

GIS Compilation of MN DNR Project 278: Archean Drill Core Description and Assay in Lake of the Woods County, Minnesota

A Minerals Diversification Project

GIS Data Completed: January 16th, 2014 by Wes Rutelonis

Original Data (Lotus files) Completed: 1991

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Provided here is a general description of files that are found in 'mpes278_data.zip'

[Link to project webpage](#)

[Link to project report](#)

Abstract:

The zip file contains data for 1320 samples extracted from sixty-five drill holes described in the Minnesota Department of Natural Resources (MnDNR), Division of Land and Minerals Report, "Archean Drill Core Description and Assay in Lake of the Woods County, Minnesota Report 278," published in 1988. Each folder in the zip file contains data from the report in a different format. The data is presented in its original Lotus data files, a Microsoft Access database, dBase IV files, and ArcGIS File Geodatabase. The conversion of the original Lotus digital data file to these formats was completed in January of 2014 and is described below. The eight data sets enumerating drill hole or core sample data contain geospatial information in the form of Universal Transverse Mercator (UTM) East and North coordinates, a "Z" field with the elevation of the drill hole top, and elevation the of top and bottom of the individual samples; all elevations are in feet above sea level. Additional information about the data fields can be found in the report listed below under the section titled 'LOTUS_FILES_ORIGINAL_SOURCE'. The data is designed to be used as a supplement to the report and plates.

Folders and their contents:

LOTUS_FILES_ORIGINAL_SOURCE

- 278-DDH.wk1
 - Drillhole list and information
 - Report page Appendix 278-A

Note: there is an error under 'Chemical Analyses Explanation' on this page. The codes read as follows

Chemical Analyses Explanation

1	= Precious metals, platinum group elements (PGE).	Au, Ag, Pt, Pd, Ir, Rh, Os, Ru, Re.
2	= Whole rock - major elements.	Na, Mg, K, Ca, Ti, Mn, Fe, Al, Si, P.
3	= Rare earth and associated elements.	Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu.
4	= Base metals.	Co, Ni, Cu, Zn, Pb.
5	= Mafic spinel oxides.	Mg, Ti, V, Cr, Mn, Fe.
6	= Uranium-Thorium.	
7	= Trace elements - minor elements.	Li, Be, B, C, F, Cl, Ga, Ge, As, Se, Br, Rb, Sr, Zr, Nb, Mo, Cd, In, Sn, Sb, Te, I, Cs, Ba, Hf, Ta, W, Hg, Tl, Bi.
8	= Sulfur	

- 278-ELEM.wk1
 - Highest Cu, Ni, Zn, and Au values from assessment file data.
 - Report pages Appendix 278-G

- 278-HIST.wk1
 - Histogram
- 278-JCP.wk1
 - Report page 44
- 278-MF.wk1
 - Mafic and felsic samples
- 278-PET.wk1
 - Petrographic Analysis
 - Report pages Appendix 278-J-7 through J-13
- 278-RS1.wk1
 - For use in creating correlation matrix (pages 278-F)
- 278-SAMP.wk1
 - Sample Characterizations
 - Report pages Appendix 278-H
- 278-STDs.wk1
 - Standards and Duplicates
 - Report pages Appendix 278-E
- 278-U-G.wk1
 - Ultramafic and Gabbros
- 278AFMA.wk1
 - AFM diagram
 - Report pages 44 and 48
- 278-AFMB.wk1
 - AFM diagram
 - Report pages 44 and 48
- 278-AFMC.wk1
 - AFM diagram
 - Report pages 44 and 48
- 278-CHEM.wk1
 - Results of chemical analyses
 - Report pages Appendix 278-D
 - NOTE: Last six fields (columns) in this file are numbers for a Jensen Cation Plot
- 278-CORR.wk1
 - Correlation matrix
 - Report pages Appendix 278-F

This is the original sourced data in Lotus file format. These files were used to create the Access files seen below. 278-CHEM, DDH, PET, LOW, MF, U-G, and STDs are among the files that could be related spatially and therefore are the only files converted to features (see “Feature Dataset” below).

ACCESS_DB_FROM_LOTUS_FILES

The original Lotus files were imported into OpenOffice 4.0.1 and then copied and pasted into Microsoft Access to be given the appropriate field headings and data type. Each file is associated with a table that was used in the filed report. **Note**, at this juncture all blank or “NULL” cells were replaced by “-999” to avoid replacement by zeros when pulled into mapping software. Detection limits used in the assessment files used a minus sign in place of a “less than” symbol. All negative numbers in these assessment files were universally replaced with half of their absolute value.

- Project_278.accdb

SHAPEFILES

One shape file was created using DRILLHOL.dbf (below) and the MNDNR drillhole database to be used as reference for the rest of the data.

- 278/Data/GIS/ddh_278.shp

DBF_EXPORTED_FROM_ACCESS

FROM_ACCESS

The following were exported from the above Access file as “.dbf” files. These files were pulled into ArcGIS where spatial data was added.

- CHEM278.dbf
 - NOTE: Last six fields (columns) in this file are numbers for a Jensen Cation Plot
- DRILLHOL.dbf
- MF_278.dbf
- PET_278.dbf
- STDS_278.dbf
- UG1_278.dbf

MNDNR

One MNDNR file was used to link thin section sample numbers in PET_278 to spatial points

- THINSEC.dbf

FILE_GEODATABASE

[Only viewable in ArcGIS 9.3 and above]

File name - mpes278_data.gdb

- **Feature Dataset – Features**
 - project278_drillhole_info
 - (278-DDH)
 - Lists drillhole name, township, range, section, forty, lessee, date drilled, interval of core sampled, core footage, elevation, and angle and azimuthal direction. The drillhole name was used in conjunction with the MNDNR drillhole database to determine spatial points for each sample. This feature class was then joined to each of the six (seen below) exported DBF IV files from the Microsoft Access Database (seen above).
 - project278_chemical_results
 - 278-CHEM
 - Database with all chemical analyses
 - NOTE: Last six fields (columns) in this file are numbers for a Jensen Cation Plot
 - project278_duplicate_samples
 - 278-STDS
 - project278_mafic_felsic_samples

- 278-MF
- project278_petrologic_analyses
 - 278-PET
 - NOTE: "THINSEC.dbf" in MNDNR folder was used to link sample numbers to a spatial point
- project278_high_precious_metal_content
 - 278-ELEM
- project278_ultramafic_gabbro1
 - 278-UG

Aside: A file containing an assessment file data compilation of Lake of the Woods county that is not used directly in this report is available by request.

Any questions regarding the GIS compilation contact:

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