

**First-Stage Data Collection for Geothermal Assessment of Fallon Paiute
Shoshone Indian Reservation Lands**

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Report prepared for

The Mineral Assessment Program, Bureau of Indian Affairs through the Fallon Paiute
Shoshone Tribe

by

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APPENDIX A: CD-ROM in pocket

Access database of information sources for Fallon Paiute Shoshone Indian Reservation Lands

APPENDIX B: CD-ROMs in pocket

Digital geographic files for some of the data collected on the Fallon Paiute Shoshone Indian Reservation Lands

PROJECT BACKGROUND

The background for this compilation is contained in a proposal submitted in 2001 to the Mineral Assessment Program, Bureau of Indian Affairs through the Fallon Paiute Shoshone Tribe, entitled *“First-Stage Data Collection for Geothermal Assessment of Fallon Paiute Shoshone Indian Reservation Lands.”*

The text of this proposal is attached for reference on the background and justification for this project.

References and data have been gathered and entered into a Microsoft Access database format on the accompanying CD-ROM. Where available, original well data files are also included as Microsoft Excel files on the CD-ROM. Also provided on additional CD-ROMs are digital geographic information files of data that can be used with ArcView (ESRI, Inc.) or other software to view various data sets over a 16-township area surrounding and including the Fallon Paiute Shoshone Indian Reservation Lands. The latter compilation was done by Gary Johnson, NBMG Geographic Information System Specialist who will demonstrate the access and use of this data in a presentation to interested parties as part of the final report on this first stage data collection project.

PROCEDURES AND SOURCES OF INFORMATION

The following sources of geothermal references, data, contacts, and well information for the area within about a ten-kilometer radius of the Fallon Paiute Shoshone Tribal Lands were searched and tabulated on the accompanying Microsoft Access database.

<p>Nevada Bureau of Mines and Geology (NBMG) geothermal files</p>	<p>All paper document files with material pertinent to the Stillwater geothermal resource area, as well as files relevant to the Soda Lakes, Fallon Naval Air Station and general geothermal files were searched for well data, which is sourced and listed in the database. For each of many geothermal wells in the vicinity of the FPS study area, there is an entire file of permitting documents, correspondence, background reports, well completion reports and, in some cases, geophysical surveys, lithologic logs, technical reports, and geochemical data. The presence of any such data is noted in the record for each NBMG well file. Some files are for wells that were permitted but never drilled. This is noted in the record for these files.</p>
<p>NBMG air photo files</p>	<p>All NBMG air photo files were searched for photo flight lines that covered all or portions of the area covered by Townships 17N to 20N and Ranges 28E to 31E, which provides coverage of all the Fallon Paiute Shoshone Indian Reservation lands plus surrounding area out to about a 10-kilometer radius. Photography includes vertical photographs at several scales as well as low-sun angle photography. All air photos found were listed in the database. Also referenced is the USGS Earth Explorer website source, which lists air photo and satellite imagery for any given geographic area.</p>
<p>Geothermal websites</p>	<p>All geothermal websites with material possibly pertinent to evaluation of the Fallon Paiute Shoshone geothermal resource were visited and described and the URL addresses listed in the database. These include U.S., state, and regional agency websites dedicated to geothermal resource development and information resources as well as other geothermal resource websites maintained to provide access to geothermal-related data. Also searched were sites such as that of Southern Methodist University, U.S. Geological Survey, and the Nevada State Division of Water Resources containing well data as downloadable Excel files. Where available, these files were downloaded and are included on the CD-ROM accompanying this report.</p>
<p>Geothermal reference lists</p>	<p>All geothermal literature reference lists maintained by NBMG and others were searched for references pertaining to the Stillwater geothermal resource area, and those found were listed in the database.</p>
<p>Agency contacts</p>	<p>Persons connected with several agencies involved in the collection or maintaining of geothermal data</p>

	<p>are listed with their address/phone/e-mail/website contact information . These are particularly helpful where the data is not openly available in the public domain. Agency contacts listed include Frank Monastero for Fallon Naval Air Station data, Richard Hoops for U. S. Bureau of Land Management geothermal information, John Snow for Nevada Division of Minerals geothermal data, Gary Oppliger with the Arthur Brant Laboratory for Exploration Geophysics for geophysical data studies related to geothermal resource evaluation.</p>
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EXPLANATION OF PRODUCTS

1. MICROSOFT ACCESS DATABASE INFORMATION SOURCES FOR FALLON PAIUTE SHOSHONE INDIAN RESERVATION LANDS

Microsoft Access was used as the storage database for information collected on the Fallon Paiute Shoshone Indian Reservation Lands project, mainly because it is widely available (bundled on many newer computers), easily searched, and because data may be easily transferred from it to Microsoft Excel spreadsheets if desired. Access has the capability of displaying data for a single record both as a one-page format with large fields for notes, and as multiple rows of data records in a spreadsheet-type format. Using the database for varied types of data results in many fields that are empty for some data records. For example, records for journal articles on general regional geology will not have any data recorded in the “well characteristics” “total depth” and “cuttings” fields. However, the database can be queried to find just all records that have well data or just all “website” records, and thus create sub-databases customized to suit the needs of the user. Below is an explanation of the information contained in each field of the Microsoft Access database of information sources and geothermal data for the Fallon Paiute Shoshone Indian Reservation project.

