgs.gov/pls/gnispublic/>.

(2.) GAZ points for NHD waterbody, flowline, and area features were compared to current high-resolution NHDWaterbody, NHDFlowline, and NHDArea features GNIS\_NAME. (3.) Missing feature names of NHDWaterbody, NHDFlowline, and NHDArea features were identified and updated with the proper GNIS\_ID and GNIS\_NAME for the NHD feature. (4.) Also, standard QC checks were run and any errors were corrected as part of this process. Edits were performed using “NHDTool 6.1.0.20” software. This QA/QC step generally checks the flow network and topology of the dataset. The most common edits are for flowlines with incorrect flow direction, invalid WBCoMIDs on Artificial Paths and reach delineation problems.

Figure 1: NHD Metadata Tab, Contact Information Tab

The screenshot shows the 'Metadata Viewer' application window. The 'Metadata Session' is 'Lemhi1'. The 'NHD Metadata' tab is active, with the 'NHD Source Citation' sub-tab selected. The 'Dataset Credit' is 'U.S. Geological Survey in Cooperation with the Idaho Department of Water Resources'. The 'Process Description' is 'Update lakes, ponds, reservoirs, streams, and canals in the Lemhi subbasin using 2013 NAIP imagery. Both 1-D and'. The 'Metadata Standard' is 'Content Standard for Digital Geospatial Metadata', version 'FGDC-STD-001-1998'. The 'Process Date' and 'Metadata Date' are both 'December, 02, 2015'. The 'Contact Information' tab is also visible, showing the following details: Contact Organization: Idaho Department of Water Resources (IDHYDRO); Address: 322 E. Front St.; City: Boise; State or Province: Idaho; Postal Code: 83720-0098; Contact Voice Telephone: 208-287-4800; Contact Email Address: NHD.WBD@idwr.idaho.gov; Contact Instructions: Monday - Friday, 8AM to 5PM MT; Address Type: Physical. Buttons for 'Save Metadata' and 'Close' are at the bottom right.

- e. **Attribute Accuracy Report:** Describe the accuracy of the attribute information in the dataset including, when and why you modified attributes, the results obtained, and any other information vital to describing attribute accuracy. Identify verification tests used and the testing methodology if used.

**Example Attribute Accuracy Report:** All names on the 1:24,000-scale reaches were validated against a June 2002 extract from the Geographic Names Information System (GNIS). The entry and identifier for the names match those in GNIS. The association of each name to reaches has been interactively checked against the June 2002 GNIS extract, however, operator error could in some cases apply a name to a wrong reach. Anecdotal reviews indicate that 90 percent or more of the named reaches have the correct name. Additionally, Minnesota Department of Natural Resources (DNR) attributes have been checked exhaustively against the scanned images of source materials. Connecting lines not present on the source materials have been automatically coded through overlay processes, with the exception of river centerlines (strm\_type = 62) which were manually coded.

- f. **Logical Consistency Report:** This includes the editing methods and specific documentation used to keep the editing internally consistent. Besides the USGS standard QA/QC methods that come with the tools (feature to feature rule checks, topology checks, etc), what are you doing for QA/QC? If testing, explain the test method and results used to determine how "clean" the data is.

**Example Logical Consistency Report:** Points, nodes, lines, and areas derived from DEM and Aerial photography conform to topological rules. Lines intersect only at nodes, and all nodes anchor the ends of lines. Lines do not overshoot or undershoot other lines where they are supposed to meet. There are no duplicate lines. Lines bound areas and lines identify the areas to the left and right of the lines. Gaps and overlaps among areas do not exist. All areas close. Software validated feature types and characteristics against a master set of types and characteristics, checked that combinations of types and characteristics were valid, and that types and characteristics were valid for the delineation of the feature. Feature types, characteristics, and other attributes conform to the Standards for National Hydrography Dataset (USGS, 1999) as of the date they were loaded into the database. All names were validated against a current extract from the Geographic Names Information System (GNIS). The entry and identifier for the names match those in the GNIS. The association of each name to reaches has been interactively checked, however, operator error could in some cases apply a name to a wrong reach. This statement is generally true for the most common sources of NHD data. Other sources and methods may have been used to create or update NHD data. In some cases, additional information may be found in the NHDMetadata table.

