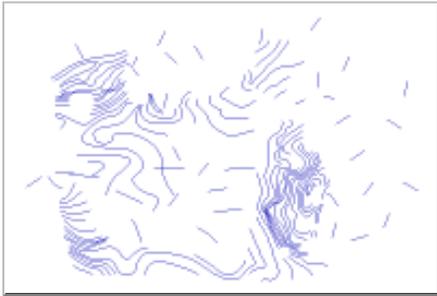


## Water Levels and Ground-Water Directions for Selected Navajo Nation Aquifers



**Data format:** Shapefile

**File or table name:** NN\_Water\_Level\_and\_Direction

**Coordinate system:** Geographic

**Theme keywords:** Aquifers, Water Level Contours, Ground-Water Directions

**Abstract:** This line shapefile of water level contours and ground-water directions for selected aquifers of the Navajo Nation is from Cooley et al., 1969.

### FGDC and ESRI Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)
- [Binary Enclosures](#)

Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) [Content Standard for Digital Geospatial Metadata \(CSDGM\)](#). Elements shown with green text are defined in the [ESRI Profile of the CSDGM](#). Elements shown with a green asterisk (\*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

### Identification Information:

#### Citation:

##### Citation information:

**Originators:** Cooley, M.E., Harshbarger, J.W., Akers, J.P., and Hardt, W.F., 1969

##### Title:

Water Levels and Ground-Water Directions for Selected Navajo Nation Aquifers

\***File or table name:** NN\_Water\_Level\_and\_Direction

**Publication date:** 1969

\***Geospatial data presentation form:** vector digital data

##### Series information:

**Series name:** US Geological Survey Professional Paper

**Issue identification:** 521-A

##### Publication information:

**Publication place:** Reston, VA

**Publisher:** US Geological Survey

**Other citation details:**

Regional Hydrogeology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah. US Geological Survey Professional Paper 521-A. Plate 5. Map showing water-level contours, direction of water movement, and areas of recharge and discharge of aquifers in the Navajo and Hopi Indian Reservations, AZ, NM and UT.

**\*Online linkage:** [\\Terra\\_dc\Navajo\NAUM\\_NN\\_Summary\Products\FINAL\TSG-07066\DVD\\_GIS\DB\Water\NN\\_Water\\_Level\\_and\\_Direction.shp](\\Terra_dc\Navajo\NAUM_NN_Summary\Products\FINAL\TSG-07066\DVD_GIS\DB\Water\NN_Water_Level_and_Direction.shp)

**Description:****Abstract:**

This line shapefile of water level contours and ground-water directions for selected aquifers of the Navajo Nation is from Cooley et al., 1969.

**Purpose:**

This dataset was developed to support the U.S. Environmental Protection Agency (USEPA) in its undertaking of an extensive scientific study to determine if abandoned uranium mines (AUM) and related mine features pose a significant risk to human health and the environment, and to identify areas requiring action to reduce risk for the Navajo Nation.

**Supplemental information:**

NN\_Aquifers.shp is a companion polygon shapefile that locates and identifies Navajo Nation aquifers that recharge at the surface.

**\*Language of dataset:** en

**Time period of content:****Time period information:****Single date/time:**

**Calendar date:** 1969

**Currentness reference:**

publication date

**Status:**

**Progress:** Complete

**Maintenance and update frequency:** None planned

**Spatial domain:****Bounding coordinates:**

**\*West bounding coordinate:** -111.839725

**\*East bounding coordinate:** -108.187183

**\*North bounding coordinate:** 37.492710

**\*South bounding coordinate:** 35.044170

**Local bounding coordinates:**

**\*Left bounding coordinate:** -111.839725

**\*Right bounding coordinate:** -108.187183

**\*Top bounding coordinate:** 37.492710

**\*Bottom bounding coordinate:** 35.044170

**Keywords:****Theme:**

**Theme keywords:** Aquifers, Water Level Contours, Ground-Water Directions

**Theme keyword thesaurus:** None

**Place:****Place keywords:** Navajo Nation, Arizona, Mew Mexico, Utah, United States**Place keyword thesaurus:** None**Access constraints:** None**Use constraints:**

A line shapefile of water level contours and ground-water directions for selected aquifers of the Navajo Nation.

