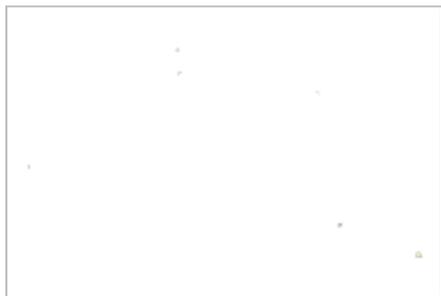


## Uranium Mills on or within One Mile of the Navajo Nation



**Data format:** Shapefile

**File or table name:** NN\_Mills

**Coordinate system:** Geographic

**Theme keywords:** Uranium Mills, UMTRA Sites, Superfund Sites

**Abstract:** This is a polygon shapefile of uranium mill sites on or within one mile of the Navajo Nation. The name and alias names for each site are identified, along with chapter location, start and final year of production, total tons of uranium ore processed and total pounds of U3O8 produced, reclamation status, area and perimeter.

### 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:** TerraSpectra Geomatics

**Title:**

Uranium Mills on or within One Mile of the Navajo Nation

\***File or table name:** NN\_Mills

**Publication date:** July 2007

**Publication time:** Unknown

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

**Publication information:**

**Publication place:** San Francisco, CA

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

\***Online linkage:** [\\Terra\\_dc\Navajo\NAUM\\_NN\\_Summary\DB\AUM\NN\\_Mills.shp](\\Terra_dc\Navajo\NAUM_NN_Summary\DB\AUM\NN_Mills.shp)

**Description:**

**Abstract:**

This is a polygon shapefile of uranium mill sites on or within one mile of the Navajo Nation. The name and alias names for each site are identified, along with chapter location, start and final year of production, total tons of uranium ore processed and total pounds of U3O8 produced, reclamation status, area and perimeter.

**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.

\***Language of dataset:** en

**Time period of content:**

**Time period information:**

**Single date/time:**

**Calendar date:** July 2007

**Currentness reference:**

publication date

**Status:**

**Progress:** Complete

**Maintenance and update frequency:** None planned

**Spatial domain:**

**Bounding coordinates:**

\***West bounding coordinate:** -111.140631

\***East bounding coordinate:** -107.786259

\***North bounding coordinate:** 37.138429

\***South bounding coordinate:** 35.225968

**Local bounding coordinates:**

\***Left bounding coordinate:** -111.140631

\***Right bounding coordinate:** -107.786259

\***Top bounding coordinate:** 37.138429

\***Bottom bounding coordinate:** 35.225968

**Keywords:**

**Theme:**

**Theme keywords:** Uranium Mills, UMTRA Sites, Superfund Sites

**Theme keyword thesaurus:** None

**Place:**

**Place keywords:** Navajo Nation, Arizona, New Mexico, Utah, United States

**Place keyword thesaurus:** None

**Access constraints:** None

**Use constraints:**

This dataset includes only the uranium mills found on or within one mile of the Navajo Nation. Uranium mines on the Navajo Nation shipped not only to these mills but to other uranium mills more distant from 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

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

Attributes values were visually inspected for consistency with source reference documents.

**Logical consistency report:**

These data were visually inspected for consistency with source reference documents. No field verifications were undertaken as part of this desktop study.

**Completeness report:**

This dataset includes only the uranium mills found on or within one mile of the Navajo Nation. Uranium mines on the Navajo Nation shipped not only to these mills but to other uranium mills

more distant from the Navajo Nation.

**Positional accuracy:**

**Horizontal positional accuracy:**

**Horizontal positional accuracy report:**

The scale of the source maps used to develop this dataset ranged from a scale of ~1:7000 to ~1:36625. These maps are less accurate than the National Map Accuracy Standards, because this standard is not claimed by the source map authors. This would result in, at best, a horizontal positional accuracy ranging from 233.33 to 732.5 feet.

When the POLYSOURCE field identifies that a DOQQ was also used to generate the polygon boundary, then the position of the boundary was first positioned from the source map and then modified based upon photointerpretation of the DOQQ. Typically this was based on mapping the fence around the boundary of the mill site. DOQQs have a resolution of 1 meter.