- g. **Completeness Report:** Information about feature inclusion or feature omission criteria used. This could be feature inclusions/omissions from the base data and/or editing procedures that determine if a feature is included/omitted.

**Example Completeness Report:** The completeness of the data reflects the published USGS topographic quadrangle and/or the U.S. Forest Service Primary Base Series (PBS) map. The USGS topographic quadrangle is usually supplemented by Digital Orthophoto Quadrangles(DOQ's). Features found on the ground may have been eliminated or generalized on the source map because of scale and legibility

constraints. In general, streams longer than one mile (approximately 1.6 kilometers) were collected. Most streams that flow from a lake were collected regardless of their length. Only definite channels were collected so not all swamp/marsh features have stream/river delineated through them. Lake/ponds 100 feet or greater in the shortest axis were collected. Note, however, that these general rules were applied unevenly among maps during compilation. Transport reaches are defined on nearly all features of type stream/river, canal/ditch, artificial path, and connector. Waterbody reaches are defined on all lake/pond features. Detailed capture conditions are provided for every feature type in the Standards for National Hydrography Dataset - High Resolution (USGS, 1999), available online through <http://mapping.usgs.gov/standards/>.

- h. Horizontal Positional Accuracy Report:** Describe the horizontal accuracy of the coordinates for vector datasets. If using raster datasets, what is the horizontal accuracy of the original dataset? What test method, if any, was used to verify that accuracy? What tolerances are being used? For example, if feature is less than 40 ft. from location on imagery, it is not moved.

*From the National Map Accuracy Standards: <http://nationalmap.gov/standards/nmas.html>*

....not more than 10 percent of the points tested shall be in error by more than 1/50 inch for maps on publication scales of 1:20,000 or smaller. -Revised June 17, 1947

