

**USDA Service Center Initiative
Geospatial Data Acquisition, Integration and Delivery
Business Re-engineering Project**

Data Themes - Outline - Water Control Infrastructures/Dams

I. Acquisition

A. Data Source

1. Producer Information

a. Name

The U.S. Army Corps of Engineers and the Federal Emergency Management Agency originally developed the National Inventory of Dams. It was developed to track dam related problem areas.

This data set was prepared to support the U.S. EPA BASINS (Better Assessment Science Integrating Point and Non-point Sources) System.

b. Location of Headquarters

Washington, D.C.

c. Internet Address

<http://www.epa.gov/OST/BASINS>

2. Publisher Information

a. Name

U.S. Environmental Protection Agency/Office of Water/OST.

b. Location of Headquarters

USEPA/OW/OST
401 M Street, SW (4305)
Washington, D.C. 20460 Phone: 202 260-7301

Point of Contact:
Federal Emergency Management Agency.
500 C St.
Washington DC 20472 Phone: 202 646-2801

Tetra Tech, Inc.
10306 Eaton Place, Suite 340
Fairfax, Virginia 22030 Phone: 703-385-6000

c. Internet Address

<http://www.epa.gov/OST/BASINS>

3. Acquisition Information

a. Delivery Media

Distribution by CD divided by EPA regions.

Other form of data distribution (e.g. by cataloging unit) is available through the web.

b. Download URL

For shapefiles by EPA region:

<http://www.epa.gov/OST/BASINS>

For a comma delimited file by state or whole USA

<http://crunch.tec.army.mil/nid/webpages/nid.html>

05/24/99 04:22PM 5,659,337 [Nid1998.zip](#)

For further documentation and information on the National Inventory of Dams

<http://www.nicar.org/data/dams/>

For original source data

<http://corpsgeol.usace.army.mil/DECG/hq.html>

c. Projected Data Availability Schedule

Available since 1996

B. Standards Information

1. Geospatial Data Standard

a. Standard Name and Steward Information

None.

b. Standard Version

None.

c. Standard URL

None.

2. Metadata Standard

a. Standard Name and Steward Information

FGDC Content Standards for Digital Geospatial Metadata
Version: 19940608

b. Description of Metadata Captured

The sections of the metadata include:

Identification Information

Data Quality Information

Spatial Data Organization Information

Spatial Reference Information

Entity and Attribute Information
Distribution Information
Metadata Reference Information

c. Metadata Accuracy and Completeness Assessment

The metadata is complete.

C. Acquired Data Structure

1. Geospatial Data Format

a. Format (raster, vector, etc.)

Vector

b. Format Name

ESRI shapefile

c. Data Extent

West Bounding Coordinate: -167.00

East Bounding Coordinate: -65.00

North Bounding Coordinate: 71.00

South Bounding Coordinate: 17.50

Each CD-ROM contains the BASINS v2.0 Application and this dataset along with others covering the spatial extent of an EPA Region.

d. Horizontal and Vertical Resolution

Latitude and Longitude Resolution: 0.0001

e. Absolute Horizontal and Vertical Accuracy

Unknown

f. Nominal Scale

Not specified.

g. Horizontal and Vertical Datum

North American Datum of 1983 Geodetic Reference System 80

h. Projection

Geographic

i. Coordinate Units

Decimal Degrees

j. Average Data Set Size

Unknown

k. Symbology

None.

2. Attribute Data Format

a. Format Name

ESRI shapefile

b. Database Size

Unknown

3. Data Model

a. Geospatial Data Structure

Map Files	
map shp	shp file
map dbf	dbf file
map shx	shx file
map sbn	sbn file
map sbx	sbx file

b. Attribute Data Structure

DbaseV as part of ESRI shapefile.

c. Database Table Definition

Standard .dbf file that goes with shape file.

d. Data Relationship Definition

None. One row in .dbf for each area feature.

e. Data Dictionary

This database shows the age of the dam, number of people living downstream, and some inspection information. The dam inspection data also includes location information (such as latitude, longitude and nearest town), a description of a dam's size, reservoir capacity, the owner and the regulatory oversight agency.

Nid_id	The official National Inventory of Dams identification number for the dam.
State	The two letter abbreviation for the state in which the dam is located.
Other_name	Reservoir name or names in common use other than the official name of the dam. Names are separated with semi-colons.
Hazard	Term indicating the potential hazard to the downstream area resulting from failure or miss-operation of the dam or facilities.
Eap	Term indicating whether this dam has an Emergency
State_name	The state name in which the dam is located.
Cong_dist	The 104th Congressional District in which the dam is located.
County	Name of the county in which the dam is located.
Near_City	Name of the nearest downstream city, town, or village that is most likely to