**Lineage:**

**Process step:**

**Process description:**

For the six mills on or within one mile of the Navajo Nation:

ID MILL\_NAME

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1 Church Rock Mill

2 Ambrosia Lake Mill

3 Navajo Mill

4 Mexican Hat Mill

5 Monument Valley Upgrader Site (Monument 2 Mine)

6 Tuba City Mill Site

the following documents were used to create the polygon boundary and populate the attributes for each mill:

Church Rock Mill

S06210501.pdf - Polygon boundary source

S06210502.pdf - Attribute source

Ambrosia Lake Mill

S06200501.pdf - Polygon boundary source

S06200502.pdf - Attribute source

S06200503.pdf - Attribute source

Navajo Mill

S06210503.pdf - Polygon boundary source

S06210504.pdf - Polygon boundary source

Mexican Hat Mill

S06210505.pdf - Polygon boundary source

S06210506.pdf - Polygon boundary and attribute source

Monument Valley Upgrader Site (Monument 2 Mine)

S06210507.pdf - Polygon boundary and attribute source

S06210508.pdf - Attribute source

S06210509.pdf - Attribute source

S06210510.pdf - Attribute source

Tuba City Mill Site

S06210511.pdf - Polygon boundary and attribute source

S06210512.pdf - Attribute source

The PDF file names above incorporate the SKEY number as the suffix of the filename. These reference documents are provided with this Navajo Abandoned Uranium Mines Project deliverable as well as an Skey listing documenting the source of the documents. The attribute fields POLYSOURCE, NAMESOURCE, PRODSOURCE, RECSTATSRC identify the SKEY documents that were used to build the polygon (POLYSOURCE) or populate the attributes (i.e. Name and aliases - NAMESOURCE; Production Information - PRODSOURCE; and Reclamation Status - RECSTATSRC). See the entity attribute part of this metadata for a description of all attribute fields.

To build the polygon boundary, a figure from the documented POLYSOURCE was georeferenced to the USGS DRG (Digital Raster Graphic for the 7.5 minute topographic map) and DOQQ (Digital Orthophoto Quarter Quadrangle) on which each mill is located. A polygon boundary was then automated. In the POLYSOURCE attribute DOQQ and/or DRG may be listed as a source. Where a georeferenced figure did not show sufficient detail (due to a small scale) the indicated DOQQ and/or DRG source was used to more accurately locate the polygon boundary than the georeferenced figure.

**Process software and version:** ArcGIS 8.3

**Process date:** June, 2005

**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

**Process step:**

**Process description:**

Dataset copied.

**Source used citation abbreviation:**

**Process step:**

**Process description:**

Dataset copied.

**Source used citation abbreviation:**

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## Spatial Data Organization Information:

\*Direct spatial reference method: Vector

### Point and vector object information:

#### SDTS terms description:

- \*Name: NN\_Mills
- \*SDTS point and vector object type: G-polygon
- \*Point and vector object count: 9

#### ESRI terms description:

- \*Name: NN\_Mills
- \*ESRI feature type: Simple
- \*ESRI feature geometry: Polygon
- \*ESRI topology: FALSE
- \*ESRI feature count: 9
- \*Spatial index: TRUE
- \*Linear referencing: FALSE

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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

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## Entity and Attribute Information:

### Detailed description:

- \*Name: NN\_Mills

### Entity type:

- \*Entity type label: NN\_Mills
- \*Entity type type: Feature Class
- \*Entity type count: 9

**Entity type definition:**

Uranium Mills on or within One Mile of the Navajo Nation

**Entity type definition source:**

TerraSpectra Geomatics

**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:** ID**\*Attribute alias:** ID**Attribute definition:**

Arbitrary unique ID number

**\*Attribute type:** Number**\*Attribute width:** 6**Attribute:****\*Attribute label:** MILL\_NAME**\*Attribute alias:** MILL\_NAME**Attribute definition:**