Use of this data generally requires computer workstations with ESRI's Arc/Info (8.x or above), ArcGIS (8.x or above), or ArcView (3.x), or some other GIS or CAD software that is capable of reading or converting this dataset.

The data are provided "as-is," without warranty of any kind, either express or implied.

These data have been compiled as part of a desktop project to collect existing spatial data to support the study of Navajo abandoned uranium mines. No field verifications were undertaken as part of this desktop study.

**Point of contact:****Contact information:****Contact organization primary:****Contact organization:** U. S. Environmental Protection Agency, Region 9, Superfund Program**Contact address:****Address type:** mailing and physical address**Address:**

75 Hawthorne St (SFD 8-2)

**City:** San Francisco**State or province:** CA**Postal code:** 94105**Country:** USA**Contact voice telephone:** 415-972-3167**Security information:****Security classification system:** None**\*Native dataset format:** Shapefile**\*Native data set environment:**

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.780

[Back to Top](#)

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**Data Quality Information:****Attribute accuracy:****Attribute accuracy report:**

Attributes were checked against the source document: Plate 5, USGS Prof Paper 521-A.

**Completeness report:**

A line shapefile of water level contours and ground-water directions for selected aquifers of the Navajo Nation.

**Positional accuracy:****Horizontal positional accuracy:**

**Horizontal positional accuracy report:**

Consistent with the scanned paper map at a scale of 1:500,000.

**Lineage:****Source information:**

**Source scale denominator:** 1:500,000

**Type of source media:** paper map

**Source citation abbreviation:**

Cooley Aquifers

**Source contribution:**

The sole source of information for this shapefile is the map from: Cooley, M.E., Harshbarger, J.W., Akers, J.P., and Hardt, W.F., 1969, Regional Hydrogeology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah. US Geological Survey Professional Paper 521-A. Plate 5. Map showing water-level contours, direction of water movement, and areas of recharge and discharge of aquifers in the Navajo and Hopi Indian Reservations, AZ, NM and UT.

**Process step:****Process description:**

Plate 5 from the Cooley Report was scanned and automated capturing the water level contours and ground water directions. Note that the elevation attribute contains null values, -9, for the ground water direction arrows.

**Process software and version:** ESRI ArcGIS 9.1

**Process date:** July 2007

**Source used citation abbreviation:**

Cooley Aquifers

**Process contact:****Contact information:****Contact organization primary:**

**Contact organization:** TerraSpectra Geomatics

**Contact address:**

**Address type:** mailing and physical address

**Address:**

2700 E Sunset Rd, Ste A-10

**City:** Las Vegas

**State or province:** NV

**Postal code:** 89120

**Country:** USA

**Contact voice telephone:** 702-795-8254

[Back to Top](#)

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**Spatial Data Organization Information:**

\***Direct spatial reference method:** Vector

**Point and vector object information:****SDTS terms description:**

\***Name:** NN\_Water\_Level\_and\_Direction

\***SDTS point and vector object type:** String

\***Point and vector object count:** 120

**ESRI terms description:**

- \***Name:** NN\_Water\_Level\_and\_Direction
- \***ESRI feature type:** Simple
- \***ESRI feature geometry:** Polyline
- \***ESRI topology:** FALSE
- \***ESRI feature count:** 120
- \***Spatial index:** TRUE
- \***Linear referencing:** FALSE

[Back to Top](#)

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**Spatial Reference Information:****Horizontal coordinate system definition:****Coordinate system name:**

- \***Geographic coordinate system name:** GCS\_North\_American\_1983

**Geographic:**

- \***Latitude resolution:** 0.000000
- \***Longitude resolution:** 0.000000
- \***Geographic coordinate units:** Decimal degrees

**Geodetic model:**

- \***Horizontal datum name:** North American Datum of 1983
- \***Ellipsoid name:** Geodetic Reference System 80
- \***Semi-major axis:** 6378137.000000
- \***Denominator of flattening ratio:** 298.257222

[Back to Top](#)

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**Entity and Attribute Information:****Detailed description:**

- \***Name:** NN\_Water\_Level\_and\_Direction

**Entity type:**

- \***Entity type label:** NN\_Water\_Level\_and\_Direction
- \***Entity type type:** Feature Class
- \***Entity type count:** 120

**Entity type definition:**

Water Level Contours and Ground-Water Directions

**Attribute:**

- \***Attribute label:** FID
- \***Attribute alias:** FID
- \***Attribute definition:**  
Internal feature number.
- \***Attribute definition source:**  
ESRI

- \***Attribute type:** OID
- \***Attribute width:** 4
- \***Attribute precision:** 0
- \***Attribute scale:** 0

**Attribute domain values:**

**\*Unrepresentable domain:**

Sequential unique whole numbers that are automatically generated.