	be affected by floods resulting from the failure of the dam.
Dist_city	Distance from the dam to the nearest downstream affected city, town, village to the nearest mile
River	Official name of the river or stream on which the dam is built. If the stream is unnamed, it is identified as a tributary to the named river.
Prm_purpose	Term indicating the primary purpose for which the reservoir is used.
Nid_damtyp	Term indicating dam type as one of the following: Arch, Buttress, Gravity.
Year_compl	Year when the original main dam structure was completed.
Nid_height	A calculated field based on the maximum value of field items #28 Dam Height, #29 Hydraulic height, and #30 Structural height, providing a single height value to facilitate database queries.
Nid_stor	A calculated field based on the maximum value of field items: #31 Normal storage, and #32 Maximum storage providing a single storage value to facilitate database queries.
Dam_length	Dam length in feet. It is defined as the length along the top of the dam.
Max_disch	Number of cubic feet per second, which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation.
Owner	Name of the owner of the dam.
Own_type	Term indicating owner type.
State_agcy	Name of the primary state agency with regulatory or approval authority over the dam.
Fed_agcy	Code identifying federal agency involvement in the dam.
Nonfed_dam	Term indicating whether the dam is a non-federal dam located on federal property.
Sect_town	Dam location in terms of Section, Township, and Range. Meridian location is included if it is needed to locate the dam.
Purpose	Codes for indicating the purposes for which the reservoir is used. Codes used are as follows: I = Irrigation, H =Hydroelectric, C = Flood Control and Storm Water Management; N = Navigation; S = Water Supply; R = Recreation; P = Fire Protection, Stock, or Small Farm Pond; F = Fish and Wildlife Pond; D = debris Control; T = Tailings; O = Other. Codes are concatenated if the dam has multiple purposes.
Dam_type	Code indicating the type of dam. Codes used are as follows: RE = Earth, ER = Rockfill; PG = Gravity; CB = Buttress; VA = Arch; MV = Multi-Arch; CN = Concrete; MS = Masonry; ST = Stone; TC = Timber Crib; OT = Other.
Dam_height	Dam height in feet. It is defined as the vertical distance between the lowest point on the crest of the dam and the lowest point in the original streambed.
Hydr_hgt	Hydraulic height of the dam in feet. It is defined as the vertical difference between the maximum designed water level and the lowest point in the original streambed.
Struct_hgt	Structural height of the dam in feet. It is defined as the vertical distance from the lowest point of the excavated foundation to the top of the dam.
Norm_stor	Normal storage in acre-feet. It is defined as the total storage space in a reservoir below the normal retention level, including dead and inactive storage and excluding any flood control surcharge storage.
Max_stor	Maximum storage in acre-feet. It is defined as the total storage space in a reservoir below the maximum attainable water surface elevation, including any surcharge storage.
Surf_area	Surface area in acres of the impoundment at its normal retention level.
Drain_area	Drainage area of the dam in square miles. It is defined as the area that drains to a particular point on a river or stream.
Spill type	Code that describes the type of spillway: C = Controlled; U = Uncontrolled; N = None.
Spill_wdth	Width of the spillway in feet, available for discharge when the reservoir is at

	its maximum designed water surface elevation.
Num_locks	Number of existing navigation locks for the project. Maximum of 4.
Lock_len	Length of the primary navigation lock in feet.
Lock_width	Width of the primary navigation lock in feet.
Volume	Total number of cubic yards occupied by the materials used in the dam structure. Portions of powerhouse, locks, and spillways are included only if they are an integral part of the dam and required for structural stability.
Insp_date	Date of the most recent inspection of the dam (MM/DD/YY) prior to the transmittal of the data by the submitting agency.
Phase1_ins	Term indicating whether this dam was inspected in the Phase I Inspection Program, National Program of Inspection of Non-Federal Dams.
Fd_constrc	Code identifying which federal agency was involved in the construction of the dam.
Fd_design	Code identifying which federal agency was involved in the design of the dam.
Fd_funding	Code identifying which federal agency was involved in funding of the dam.
Fd_inspect	Code identifying which federal agency is involved in the inspection of the dam.
Fd_operate	Code identifying which federal agency is involved in the operation of the dam.
Fd_other	Code identifying which federal agency is involved in other aspects of the dam.
Fd_owner	Code identifying which federal agency partly or wholly owns the dam.
Fd_regulat	Code identifying which federal agency is involved in the regulation of the dam.
Supp_fed	Code identifying the federal agency that has provided the data for field names #35-40.
Supp_date	Date of the transmittal from field item #51.
Sourc_agcy	Code identifying the federal or state source agency that has provided the field data on the dam, with the exception of field items #35-40.
Sourc_date	Date of the transmittal submitted by the primary source agency.
Source_id	The official agency identification number for the dam, used by the source agency's local dam inventory system.
Longitud_x	Dam longitude as a single value, in decimal degrees.
Latitude_y	Dam latitude as a single value, in decimal degrees.
Fips_state	The Federal Information Processing Standard code used by the U.S. Bureau of Census for the state in which the dam is located.
Fips_cnty	The Federal Information Processing Standard code used by the U.S. Bureau of Census for the county in which the dam is located.
Bcu	Basins assigned cataloging unit.

