

U. S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

ELEMENTS OF INFRASTRUCTURE AND SEISMIC HAZARD  
IN THE CENTRAL UNITED STATES - DATABASE

digitally compiled by

Susan Rhea<sup>1</sup>

Open-File Report 95-0241

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

<sup>1</sup>USGS, Denver, CO, 80225

1995

ELEMENTS OF INFRASTRUCTURE AND SEISMIC HAZARD  
IN THE CENTRAL UNITED STATES --  
DATABASE

digitally compiled by

Susan Rhea

This database, identified as pp1538, has been approved for release and publication by the Director of the USGS. Although the database has been subjected to rigorous review and is substantially complete, the USGS reserves the right to revise the data pursuant to further analysis and review. Furthermore, it is released on condition that neither the USGS nor the United States Government may be held liable for any damages resulting from its authorized or unauthorized use.

The database may be downloaded via 'anonymous ftp' from a USGS data server named [greenwood.cr.usgs.gov](ftp://greenwood.cr.usgs.gov) (136.177.48.5). The files are located in a directory named /pub/open-file-reports/ofr-95-0241). The database manager is:

Susan Rhea  
303/273-8639  
[rhea@glvxa.cr.usgs.gov](mailto:rhea@glvxa.cr.usgs.gov)  
U.S. Geological Survey  
Box 25046, MS 966  
Denver, CO 80225

This digital map database consists of the ESRI ARC/INFO Version 7.0.2 *coverages* used to generate the plates in Professional Paper 1538-M (1994). