Excess Bismuth 214 Polygons for an Aerial Radiological Survey of Abandoned Uranium Mines on the Navajo Nation

Data format: Shapefile

File or table name: NN_Excess_Bi214_Polys

Coordinate system: Geographic

Theme keywords: Excess Bismuth 214, Aerial Radiological Surveys, Gamma Radiation

Abstract: This polygon shapefile presents ranges of ground surface exposure rate from excess Bismuth 214 in counts per second based upon the 1764keV photopeak. Excess Bismuth 214 is based upon measured minus expected Bismuth 214 times a per flight determined constant equal to a ratio of statistically most likely values. Forty one (41) aerial radiological surveys of potential uranium mining areas (1,144 square miles) were conducted within the Navajo Nation during the period from October 1994 through October 1999. The US Environmental Protection Agency (USEPA) Region 9 funded the surveys and the US Department of Energy (USDOE) Remote Sensing Laboratory (RSL) in Las Vegas, Nevada conducted the aerial surveys. The aerial survey data were used to characterize the overall radioactivity (ground surface exposure rate) and excess Bismuth 214 levels within the surveyed areas.

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: Thane Hendricks, Bechtel Nevada, USDOE Remote Sensing Laboratory

        Title:
            Excess Bismuth 214 Polygons for an Aerial Radiological Survey of Abandoned Uranium Mines on the Navajo Nation
        ***File or table name:** NN_Excess_Bi214_Polys

Publication date: August 2001
***Geospatial data presentation form:** vector digital data

Publication information:
    Publication place: Las Vegas, NV
    Publisher: U.S. Department of Energy

Other citation details:
    For a detailed description of this survey of the Navajo Nation, see the DOE report:
    "DOE/NV11718--602" Skey for this document is S03310309.

***Online linkage:**
\\Terra_dc\Navajo\NAUM_NN_Summary\DB\Radiation\NN_Excess_Bi214_Polys.shp

Description:
    Abstract:

This polygon shapefile presents ranges of ground surface exposure rate from excess Bismuth 214 in counts per second based upon the 1764keV photopeak. Excess Bismuth 214 is based upon measured minus expected Bismuth 214 times a per flight determined constant equal to a ratio of statistically most likely values.

Forty one (41) aerial radiological surveys of potential uranium mining areas (1,144 square miles) were conducted within the Navajo Nation during the period from October 1994 through October 1999. The US Environmental Protection Agency (USEPA) Region 9 funded the surveys and the US Department of Energy (USDOE) Remote Sensing Laboratory (RSL) in Las Vegas, Nevada conducted the aerial surveys. The aerial survey data were used to characterize the overall radioactivity (ground surface exposure rate) and excess Bismuth 214 levels within the surveyed areas.

    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:
        Range of dates/times:
            Beginning date: October, 1994
            Ending date: October, 1999

    Currentness reference:
    ground condition

Status:
    Progress: Complete
    Maintenance and update frequency: None planned

Spatial domain:
    Bounding coordinates:
        ***West bounding coordinate:** -111.780543
        ***East bounding coordinate:** -108.972132

*North bounding coordinate: 37.160006
*South bounding coordinate: 35.007696

Local bounding coordinates:
*Left bounding coordinate: -111.780543
*Right bounding coordinate: -108.972132
*Top bounding coordinate: 37.160006
*Bottom bounding coordinate: 35.007696

Keywords:
Theme:
Theme keywords: Excess Bismuth 214, Aerial Radiological Surveys, Gamma Radiation
Theme keyword thesaurus: None

Place:
Place keywords: Navajo Nation, Arizona, New Mexico, Utah, United States
Place keyword thesaurus: None

Access constraints: None.
Use constraints:
1144 square miles of the more than 25,000 square mile Navajo Nation were surveyed. This area does not include all areas that may have had uranium mining. Specifically, these surveys do not include the Grants Uranium District that is partially on the Eastern Agency 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

Data Quality Information:

Attribute accuracy:
Attribute accuracy report:
Attribute data are from the source data.

Completeness report:
1144 square miles of the more than 25,000 square mile Navajo Nation were surveyed. This area does not include all areas that may have had uranium mining. Specifically, these surveys do not include the Grants Uranium District that is partially on the Eastern Agency of the Navajo Nation.

Positional accuracy:
Horizontal positional accuracy:
Horizontal positional accuracy report:
Aircraft position was established using a Real-time Differential Global Positioning Sustem (RDGPS) and a radar altimeter. The transmitted correction received by the helicopter's GPS unit minimized the relative positional uncertainty to +/- 15 feet (5 meters).

Lineage:
Process step:
Process description:
The shapefiles NN_Flight_Areas.shp and NN_Excess_Bi214_Contours.shp were converted to coverages and merged as a single line coverage. The resulting coverage was editted topological errors and built as a polygon coverage. "GROSSCOUNT" and "ExpoRate" attributes were populated based upon the contour attributes in NN_Excess_Bi214_Contours.shp. "Name" and "Region" attributes were populated from NN_Flight_Areas.shp.

Process software and version: ESRI ArcGIS 9.1
Process date: July 2007

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

Spatial Data Organization Information:

*Direct spatial reference method: Vector

Point and vector object information:
SDTS terms description:
*Name: NN_Excess_Bi214_Polys
*SDTS point and vector object type: G-polygon
*Point and vector object count: 4195

ESRI terms description:
*Name: NN_Excess_Bi214_Polys
*ESRI feature type: Simple
*ESRI feature geometry: Polygon
*ESRI topology: FALSE
*ESRI feature count: 4195
*Spatial index: TRUE
*Linear referencing: FALSE

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

Entity and Attribute Information:

Detailed description:
*Name: NN_Excess_Bi214_Polys

Entity type:
*Entity type label: NN_Excess_Bi214_Polys
*Entity type type: Feature Class
*Entity type count: 4195

Entity type definition:
Excess Bismuth 214 for an Aerial Radiological Survey of Abandoned Uranium Mines in the Navajo Nation

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:__ AREA
*__Attribute alias:__ AREA

*__Attribute type:__ Number
*__Attribute width:__ 19
*__Attribute number of decimals:__ 11

Attribute:
*__Attribute label:__ PERIMETER
*__Attribute alias:__ PERIMETER

*__Attribute type:__ Number
*__Attribute width:__ 19
*__Attribute number of decimals:__ 11

Attribute:
*__Attribute label:__ COUNT

*__Attribute alias:__ COUNT

*__Attribute type:__ String
*__Attribute width:__ 10

__Attribute:__
*__Attribute label:__ ExpoRate
*__Attribute alias:__ ExpoRate

*__Attribute type:__ String
*__Attribute width:__ 15

__Attribute:__
*__Attribute label:__ Name
*__Attribute alias:__ Name

*__Attribute type:__ String
*__Attribute width:__ 30

__Attribute:__
*__Attribute label:__ Region
*__Attribute alias:__ Region

*__Attribute type:__ String
*__Attribute width:__ 30

__Overview description:__
__Dataset overview:__
There are 4195 polygons

__Entity and attribute overview:__
AREA is in square meters.
PERIMETER is in meters.

There are four thematic attributes:

GROSSCOUNT - range of gross counts in keV
ExpoRate - range of exposure rates in µR/hr
Name - Flight area name
Region - Region in which the flight area is located

Back to Top

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:** 3.291
***Dataset size:** 3.291

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

Metadata Reference Information:

***Metadata date:** 20070731

***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

Binary Enclosures:

Thumbnail:
     Enclosure type: Picture

Back to Top