Key to fields in Microsoft Access database of information sources and geothermal data for Fallon Paiute Shoshone Indian Reservation Lands.

Not all fields will contain data for all records.

FIELD LABEL	EXPLANATION OF CONTENTS
ID number	Unique number for the entry or record for the purposes of this study only.
Data type	Type of data described by this entry or record. Includes journal article, well file, book, open file report, field trip guide, map, abstract, air photo, etc.
Format	In what form the data is available, such as photo, spreadsheet, published literature, unpublished literature, Excel data file, paper document only, verbal communication, website, agency contact.
Title of Report	If the entry is in a format that has a title.
Author	If the entry is in a format that has an author, or the source of origin of the data.
Date of Report	Date or range of dates over which the data for this entry originated.
File Name/Number	Unique file name or number where the data is housed, if applicable.
Complete Bibliographic Reference	Author-date-title-source format field that can be used as a stand-alone reference list
Report location	Place where the data is housed. If published literature, this would be available through libraries. If unpublished literature, this would be the agency or that houses the data. Website URL given if available online.
Geographic location	Physical location of the area covered or referred to by the reference. Well location coordinates are given if the reference is to well data. Geographic area covered by reference. Latitude/Longitude or Township/Range/Section location is given here when available.
Geothermal Resource area	GRA referred to or covered by the data if pertinent (Stillwater, Soda Lakes, Fallon Naval Air Station, or Salt Wells, or other)
Contact	Person, agency, or website to contact for original data, if not already given
Availability	Local availability of a copy of the record, where known (NBMG, NDOM, Internet, libraries).
Distance	Distance and direction away from boundary of Fallon Paiute Shoshone Indian Reservation Land, where known and applicable
Well Name/number	The identifying number and/or name of the well, where applicable.
Well Characteristics	The type of well, where applicable (observation, thermal gradient, production, etc.)
Geophysics	Type of geophysical survey or data present in the reference, if any.
Geochemistry	Type of geochemical data present in the reference, if any.
Geology	Type of geologic data present, such as lithologic well logs in the reference, if any.
Drill depth	Total depth of well if well data.
Miscellaneous	Any pertinent data not covered by other fields
Annotations	Relevance of this data or information to the Fallon Paiute Shoshone tribal lands geothermal assessment project, if not obvious from title.

2. DIGITAL GEOGRAPHIC FILES FOR SOME OF THE DATA COLLECTED ON THE FALLON PAIUTE SHOSHONE INDIAN RESERVATION LANDS

We engaged the services of Gary Johnson, NBMG Geographic Information System Specialist, to create digital geographic files for some of the data assembled on the Fallon Paiute Shoshone Indian Reservation Lands project. These data are included as APPENDIX B on the accompanying CD-ROMs

This data was collected from several sites but mainly from data that the Nevada Bureau of Mines and Geology maintains in its data library. These digital data sets provide a base for the display and analysis of new data that might be collected in follow-up studies. In the graphic of the directory shown below are file icons for all the data types collected. In some cases the data are presented at various scales, which are indicated in the naming of the directories.

The directory Fallon_Area_data contains all the data clipped to the Townships 17N to 20N and Ranges 28E to 31E, which provides coverage of all the Fallon Paiute Shoshone Indian Reservation Lands plus coverage of the surrounding area up to about a 10-kilometer radius out from the tribal land boundary. This surrounding area contains all or parts of several Known Geothermal Resource Areas (KGRAs): Stillwater, Soda Lake, Fallon Naval Air Station, and Salt Wells (Eightmile Flat). All the data is in the projection of UTM, Zone 11, Datum NAD27, with the units as meters.

Data files for the study area are:

Boundary data, which show the tribal lands in the context of the surrounding land, as well as cadastral (township, rang, section) survey lines.

DEMs (Digital Elevation Model files) averaged over 30 meter cells and over 70 meter cells

DRGs (Digital Raster Graphic files) for both 1:24,000 and 1:100,000 scales

Geology, from the County Geologic map.

Gravity, TIFF file display from Gary Oppliger, Arthur Brant Laboratory for Exploration Geophysics, University of Nevada, Reno. *Dr. Oppliger can be contacted for additional gravity analysis relating to geothermal exploration. The accompanying Access database contains references and his contact information .*

Hydrology, Location of streams, ditches, and other waterways.

Land Use, from BLM files

Mines, includes all workings within the clipped study area from NBMG files and Abandoned Mine Lands project files from the Nevada Division of Minerals (NDOM).