**Attribute:**

\***Attribute label:** Shape

\***Attribute alias:** Shape

\***Attribute definition:**

Feature geometry.

\***Attribute definition source:**

ESRI

\***Attribute type:** Geometry

\***Attribute width:** 0

\***Attribute precision:** 0

\***Attribute scale:** 0

**Attribute domain values:**

\***Unrepresentable domain:**

Coordinates defining the features.

**Attribute:**

\***Attribute label:** Dscription

\***Attribute alias:** Dscription

\***Attribute type:** String

\***Attribute width:** 50

**Attribute:**

\***Attribute label:** Elevation

\***Attribute alias:** Elevation

\***Attribute type:** Number

\***Attribute width:** 4

**Overview description:****Dataset overview:**

There are 120 lines.

**Entity and attribute overview:**

There are two thematic attributes:

Dscription - Description of feature types:

C Aquifer Water-level Contour

N Aquifer Water-level Contour

Near Surface Direction of Ground-water Movement

C Aquifer Direction of Ground-water Movement

D Aquifer Direction of Ground-water Movement

Elevation - for water level contours in feet

[Back to Top](#)

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**Distribution Information:****Distributor:****Contact information:**

**Contact organization primary:**

**Contact organization:** U. S. Environmental Protection Agency, Region 9,  
Superfund Records Center

**Contact address:**

**Address type:** mailing address

**Address:**

95 Hawthorne St (SFD-7C)

**City:** San Francisco

**State or province:** CA

**Postal code:** 94105

**Country:** USA

**Contact voice telephone:** 415-536-2033

**Resource description:** Downloadable Data

**Distribution liability:**

Although these data have been processed successfully on a computer system for the USEPA, no warranty expressed or implied is made by the USEPA or its contractors regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. No responsibility is assumed by USEPA or its contractors in the use of these data.

**Standard order process:****Digital form:****Digital transfer information:**

\***Transfer size:** 0.038

\***Dataset size:** 0.038

**Custom order process:**

Contact the USEPA for a custom order.

**Technical prerequisites:**

Use of this data generally requires computer workstations with ESRI's Arc/Info (8.x or above), ArcGIS (8.x or above), or ArcView (3.x), or some other GIS or CAD software that is capable of reading or converting this dataset.

**Available time period:****Time period information:****Single date/time:**

[Back to Top](#)

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**Metadata Reference Information:**

\***Metadata date:** 20070811

\***Language of metadata:** en

**Metadata contact:****Contact information:****Contact person primary:**

**Contact person:** Andrew Bain

**Contact organization:** U. S. Environmental Protection Agency, Region 9,  
Superfund Program

**Contact position:** Project Manager

**Contact address:**

**Address type:** mailing and physical address

**Address:**

75 Hawthorne St (SFD 8-2)

**City:** San Francisco

**State or province:** CA

**Postal code:** 94105

**Country:** USA

**Contact voice telephone:** 415-972-3167

\***Metadata standard name:** FGDC Content Standards for Digital Geospatial Metadata

\***Metadata standard version:** FGDC-STD-001-1998

\***Metadata time convention:** local time

**Metadata access constraints:** None.

**Metadata use constraints:**

None.

**Metadata security information:**

**Metadata security classification system:** None

**Metadata extensions:**

\***Online linkage:** <http://www.esri.com/metadata/esriprof80.html>

\***Profile name:** ESRI Metadata Profile

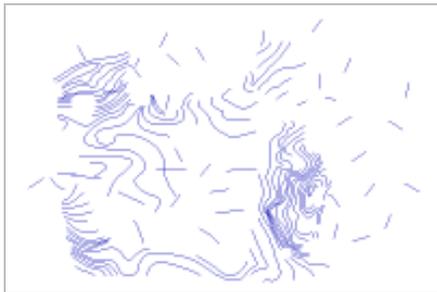
[Back to Top](#)

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## Binary Enclosures:

**Thumbnail:**

**Enclosure type:** Picture



[Back to Top](#)