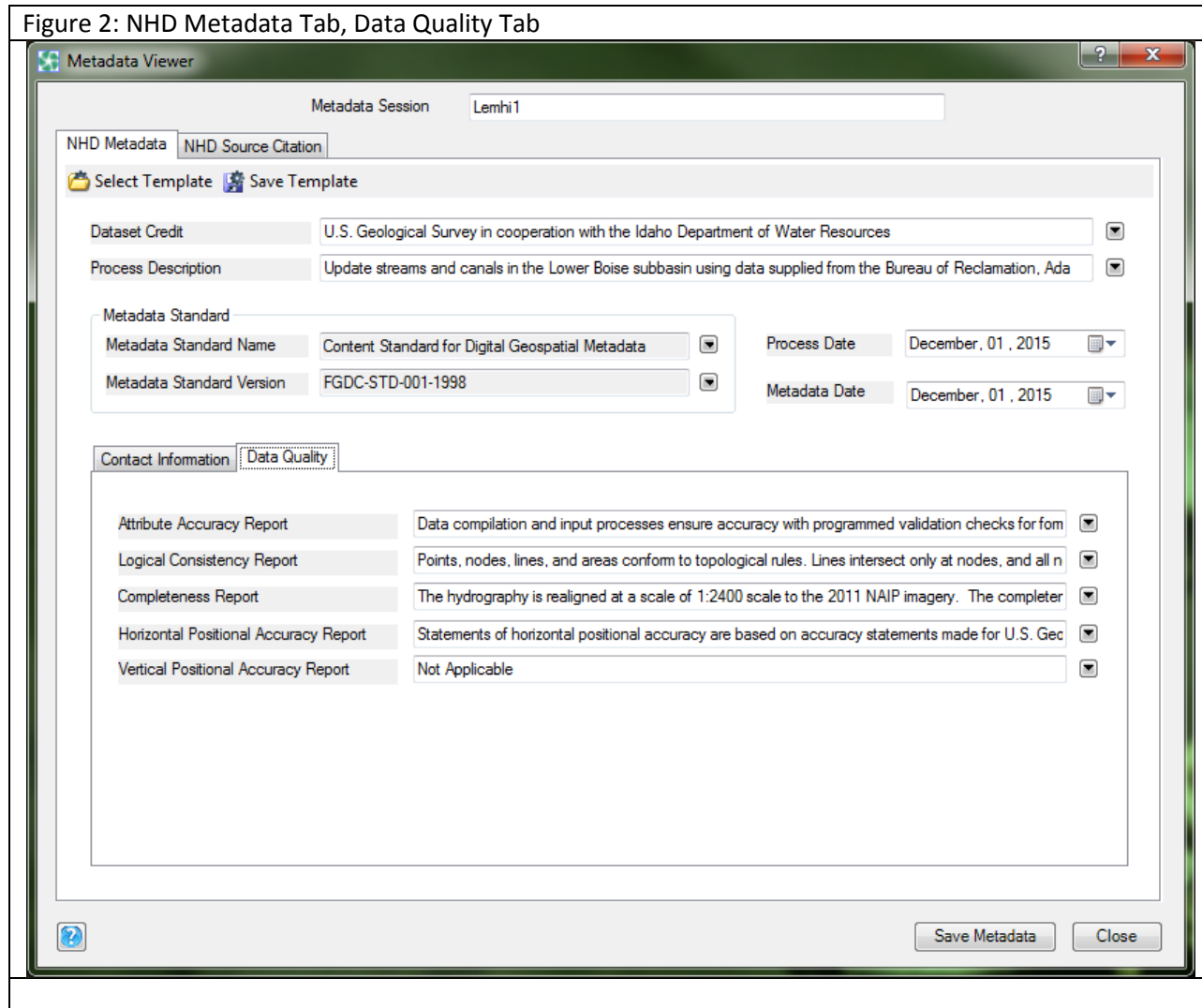
$$(1/24,000) = (1/50'')/X''$$

$$X = 24,000 * 0.02'' = 480'' = 40 \text{ feet}$$

**A Standard USGS Horizontal Position Accuracy Report:** Statements of horizontal positional accuracy are based on accuracy statements made for U.S. Geological Survey topographic quadrangle maps. These maps were compiled to meet National Map Accuracy Standards. For horizontal accuracy, this standard is met if at least 90 percent of points tested are within 0.02 inch (at map scale) of the true position. Additional offsets to positions may have been introduced where feature density is high to improve the legibility of map symbols. In addition, the digitizing of maps is estimated to contain a horizontal positional error of less than or equal to 0.003 inch standard error (at map scale) in the two component directions relative to the source maps. Visual comparison between the map graphic (including digital scans of the graphic) and plots or digital displays of points, lines, and areas, is used as control to assess the positional accuracy of digital data. Digital map elements along the adjoining edges of data sets are aligned if they are within a 0.02 inch tolerance (at map scale). Features with like dimensionality (for example, features that all are delineated with lines), with or without like characteristics, that are within the tolerance are aligned by moving the features equally to a common point. Features outside the tolerance are not moved; instead, a feature of type connector is added to join the features.

- i. Vertical Positional Accuracy Report:** Describe the vertical accuracy of the coordinates and the test method used to verify that accuracy.
  - For most of the edits done to the NHD, this value is Not Applicable as vertical position is not being altered.

Figure 2: NHD Metadata Tab, Data Quality Tab



### III. NHD Source Citation Tab:

The NHD Source Citation Tab is where editors indicate the base reference layers/information used to update the NHD. Multiple sources can be sited in a single Metadata Session.