D. Policies

1. Restrictions

- a. Use Constraints
 - None
- b. Access Constraints
 - None
- c. Certification Issues

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2. Maintenance

a. Temporal Information

Currentness Reference: 1996

Publication Date: 1998 08 01

b. Average Update Cycle

As Needed.

E. Acquisition Cost

1. Cooperative Agreement

a. Description of Agreement

None

b. Status of Agreement

N/A

2. Cost to Acquire Data

Free

II. Integration

A. Value Added Process

1. Benefit to the Service Center

This dataset provides a locational map of 75,187 dams in the conterminous United States. The U.S. Army Corps of Engineers and the Federal Emergency Management Agency originally developed the National Inventory of Dams. It was developed to track dam related problem areas. This database shows the age of the dam, number of people living downstream, and some inspection information. The dam inspection data also includes location information (such as latitude, longitude and nearest town), a description of a dam's size, reservoir capacity, the owner and the regulatory oversight agency.

The National Inventory of Dams. It was developed to track dam related problem areas. This database shows the age of the dam, number of people living downstream, and some inspection information. The dam inspection data also includes location information (such as latitude, longitude and nearest town), a description of a dam's size, reservoir capacity, the owner and the regulatory oversight agency.

2. Process Model

a. Flow Diagram

b. Process Description

- Download file for each EPA region
- Append region files together
- Extract data for a single county as a shape file
- Reproject to UTM
- Send to Service Center

3. Technical Issues

a. Tiling

None

b. Compression

None

c. Scale

Unknown. This is best available for national coverage.

d. Tonal Matching

None

e. Edge-matching

None - point data.

4. Quality Control

a. Procedures

ACE & EPA performed the procedures.

b. Acceptance Criteria

Unknown

5. Data Steward

a. Name and Organization

EPA

b. Responsibilities

Using the ADD EVENT THEME function of Arcview, an Arcview shape file showing the locations of the dams is created based on the latitude and longitude coordinates associated with each dam site in the dams database.

Extract to EPA regions and provide metadata.

B. Integrated Data Structure

1. Geospatial Data Format

- a. Format (raster, vector, etc.)

Vector

- b. Format Name

ESRI shape file and ARCInfo coverage.

- c. Data Extent

Coterminous United States of America

- d. Horizontal and Vertical Resolution

Same as source.

- e. Absolute Horizontal and Vertical Accuracy

Same as source.

- f. Nominal Scale

Same as source.

- g. Horizontal and Vertical Datum

Same as source.

- h. Projection

Longitude/Latitude

- i. Coordinate Units

Decimal degrees

- j. Symbology

None

2. Attribute Data Format

- a. Format Name

ESRI shapefile

- b. Database Size

Source file is 5 MB. The data per county will vary with size of the county.

3. Data Model

- a. Geospatial Data Structure

Same as source.

- b. Attribute Data Structure
Same as source.
- c. Database Table Definition
Same as source.
- d. Data Relationship Definition
Same as source.
- e. Data Dictionary
Same as source.

C. Resource Requirements

1. Hardware and Software

To acquire the data, it requires a UNIX or NT machine with approximately 50-Mb of disk.

2. Staffing

This will vary depending on the size of the county data.

D. Integration Cost

1. Hardware and Software

In order to reformat, reproject, and tile the data, the USDA requires:

Arc/Info on UNIX or NT platform
Arcview on NT
1 GB disk

2. Staffing

A VB/MO program would automate the county extraction and reprojection to UTM.

III. Delivery

A. Specifications

1. Directory Structure

- a. Folder Theme Data is Stored In

\Government Units

2. File Naming Convention

- a. List of Theme Files and The File Naming Convention

Dams.dbf
Dams.shx
Dams.shp

B. User Information

1. Accuracy Assessment

a. Alignment with Other Theme Geospatial Data

Perhaps poorly since it is the only theme from this data source. However, it is point data so it should be OK.

b. Content

2. Appropriate Uses of the Geospatial Data

a. Display Scale

The original data source scale or smaller, hopefully 1:24,000.

b. Plot Scale

The original data source scale or smaller, hopefully 1:24,000.

c. Area Calculations

None - point data.

d. Decision Making

N/A

C. Maintenance and Updating

1. Recommendations and Guidelines

a. Frequency of Updates

In order of preference:

- ACE & EPA update as needed or irregularly. USDA should provide new maps when ACE & EPA provide the data.
- To coincide with USGS updates, if notification is a possible

b. Location for the Theme Data to be Maintained

In order of preference:

- At the EPA, with EPA as the data steward
- At the USDA data warehouse, potentially in Fort Worth, Texas

c. Maintenance and Updating Procedures Overview

Follow the integration procedure list above for each update.