National Hydro Network

Data Product Specifications
Distribution Profile

Edition 1.1

2010-05-17

Gouvernement du Canada
Ressources naturelles Canada
Centre canadien de la cartographie et d'observation de la Terre

Service à la clientèle de GéoGratis
Téléphone : +01-819-564-4857
1-800-661-2638 (Canada et États-Unis)
Télécopieur : +01-819-564-5698
Courriel : geoginfo@RNCan.gc.ca
URL : www.GeoGratis.gc.ca

Canada

Copyright Notice

RELEASES HISTORY

Date	Version	Description
2007-06-01	1.0	Initial version of the data product specifications for the distribution of the *National Hydro Network* product.
2010-05-17	1.1	Section 6.2.3: Addition of the FGDB and the PDF distribution formats. Section 6.3.1: The absolute or external positional accuracy applies to NHN data on the Canadian territory. Section 9: Addition of the FGDB and the PDF distribution formats.

These specifications have been produced in compliance with the *International Standard ISOITC 211, ISO 19131: 2007 Geographic Information / Geomatics- Data product Specifications,* which refers in particular to the *ISO 10115: 2003 Geographic Information- Metadata.*

TABLE OF CONTENTS

1 OVERVIEW

1.1 Title

National hydro Network (NHN)

1.2 Reference Date

Creation date of the Data product specifications:

2007-06-01

1.3 Responsible Party

GeoBase
Natural Resources Canada
Earth Sciences Sector
Geomatics Canada
Centre for Topographic Information
2144, King Street West, Suite 010
Sherbrooke (Quebec), Canada
J1J 2E8

Telephone: +01-819-564-4857 or 1-800-661-2638 (Canada and USA)
Fax: (819) 564-5698
E-mail: SupportGeobase@nrcan.gc.ca
URL: http://www.geobase.ca

1.4 Language

Languages in which the data product specifications are available in accordance with the ISO 639-2 Standard:

eng – English
fra – French

1.5 Terms and Definitions

Attribute

Characteristic of a feature (e.g. *Water Definition* that defines a *Waterbody* type)

Class

Description of a set of objects that share the same attributes, operations, methods, relationships, and semantics (e.g. the *Waterbody* class). A class does not always include a built-in geometry (e.g. the *Hydro Events* package classes).

Event

Phenomenon occurrence measured along a *Network Linear Element*.

Feature

A feature[1] is the digital representation of a real-world phenomenon. A feature is translated as an object in the computer world.

Linear Referencing System

Linear referencing is a manner to associate attributes (events) to locations along of a linear feature.

Network Linear Element

Generic term used to refer to linear features from the Hydro Network package.

NHN Work Unit

Canadian territory subdivision used to manage and distribute NHN data. NHN Work Units limits generally correspond to the Water Survey of Canada Sub-Sub-Drainage Areas, to the Fundamental Drainage Areas from the Atlas of Canada, or to specific delimitations originating from a federal, provincial or territorial partner.

Object

An object is an instance of a class.

Package

Grouping of classes used to allow the organization of the model into more abstract structures.

1.6 Abbreviations and Acronyms

ASCII	American Standard Code for Information Interchange
CGVD28	Canadian Geodetic Vertical Datum of 1928
CTIS	Centre for Topographic Information in Sherbrooke
CCOG	Canadian Council On Geomatics
FDAAC	Fundamental Drainage Area from the Atlas of Canada
FGDC	Federal Geographic Data Committee
GML	Geography Markup Language
ISO/TC 211	International Organization for Standardization / Technical Committee 211 Geographic information/Geomatics
KML	Keyhole Markup Language
KMZ	Compressed version of KML (“zipped”)
LRS	Linear Referencing System
NAD83CSRS	North American Datum 1983 / Canadian Spatial Reference System
NHN	National Hydro Network

[1] ”Features are digitally coded abstractions of real-world objects and phenomena that have a geometric representation and space/time and other attribution associated with them.”[1] Buehler, K. and McKee, L., The OpenGIS Guide, Third Edition, June 1998. http://www.opengis.org/techno/guide.htm