Metadata Source Citation Fields:

- **Title** - Name by which the source dataset is known.
- **Source Originator** - Name of the organization or person who developed the source dataset.
- **Publication Date** - Date that the source dataset was published or made available. This field can be set to "Unknown" if necessary.
- **Source Citation Abbreviation** - An alias for source citation as it was cited in the Process Description. For instance, the alias "DRG" would be used if Digital Raster Graphic was cited in the Process Description. Should be different than Title.
- **Source Scale Denominator** - The representative fraction on a map. For instance, 24,000 for 1:24,000 scale source data. Helpful for adding resolution data to features.

- **Source Contribution** - A statement identifying the source information that contributed to the dataset.
- **Type of Source Media** - The source dataset medium.
- **Source Currentness Reference** - The basis on which the source dates and times are determined.

Below are some examples of Commonly Used Source Citations.

Example 1: NHD Basic Features

The screenshot shows the 'Metadata Viewer' application window. The 'Metadata Session' is 'Lemhi1'. The 'NHD Source Citation' tab is active. The form contains the following fields and options:

- Title:** NHD Basic Features
- Source Originator:** United States Geological Survey
- Publication Date:** Enter Date (dropdown) → December01, 2015 (dropdown)
- Data Quality Section: Lineage**
  - Source Citation Abbreviation:** NHDBasic
  - Source Scale Denominator:** 24000
  - Source Contribution:** Original GIS Feature Classes
  - Type of Source Media:** ESRI Geodatabase
- Source Currentness**
  - Source Currentness Reference:** Download Date
  - Calendar Date:**  December01, 2015
  - Date Range:** 
    - Beginning Date:** May 01, 2013
    - Ending Date:** December02, 2015

At the bottom of the window, there are navigation icons and the text 'Source (+) of 2'. The 'Save Metadata' and 'Close' buttons are visible at the bottom right.

## Example 2: NAIP Imagery

Metadata Viewer

Metadata Session: Lemhi1

NHD Metadata | NHD Source Citation

Select Template | Save Template

Title: NAIP Aquired In 2013

Source Originator: USDA Farm Service Agency

Publication Date: Enter Date → November20, 2013

Data Quality Section: Lineage

Source Citation Abbreviation: NAIP2013

Source Scale Denominator: 24000

Source Contribution: RGB Imagery

Type of Source Media: Imagery, band interleaved by pixel

Source Currentness

Source Currentness Reference: Acquisition Date

Calendar Date: December02, 201E

Date Range

Beginning Date: July 24, 2013

Ending Date: October 15, 2013

Source (+) of 0

Save Metadata | Close



### Example 3: Paper Map Input

The screenshot shows the 'Metadata Viewer' application window. At the top, it displays 'Metadata Session' with the value 'Lemhi1'. Below this, there are two tabs: 'NHD Metadata' and 'NHD Source Citation'. The 'NHD Source Citation' tab is active. The main area contains several input fields and a 'Data Quality Section: Lineage' panel.

**Main Metadata Fields:**

- Title: Local Irigation Company Input
- Source Originator: Local Irigation Companies - Bear Lake Area
- Publication Date: Unknown

**Data Quality Section: Lineage**

- Source Citation Abbreviation: LocalInput
- Source Scale Denominator: Unknown
- Source Contribution: NHD Feature Names, Locations, and Flow
- Type of Source Media: Paper

**Source Currentness**

- Source Currentness Reference: Recieved Date
- Calendar Date: December 02, 2015
- Date Range
  - Beginning Date: February 02, 2015
  - Ending Date: February 16, 2015

At the bottom of the window, there are navigation icons and the text 'Source (+) of 0'. On the far right, there are 'Save Metadata' and 'Close' buttons.