NURE data collected for the National Uranium Resource Evaluation (NURE) Hydrogeochemical and Stream Sediment Reconnaissance Program begun in the 1970s. Source: Raines, G.L, Sawatzky, D.L., and Connors, Katherine, 1996, Great Basin Geoscience Database: USGS Digital Data Series-041 (CD-ROM).

Ortho_Quads, Orthophoto composite data for the study area.

Quadrangles, Topographic data for the USGS 7.5 minute quadrangles that include the study area

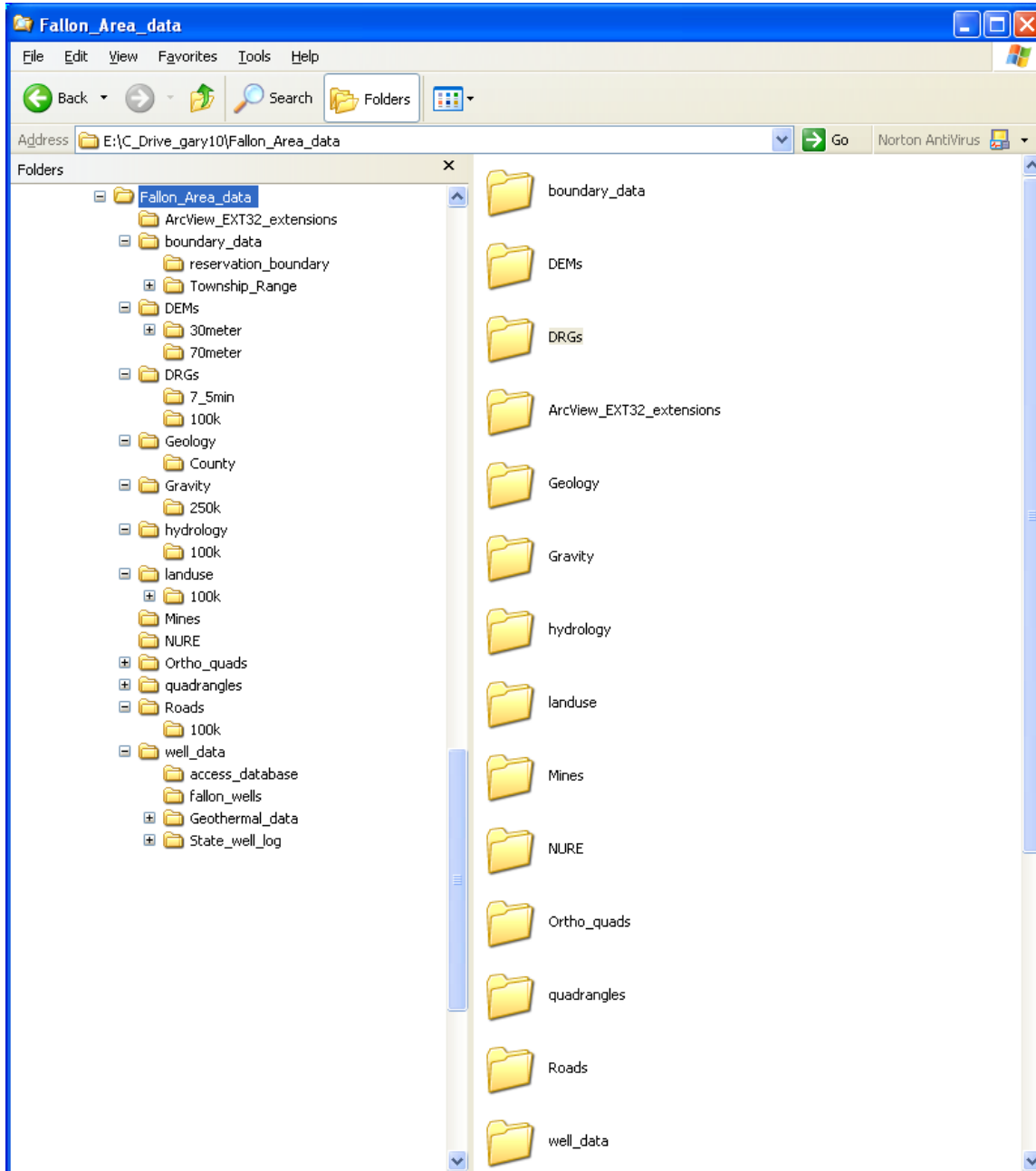
Roads, from NBMG road files

Well Data, location and attribute data for any wells within the study area, compiled from several different

sources, including SMU geothermal data website, NBMG geothermal files, and State of Nevada Water Resources Division well files.

The data can be viewed using any of the E.S.R.I. software packages.

There is an ArcView project file that will run if you install all the data on the “C” drive and add the ArcView EXT32 extensions that ArcView uses.



Fallon data directory structure