NID	National Identifier
NRCan	Natural Resources Canada
NTDB	National Topographic Data Base
NTS	National Topographic System
PDF	Portable Document Format
WSCSSDA	Water Survey of Canada Sub-Sub-Drainage Area
XML	Extensible Markup Language

1.7 Informal Description of the Data Product

The National Hydro Network (NHN), for which the standards were officially adopted by the Canadian Council On Geomatics (CCOG) in August 2004, focuses on providing a quality geometric description and a set of basic attributes describing Canada's inland surface waters. It provides geospatial digital data describing hydrographic features such as lakes, reservoirs, rivers, streams, canals, islands, obstacles (e.g. waterfalls, rapids, rocks in water) and constructions (e.g. dams, wharves, dikes), as well as a linear drainage network and the toponymic (geographical names) information associated to hydrography.

The NHN forms the hydrographic layer of the GeoBase at the national scale. The best available federal and provincial data are used for its production, which is done jointly by the federal government and interested provincial and territorial partners.

The modeling work of the NHN is based in part on LRS concepts. This approach allows the management of geometric representations separately from attribute information (referred to as events in LRS). Unique identifiers (called National Identifiers - NID) associated to each geometric object and event, allow for efficient management of updates. NHN data have a great potential for analysis, cartographic representation and display and serve as base data to many applications.

2 SPECIFICATION SCOPE

This section describes the scope referred to by information provided in subsequent sections which describe the NHN product.

2.1 Scope Identification

Scope Name:

Global

2.2 Level

This scope refers to the following level of the ISO 19115 Standard:

006 – Series

2.3 Level Name

NHN

2.4 Level Description

The NHN aims at providing a quality geometric description and a set of basic attributes describing surface waters of the Canadian landmass.

2.5 Extent

This section describes the spatial and temporal extent of the scope.

2.5.1 Description

Data from this scope cover the totality of the Canadian landmass and are created using the best available geospatial data.

2.5.2 Vertical Extent

Even though data from this scope are two-dimensional (x, y); they may also include an optional elevation (h or z) component (value at “-9999” when not valid). When an elevation value is present and valid, it is within minimal and maximal bounds defined hereafter.

2.5.2.1 Minimum Value

0

2.5.2.2 Maximum Value

5959

2.5.2.3 Unit of Measure

Metre

2.5.2.4 Vertical Datum

Optional elevations (h or z) are orthometric and expressed in reference to mean sea level as per the CGVD28 reference system.

2.5.3 Horizontal Extent

2.5.3.1 West Bounding Longitude

-141.0°

2.5.3.2 East Bounding Longitude

-43.0°

2.5.3.3 South Bounding Latitude

+41.5°

2.5.3.4 North Bounding Latitude

+84.0°

2.5.4 Temporal Extent

The validity date of NHN data is based on the data available for their creation. The temporal extent for all of the data is defined by the following dates.

2.5.4.1 Beginning Data

1944

2.5.4.2 Ending Date

To date

2.6 Coverage

The coverage of data addressed by this scope applies to surface waters of the Canadian Landmass.

3 DATA PRODUCT IDENTIFICATION

3.1 Title

National hydro Network

3.2 Alternate Title

NHN

3.3 Abstract

The NHN is a geospatial data product arising from the GeoBase initiative and produced in collaboration with a network of federal and provincial or territorial partners. The NHN attempts to use the best available data covering Canada's inland surface waters and provides quality topographic information in vector format based on international geomatics standards.

The NHN data model, based in part on LRS concepts, synthesizes hydrography and hydrology concepts in order to establish a network path through naturally occurring and constructed bodies of water.

The NHN is composed of 19 classes grouped into 4 packages, of which 3, the Hydro Network, the Hydrographic and the Toponymy packages, are constituted of geometric features to which are attached a series of attributes describing Canada's surface waters. The 4th, the Hydro Events package, one is constituted of non-geometric features that provide linkage attributes to hydrographic phenomenon linked to the hydrographic network.