Uranium Mill Name

**\*Attribute type:** String**\*Attribute width:** 50

**Attribute:**

\***Attribute label:** ALIASES

\***Attribute alias:** ALIASES

**Attribute definition:**

Alias Uranium Mill Names

\***Attribute type:** String

\***Attribute width:** 100

**Attribute:**

\***Attribute label:** START\_YEAR

\***Attribute alias:** START\_YEAR

**Attribute definition:**

Beginning year of mill operation

\***Attribute type:** Number

\***Attribute width:** 4

**Attribute:**

\***Attribute label:** FINAL\_YEAR

\***Attribute alias:** FINAL\_YEAR

**Attribute definition:**

Final year of mill operation

\***Attribute type:** Number

\***Attribute width:** 4

**Attribute:**

\***Attribute label:** TONS\_ORE

\***Attribute alias:** TONS\_ORE

**Attribute definition:**

Short tons of uranium ore processed

\***Attribute type:** Number

\***Attribute width:** 10

**Attribute:**

\***Attribute label:** U3O8\_LBS

\***Attribute alias:** U3O8\_LBS

**Attribute definition:**

Pounds of U3O8 produced

\***Attribute type:** Number

\***Attribute width:** 10

**Attribute:**

\***Attribute label:** POLYSOURCE

\***Attribute alias:** POLYSOURCE

**Attribute definition:**

Key for the reference source and whether a DOQQ or DRG was used to help create the boundary for a mill site.

\***Attribute type:** String

\***Attribute width:** 50

**Attribute:**

\***Attribute label:** PRODSOURCE

\***Attribute alias:** PRODSOURCE

**Attribute definition:**

Skey reference source for the start and end years of production, and the tons of ore and pounds of U3O8 produced.

\***Attribute type:** String

\***Attribute width:** 50

**Attribute:**

\***Attribute label:** REC\_STATUS

\***Attribute alias:** REC\_STATUS

**Attribute definition:**

Reclamation status for the uranium mill site

\***Attribute type:** String

\***Attribute width:** 75

**Attribute:**

\***Attribute label:** RECSTATSRC

\***Attribute alias:** RECSTATSRC

**Attribute definition:**

Skey reference source for the reclamation status information

\***Attribute type:** String

\***Attribute width:** 50

**Attribute:**

\***Attribute label:** COMMENT

\***Attribute alias:** COMMENT

**Attribute definition:**

Attribute field for providing additional pertinent information about the mill

\***Attribute type:** String

\***Attribute width:** 150

**Attribute:**

\***Attribute label:** Recl\_Type

\***Attribute alias:** Recl\_Type

\***Attribute type:** String

\***Attribute width:** 15

**Attribute:**

\***Attribute label:** MillNamSrc

\***Attribute alias:** MillNamSrc

\***Attribute type:** String

\***Attribute width:** 10

**Attribute:**

\***Attribute label:** Alias\_Src

\***Attribute alias:** Alias\_Src

\***Attribute type:** String

\***Attribute width:** 75

**Attribute:**

\***Attribute label:** Chapter

\***Attribute alias:** Chapter

\***Attribute type:** String

\***Attribute width:** 25

**Overview description:**

**Dataset overview:**

This dataset contains 9 polygons representing the boundaries of uranium mill sites on or near the Navajo Nation.

**Entity and attribute overview:**

There are 16 thematic attributes:

ID - Arbitrary ID Number

MILL\_NAME - Primary Mill Name

ALIASES - Alternative Mill Names

START\_YEAR - Beginning Year of Milling

FINAL\_YEAR - Last Year of Milling

TONS\_ORE - Tons of ore milled

U3O8\_LBS - Pounds of U3O8 produced

POLYSOURCE - Source for the location and extent of the mill site

PRODSOURCE- Source of Production Data

REC\_STATUS - Reclamation status

RECSTATSRC - Source of reclamation status

COMMENT - Comments about mill site

Recl\_Type - Reclamation Type

MillNamSrc - Mill Name Source

Alias\_Src - Alias Name Source

Chapter - Chapter in which mill is located or Off Navajo Nation (Off NN)

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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

**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:** 0.003

\***Dataset size:** 0.003

**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:**

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**Metadata Reference Information:**

\***Metadata date:** 20070806

\***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

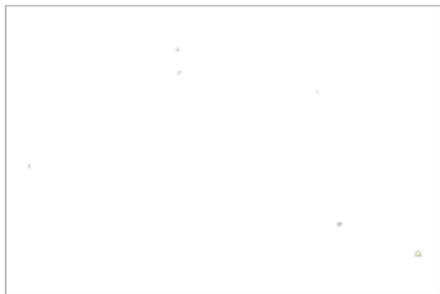
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## Binary Enclosures:

**Thumbnail:**

**Enclosure type:** Picture



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