### Example 4: SPOT Imagery

The screenshot shows the 'Metadata Viewer' application window. At the top, the 'Metadata Session' is identified as 'Lemhi1'. Below this, there are two tabs: 'NHD Metadata' and 'NHD Source Citation', with the latter being active. The interface includes a toolbar with 'Select Template' and 'Save Template' buttons. The main form contains the following fields:

- Title:** SPOT-5 Imagery Level 1A
- Source Originator:** Spot Image Corporation, Atrium Services
- Publication Date:** Enter Date (dropdown) → December 02, 2011 (dropdown)

A 'Data Quality Section: Lineage' dialog box is open, containing the following fields:

- Source Citation Abbreviation:** SPOT
- Source Scale Denominator:** 25000
- Source Contribution:** Color Infrared Imagery
- Type of Source Media:** TIF

Below the lineage section is the 'Source Currentness' section:

- Source Currentness Reference:** Ground Condition
- Calendar Date: December 02, 2011
- Date Range:
  - Beginning Date:** May 01, 2010
  - Ending Date:** October 01, 2011

At the bottom of the window, there is a toolbar with navigation icons and the text 'Source (+) of 0'. On the far right, there are 'Save Metadata' and 'Close' buttons.

### Example 5: GNIS Names

The screenshot shows the 'Metadata Viewer' application window. The title bar reads 'Metadata Viewer' and the session name is 'Lemhi1'. There are two tabs: 'NHD Metadata' (selected) and 'NHD Source Citation'. Below the tabs are buttons for 'Select Template' and 'Save Template'. The main form contains the following fields:

- Title: State GAZ Points from GNIS
- Source Originator: US Board of Geographic Names/US Geological Survey
- Publication Date: Unknown

A 'Data Quality Section: Lineage' is expanded, showing:

- Source Citation Abbreviation: GNIS\_GAZ
- Source Scale Denominator: Unknown
- Source Contribution: Feature Names
- Type of Source Media: GIS Vector Dataset (Points)

Below this is a 'Source Currentness' section:

- Source Currentness Reference: Download Date
- Calendar Date: December 02, 2015
- Date Range
  - Beginning Date: December 02, 2015
  - Ending Date: December 03, 2015

At the bottom of the window, there are navigation icons and the text 'Source (+) of 0'. On the far right, there are 'Save Metadata' and 'Close' buttons.

#### IV. Acknowledgements:

Thank you to Mike Tinker, USGS for helping us through the process. Thank you to Mike Tinker and Cynthia Ritmiller for the slides of their Metadata Presentation on Nov. 5, 2014.

#### V. Appendix:

## Appendix A: Metadata for IDWR NHD Update Project following Mapping and Editing Business Rules v. 1.1

**Metadata Session Name:** XXX Subbasin NHD Update Project following Mapping and Editing Business Rules v. 1.1

### NHD Metadata Tab

#### a. Dataset Credit

- *For USGS Grant Funded Projects:* U.S. Geological Survey in Cooperation with the Idaho Department of Water Resources
- *For IDWR Projects:* The Idaho Department of Water Resources

#### b. Metadata Standard

- *Metadata Standard Name* - For the NHD, use FGDC Content Standard for Digital Geospatial Metadata, Vers. 2.
- *Metadata Standard Version* - For the NHD, use FGDC-STD-001-1998.
- *Process Date* - The date you began editing the NHD, which is typically the day you are creating the metadata.
- *Metadata Date* - The date the metadata was created or last updated, which is typically the day you are creating or updating the metadata.

#### c. Contact Information

- *Contact Organization* – Idaho Department of Water Resources (IDHYDRO)
- *Address* – 322 E. Front St.
- *City* - Boise
- *State or Province* - Idaho
- *Postal Code* – 83720-0098
- *Contact Voice Telephone* – 208-287-4800
- *Contact E-mail Address* – [NHD.WBD@idwr.idaho.gov](mailto:NHD.WBD@idwr.idaho.gov)
- *Contact Instructions* – Monday - Friday, 8AM to 5PM MT
- *Address Type* - physical