3.4 Purpose

The NHN aims at providing a quality base of geographic information suitable for spatial analysis and data modeling for better decision making related to Canada's sustainable development and natural resources, this in activities related to inland waters. It also aims to provide a graphic representation of the Canadian landmass surface waters.

3.5 Topic Category

Product main topics as defined in the ISO 19115 Standard:

012 – inlandWaters

010 – imageryBaseMapsEarthCover

007 – environment

013 – location

3.6 Spatial Representation Type

Type of spatial representation as defined in the ISO 19115 Standard:

001 – Vector

3.7 Spatial Resolution

Spatial Denominators of the Data:

10,000 – 50,000.

NHN data is produced using several data sources (e.g. provincial or federal). As a result, the data spatial resolution may vary from one NHN Work Unit to another. When produced using NRCan's digital topographic data, NHN data is derived from NTDB data at the 1:50,000 scale. When produced using provincial data, the scale varies from 1:10,000 and 1:50,000. Work Units for which source data is not available will be produced once their digital data coverage is completed. The data resolution for these Work Units will then be 1:50,000 or better.

3.8 Geographic Description

3.8.1 Authority

International Organization for Standardization (ISO)

3.8.1.1 Title

Standard for Geographic Area Codes:

ISO 3166-1:1997 *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes*

3.8.1.2 Date

Reference date of the ISO 3166-1 Standard:

1997-10-01

3.8.1.3 Date Type Code

Date Type in accordance with the ISO 19115 Standard:

002 – Publication

3.8.2 Code

Geographic Region Code covered by the Product in accordance with the ISO 3166-1 Standard:

CA – Canada

3.8.3 Extent Code Type

Delimitation Polygon Extent Code Type in accordance with the ISO 19115 Standard:

1 – Inclusion (inclusive)

3.9 Reference to Specification Scope

Global

4 DATA CONTENT AND STRUCTURE

4.1 Description

NHN data is distributed by NHN Work Units. Each Work Unit is divided into 4 packages containing the following features:

Package	Feature	Geometry
Hydro Network Package	Bank	line
	Delimiter	line
	Hydro Junction	point
	Littoral	line
	Network Linear Flow	line
Hydrographic Package	Hydrographic Obstacle Entity	point, line, area
	Island	area
	Manmade Hydrographic Entity	point, line, area
	Single Line Watercourse	line
	Waterbody	area
Toponymy Package	Named feature	point, line, area

Hydro Events Package	Obstacle Point Event	N/A
	Obstacle Line Event	N/A
	Manmade Point Event	N/A
	Manmade Line Event	N/A
	Flow Property Event	N/A
	External Geometry Event	N/A
	External Point Event	N/A
	External Line Event	N/A

Hydro Network package features are mainly used for network spatial analysis, whereas *Hydrographic* package features are used for graphical representation. Named Feature features from the *Toponymy* package delimit toponymic phenomena for which the geometry does not fully correspond to that of a Hydrographic package feature. *Hydro Events* package features do not have a geometry of their own but are positioned as per the LRS along a Network Linear Element. Events are used to transpose information about some hydrographic phenomena onto the hydro network. NHN features are described by a series of attributes detailed in the *NHN Distribution Catalogue* mentioned hereafter.

4.2 Feature Information

4.2.1 Application Schema

Refer to the document *National Hydro Network, Canada, Level 1, Data Model*, *Edition 1, August 2004,* available on the GeoBase Portal, for a description of the NHN conceptual model and to the *Feature catalogues* section hereafter for a description of each entity, their attributes and spatial integrity constraints.

Note: The NHN product (data physical description) respects the NHN Standard (conceptual description) within the limits or choices related to its physical implementation, that is to say:

Attributes

In the NHN data distribution profile, attributes have been added in order to allow the establishment of a physical model (e.g. the attributes *Island 1 NID* and *Island 2 NID* of the *Delimiter* feature).