#### d. Process Description

Photorevision update NHDFlowlines, NHDAreas, and NHDWaterbodies in the XX Subbasin using 2013 NAIP imagery. Editing methods were documented in the Idaho Department of Water Resources NHD Update Project Mapping and Editing Business Rules version 1.1 updated 06/25/15. 2013 NAIP imagery was the primary dataset used to update the NHD data. A scale of 1:12,000 – 1:10,000 was used for edits made to any NHD feature. Reference scale for edits is 1:24,000. Collection Criteria: Lake, Pond, Glacier, Ice and 2D Stream polygons must be  $\geq 2$  acres in size or not mapped. Water surface elevations were not collected on new lake/ponds. The shoreline for lake/ponds was date of photography. Lake/ponds that have controlled water levels, indicated in the attribute data by “elevation” and “stage”, were not modified. 1D Stream arcs  $\leq 4$  meters in length were not mapped. 2D Stream features were  $\geq 20$  meters in width; otherwise they were represented as a line. Not all streams  $\geq 20$  meters in width were mapped as a 2D stream polygon. Connectivity in the NHD was preserved unless aeriels and supporting sources suggested otherwise. Stream/River features that end up feeding into a Canal/Ditch system - until the

flowline was broken (confluence into the canal system), the flowline(s) were considered Stream/River despite being engineered and straighten out. In cases where there are complex braided stream in the flood plain: realigned flowlines for braided channels that were more prominent, kept a few of the intermediate braids, deleted any flowlines representing braids that were not on the aerial or represented very small/minor braids. For QA/QC information, see Logical Consistency Report. See Completeness Report for additional collection information.

#### **e. Attribute Accuracy Report**

Common Attribute Edits included GNIS Names, Flow Direction, & FCode Modification. When a feature in the NHD data was identified as being incorrect from an authoritative source or other information, it was modified. Authoritative Sources used will be listed in the Source Citations. Data compilation and input processes ensure accuracy with programmed validation checks for format and content, visual examination and spot checks of data. Attribute Modifications were as follow: addition of GNIS Names, Flow Direction, and FCode Modification. If names from historical sources, local water managers, and other sources that did not exist in GNIS, they were submitted to the BGN for approval. Flow Direction is set as “with digitized”. Flow direction as present in the NHD remained preserved unless aerials, supporting sources, and surrounding flowlines strongly suggested otherwise. Used NHD FCodes stipulated in the NHD User Guide, [http://nhd.usgs.gov/userGuide/Robohelpfiles/NHD\\_User\\_Guide/Feature\\_Catalog/Hydrography\\_Dataset/Complete\\_FCode\\_List.htm](http://nhd.usgs.gov/userGuide/Robohelpfiles/NHD_User_Guide/Feature_Catalog/Hydrography_Dataset/Complete_FCode_List.htm). Existing lake/ponds that seemed to flow and or are adjacent to 2D stream/rivers did **not** have an FType attribution change unless it was clearly erroneous.

#### **f. Logical Consistency Report**

Data compilation and input processes ensure accuracy with programmed validation checks for format and content, visual examination and spot checks of data. NHD editing and update tools and procedures were used as covered in the [USGS NHD Training Sessions](#) and the [NHD User Guide/Help Portal](#). The USGS NHD Feature to Feature and NHD Feature Catalog Data Dictionaries were used to conform to USGS/NHD standards when editing. Technical questions were compiled throughout the project and presented to project and USGS POCs. Editors tracked their progress through the subbasin with a grid system. Bi-weekly, edits were printed at a 1:24,000 scale for visual inspection by IDWR staff besides the primary editor of a subbasin. Initial and final QC was executed using the QC utility of the NHD tools. Associated QC error fixes were applied before checking jobs back into the national dataset. The standard QA/QC step checks the flow network and topology of the dataset. Feature types, characteristics, and other attributes conformed to the Standards for National Hydrography Dataset ([USGS, 1999 DRAFT](#)) as of the date they were loaded into the national database.