Also, attribute domain values have been added to some attributes when required in order to account for data limitations or constraints from a provincial or territorial partner (e.g. the value *Side Channel* for the *Waterbody* feature).

Unknown and *None* attribute values have been added or removed from the domain values of some attributes depending on whether or not they were required or not relevant (e.g. the value *Unknown* added to the *Flow Direction* attribute of the *Network Linear Flow* feature and the value *None* removed from the *Permanency* attribute of the *Single Line Watercourse* feature).

Hydro Events

In the NHN data distribution profile, Hydro Events do not include a built-in geometry. They are associated, as per the LRS, to a location, expressed in percentage, marking their position along a *Network Linear Element* measured from the first vertex of this last versus its total length.

Metadata

In the NHN data distribution profile, three types of metadata describe NHN data. Collection Metadata, available on the Geobase portal, and Dataset Metadata, provided with each NHN Work Unit, are provided in distinct XML language files formatted in accordance with the FGDC-STD-001-1998 Standard, where as Object Metadata are provided in the form of attributes attached to each feature.

Toponymy Package

In the NHN data distribution profile, the *Toponymy* package is only composed of one feature, namely: the *Named Feature*.

Moreover, toponymic information as defined in the NHN product conceptual standard, published in August 2004 (ref.: *NHN Data Catalogue*, mentioned in the *Feature Catalogues* section hereafter), are provided as attributes within each *Hydrographic* package feature, within the *Network Linear Flow* feature from the *Hydro Network* package and within the *Named Feature* feature from the *Toponymic* package.

NHN Work Units

NHN Work Unit limits were created based on WSCSSDA, on FDAAC or on specific delimitations originating from a federal, provincial or territorial partner. NHN Work Unit limits were edited in accordance with the source data in order to provide a continuous and uninterrupted hydro network within a Work Unit and between adjacent Work Units. Notable differences, which may result from this edition, make that it is preferable for the NHN to talk about “work units” rather than “watersheds”.

Since the polygon delimiting a NHN Work Unit is provided with NHN data, a *NHN Work Unit Limit* feature was added to the physical model for the distribution of NHN data. Refer to the *NHN Distribution Catalogue* (see *Feature Catalogues* section hereafter) for the description of attributes associated with this feature.

The NHN Work Unit nomenclature is composed of 7 characters. The first 4 correspond to the WSCSSDA codes. The next 3 are used when the NHN Work Unit limit differs considerably from the original WSCSSDA limit (these characters bear the value “0” when not used). The first of these 3 last characters corresponds, if applicable, to a FDAAC subdivision of the WSCSSDA. The second of the 3 is used when the Work Unit limit includes a portion of an adjacent WSCSSDA (value “X” if such is the case). Finally, the last character is used when the Work Unit represents a portion of the original WSCSSDA.

Examples:

4.2.2 Feature Catalogues

Refer to the following catalogues available on the GeoBase Portal (NHN Data Section):

- NHN Standard (conceptual description): *National Hydro Network, Canada, Level 1, Linear Referencing System (LRS), Data Catalogue, Edition 1.0, August 2004*, hereafter called ***NHN Data Catalogue***;

- NHN Product (data physical description): *National Hydro Network, Feature Catalogue, Distribution Profile, Edition 1.0, 2007-06-01,* hereafter called ***NHN Distribution Catalogue***.

Note: The *NHN Distribution Catalogue* presents differences when compared with the *NHN Data Catalogue*. These include the aspects mentioned in the *Application Schema* section above as well as a review of NHN features and their attributes descriptions. This review was done not to modify the meaning of the descriptions but to clarify them. In addition, spatial integrity constraints are not presented in the *NHN Distribution Catalogue*.

4.3 Reference to Specification Scope

Global

5 REFERENCE SYSTEMS

5.1 Spatial Reference System

Spatial data expressed in latitude (φ) and longitude (λ) geographic coordinates in reference to the North American Datum 1983 Canadian Spatial reference System (NAD83 CSRS). The longitude is stored as negative number to represent a position west of the prime meridian (0°). The coordinates measuring unit is the degree expressed as a 7-decimal real value.

5.1.1 Authority

5.1.1.1 Title

Coordinate Reference System Registry:

EPSG Geodetic Parameter Dataset

5.1.1.2 Date

Reference Date:

2007-02-08

5.1.1.3 Date Type Code

Date Type in accordance with the ISO 19115 Standard:

002 – publication

5.1.1.4 Responsible Party

OGP (International Organisation of Oil and Gas Producers)

URL: http://www.epsg.org

5.1.2 Code

Coordinate Reference System Identifier (CRSID):

4617

5.1.3 Space Code

EPSG - European Petroleum Survey Group

5.2 Linear Referencing System

Data provided in accordance to the LRS is expressed in percentage calculated according to the Lambert Conformal Conic, Canada, CSRS (CANLAMB-CSRS) projection, in reference to the North American Datum 1983 Canadian Spatial reference System (NAD83 CSRS). Percentage values are expressed as real numbers ranging from 0 to 100.

CANLAMB-CSRS Projection Data:

Coordinate reference system type code:	1 (in accordance with the ISO 19111 Standard)
Coordinate reference system identifier:	CANLAMB-CSRS
Datum identifier:	NAD83 CSRS
Ellipsoid identifier:	Geodetic Reference System 1980
Ellipsoid semi-major axis:	6378137.0 m
Ellipsoid shape:	true
Ellipsoid inverse flattening:	298.257222101
Coordinate system identifier:	Lambert Conformal Conic
Coordinate system type:	projected
Coordinate system dimension:	2
Coordinate system axis name:	N
Coordinate system axis direction:	north
Coordinate system axis unit identifier:	metre
Coordinate system axis name:	E
Coordinate system axis direction:	east
Coordinate system axis unit identifier:	metre
Coordinate operation identifier:	Lambert Conformal Conic
Coordinate operation method formula:	EPSG
Coordinate operation method parameter number:	6140
Coordinate operation parameter name:	latitude of origin
Coordinate operation parameter value:	49 degrees
Coordinate operation parameter name:	longitude of origin
Coordinate operation parameter value:	-95 degrees
Coordinate operation parameter name:	standard parallel 1
Coordinate operation parameter value:	77 degrees
Coordinate operation parameter name:	standard parallel 2
Coordinate operation parameter value:	49 degrees
Coordinate operation parameter name:	false easting
Coordinate operation parameter value:	0 metre
Coordinate operation parameter name:	false northing
Coordinate operation parameter value:	0 metre

5.3 Reference to Specification Scope

Global

6 DATA QUALITY

6.1 Completeness

As NHN data may be produce using different data sources (e.g. provincial or federal) their content may vary slightly from one region to another. The majority of features and their attributes are extracted directly from the source data. Other features, such as *Network Linear Flows* and *Delimiters* are added when creating the NHN data. Detailed information on the source data used is provided in the Dataset Metadata.

NHN data quality evaluation (including completeness and thematic accuracy) is part of the NHN data production process. The validation method depends on the data source and/or the data production partner. Any deviation from the NHN standards and specifications is documented in the Dataset Metadata of each Work Unit.

6.1.1 Commission

Excess features or attributes are verified and corrected by the NHN validation and correction processes.

6.1.2 Omission

Missing features or attributes are verified and corrected by the NHN validation and correction processes.

6.2 Logical Consistency

6.2.1 Conceptual Consistency

As indicated in the *Application Schema* section above, the physical data structure of NHN data distributed on the GeoBase portal may differ, due to physical implementation limits or choices, from that of the NHN Standards approved in August 2004, in particular regarding metadata and toponymy.