#### **g. Completeness Report**

The hydrography was realigned at a scale of 1:24000 scale to the 2013 NAIP imagery. The completeness of the data reflects the original NHD high resolution hydrography features and what was visible on the base aerial. When a feature was present on the base aerial at 1:24,000 but not in the NHD, it was added to the NHD at 1:12,000 to 1:10,000. When a feature in the NHD data had different geometry, spatial location, and/or attributes than the base aerial, the feature was updated to reflect the aerial. When a feature in the NHD data not on the base aerial and there was strong evidence to suggest the feature in

the NHD was clearly an error, it was deleted. Additional evidence considered included use of additional datasets, modifications that make it difficult to see on the base aerial, seasonality, and terrain. Swamp/Marsh features were not added in agricultural areas/parcels. Features in agricultural areas subject to controlled frequent changes and were not mapped into the NHD. Reservoirs were considered when appropriate. Swamp/Marsh and lake/pond features were added when they were not located in agricultural areas. Lake, Pond, Glacier, Ice and 2D Stream polygons had to be  $\geq 2$  acres in size, or they were not mapped. Canal/ditches that were easily identifiable and permanent were added. Drainage ditches that solely channeled flow off of agricultural fields and did not contribute to network connectivity were not mapped. Please see Attribute Accuracy Report, Logical Consistency Report, and Process Description for additional information.

#### **h. Horizontal Positional Accuracy Report**

NHD Features were photorevised to the 2013 NAIP Imagery. Horizontal Positional Accuracy is based on accuracy statements made for National Agriculture Imagery Program (NAIP) published by the US Farm Service Agency. NAIP imagery is acquired at a one-meter ground sample distance (GSD) with a horizontal accuracy that matches within six meters of photo-identifiable ground control points, which are used during image inspection. NAIP Availability: <http://catalog.data.gov/dataset/naip-national-metadata>, NAIP Facts: <http://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/naip-imagery/index>, NAIP Horizontal Positional Accuracy Statement: [http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/APFO/RFP\\_AG8447S150003.pdf](http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/APFO/RFP_AG8447S150003.pdf) Section C-6.2(g)

#### **i. Vertical Positional Accuracy Report**

Use: Not Applicable

#### **NHD Source Citation Tab**

##### **a. For original NHD Basic Features**

The Source Originator is the *US Geological Survey*.

The Publication Date is the same as the Download Date of the NHD Job.

The Source Citation Abbreviation is *NHDBasic*.

The Source Scale Denominator is *24000*.

The Source Contribution is *Original GIS Feature Classes*.

The Type of Source Media is *ESRI Geodatabase*.

The Source Currentness Reference, use the *Download Date*.

##### **b. For Idaho NAIP Imagery**

The Source Originator is the *US Farm Service Agency*.

The Publication Date is the Date the final image for the state was approved for publication by FSA.

- For 2013, the Publication Date is Nov. 20, 2013

The Source Citation Abbreviation is *NHDBasic*.

The Source Scale Denominator is *24000*.

The Source Contribution is *RGB Imagery*.

The Type of Source Media is *Imagery, band interleaved by pixel*.

The Source Currentness Reference, use the *Acquisition Date*. The Date Range should be the range of imagery acquisition for the state for the year indicated.

- For 2013, the Acquisition Dates are July 24, 2013 to October 15, 2013
- For 2015, the Acquisition Dates are June 11, 2015 to November 07, 2015

c. For Input from Local Sources on Paper

For Local Input from Cooperators: a Source Citation can be created for a group of maps if the maps were created in the same fashion and input solicited was the same for all input provided.

The Source Originator is the individual or group solicited for information.

For Example: Local Irrigation Companies – Bear Lake Area

The Publication Date is *Unknown* as the paper map edit requests are not officially published.

The Source Scale Denominator is *Unknown* unless there is a scale reference on the map or if this metadata is for a group of maps and the scale was constant.

The Source Contribution is the information requested for.

For example: NHD Feature Name, Location, and Direction of Flow.

The Type of Source Media is *Paper*

The Source Currentness Reference, use the *Received Date*.

If for one map, the date received by IDWR.

If for several, you can use a Date Range for when the first and last maps were received by IDWR.