NHN data structure was validated in compliance to their physical descriptions presented in the *NHN Distribution Catalogue.*

6.2.2 Domain Consistency

As indicated in the *Application Schema* section above, attribute domain values of NHN data distributed on the GeoBase portal may differ from those defined in the *NHN Data Catalogue*.

NHN Attribute domain values data have been validated in compliance to the values expressed in the *NHN Distribution Catalogue*.

6.2.3 Format Consistency

The use of well-established commercial software to generate the GML, Shape and FGDB distribution formats ensures format consistency for the distribution of the NHN data product, the whole in compliance to the physical description of NHN data defined in the *NHN Distribution Catalogue.*

A subset of NHN data is also distributed in the KMZ and the PDF formats. This subset, used mainly as a promotional tool, aims a basic graphic representation of the data, this without any conformity to the NHN standard.

Refer to the *National Hydro Network, Product Distribution Formats, Edition 1.0, 2007-06-01* document for specificities related to the distribution formats used for the NHN product.

6.2.4 Topological Consistency

Topological consistency of NHN data is validated at production time via spatial integrity constraints between NHN features within a NHN Work Unit and between adjacent Work Units, this in order to ensure a continuous and coherent hydro network as well as homogeneous representation data for the entire Canadian territory. The application of the spatial integrity constraints ensures topological consistency between the *NHN Distribution Catalogue* and the NHN product.

6.3 Positional Accuracy

6.3.1 Absolute or External Positional Accuracy

The geometric accuracy of NHN features on the Canadian territory is given as the difference between features position in the dataset and their real ground positions measured in reference to the geodetic network. The accuracy may vary from one feature to another. It is thus provided in attribute with each feature and is expressed in accordance with the Circular Map Accuracy Standard (CMAS).

Standard Circular Error: $\sigma_c = 0.7071 (\sigma_x^2 + \sigma_y^2)^{½}$
σ_x: standard deviation in the X-axis
σ_y: standard deviation in the Y-axis

Circular Map Accuracy Standard: $CMAS = 2.1460\ \sigma_c$

The NHN aims at obtaining a CMAS of 30 metres or better. This accuracy is based on Landsat 7 orthoimages and the GeoBase Data Alignment Layer.

As NHN data is created using available data sources (e.g. federal or provincial data), a dataset's planimetric accuracy is based on the source data. When a federal source data is used (e.g. NTDB data at the 1:50,000 scale), the planimetric accuracy (CMAS) is equivalent or better then that of the Landsat7 orthorectified product (available on the GeoBase portal), that is to say generally 30 metres or better. When a provincial source is used, the planimetric accuracy is generally better than 30 metres, reaching only a few metres in some cases.

The geometric accuracy of NHN features beyond the Canadian territory is not qualified.

6.3.2 Relative or Internal Positional Accuracy

Unknown

6.3.3 Gridded Data Positional Accuracy

Not applicable

6.4 Temporal Accuracy

6.4.1 Accuracy of a Time Measurement

Not applicable

6.4.2 Temporal Consistency

Not applicable

6.4.3 Temporal Validity

Not applicable

6.5 Thematic Accuracy

6.5.1 Classification Correctness

When produced by CTIS, the classification correctness of NHN data is validated at production stage. The correlation of the source data (e.g. federal or provincial) to NHN data is then validated and any detected error is corrected. The validation methodology depends nevertheless on the source data.

When produced by a provincial or territorial partner, data classification correctness is assured by the partner.

6.5.2 Non Quantitative Attribute Correctness

The correctness of NHN data non quantitative attributes is validated at production stage when produced by CTIS. The values extracted from the source data (e.g. federal or provincial) are then validated and any detected error is corrected. The validation methodology depends nevertheless on the source data.

When produced by a provincial or territorial partner, non quantitative attributes correctness is assured by the partner.

6.5.3 Quantitative Attribute Accuracy

The correctness of NHN data quantitative attributes is validated at production stage when produced by CTIS. The values extracted from the source data (e.g. federal or provincial) are then validated and any detected error is corrected. The validation methodology depends nevertheless on the source data.

When produced by a provincial or territorial partner, quantitative attributes correctness is assured by the partner.

6.6 Reference to Specification Scope

Global

7 DATA CAPTURE

7.1 Description

NHN data is created using the best available data (e.g. provincial or federal data). The various data sources used are described in the dataset metadata of each NHN Work Unit.

When produced by CTIS using NRCan digital topographic data or provincial data, the production of NHN Work Unit datasets is usually contracted-out. A structure and content validation of each Work Unit is performed using validation tools. Various concepts are validated using a series of automatic software or interactively, of which: spatial integrity constraints, attribute values, NID uniqueness, foreign keys (association of a feature to another), composition of features with one another, orientation and priority levels of *Network Linear Flows*, object metadata, toponymy and the presence/absence of features. All detected inconsistencies are corrected by CTIS or by the contractor. Inspection processes are adapted according to the data sources.

When produced by provincial or territorial partner, data quality is assured by the partner.

7.2 Reference to the Specification Scope

Global

8 DATA MAINTENANCE

8.1 Description

No maintenance activities of NHN data have yet been initiated. It is however expected that this endeavour will be performed through intergovernmental partnerships (federal, provincial or territorial) between governmental agencies closest to the source, interested and able to provide accurate and up-to-date representations of hydrographic phenomena. The frequency of NHN data maintenance has yet to be established.

In addition, NHN Work Unit limits may also change over time to fit the source data used for NHN data maintenance. New limits will be provided with new NHN Work Unit editions.

8.2 Reference to Specification Scope

Global

9 DATA PRODUCT DELIVERY

The output file formats for the NHN product are: GML (Geography Markup Language), SHAPE (ESRI™) and FGDB (ESRI™). A NHN data subset is also available in the KMZ format and image maps are available in PDF format.

9.1 GML Delivery Format Information

9.1.1 Format Name

Geography Markup Language (GML)

9.1.2 Language

Languages used in the dataset in accordance with the ISO 639-2 Standard:

eng – English
fra – French

9.2 SHAPE Delivery Format Information

9.2.1 Format Name

SHAPE (ESRI™)

9.2.2 Language

Languages used in the dataset in accordance with the ISO 639-2 Standard:

eng – English
fra – French

9.3 FGDB Delivery Format Information

9.3.1 Format Name

FGDB (ESRI™)

9.3.2 Language

Languages used in the dataset in accordance with the ISO 639-2 Standard:

eng – English
fra – French

9.4 KMZ Delivery Format Information

Note: This format is not an official format of the NHN product. It does not allow the transfer of data in compliance with the NHN Standards. The KMZ format offers a basic graphic representation of a data subset using software such as *Google Earth* and *Google Map*. It is used mainly as a promotional tool.

9.4.1 Format Name

Keyhole Markup Language (KML) compressed version (KMZ).

9.4.2 Languages

Languages used in the dataset in accordance with the ISO 639-2 Standard:

eng – English
fra – French

9.5 PDF Delivery Format Information

Note: This format is not an official format of the NHN product. It does not allow the transfer of data in compliance with the NHN Standards. It provides easy to view and to print hydrographic data contained in a drainage area. It is used mainly as a promotional tool

9.5.1 Format Name

Portable Document Format (PDF).

9.5.2 Languages

Languages used in the dataset in accordance with the ISO 639-2 Standard:

eng – English
fra – French

9.6 Delivery Medium Information

9.6.1 Unit of Delivery

NHN Work Unit (generally corresponds to a sub-sub-drainage area).

9.6.2 Medium Name

NHN data is available via the GeoBase portal.

9.6.3 Other Delivery Information

Refer to the *National Hydro Network, Product Distribution Formats, Edition 1.0.3, 2010-05-17* for a description of NHN data in the GML, Shape, KMZ and PDF distribution formats.

9.7 Reference to specification scope

Global

10 METADATA

Not applicable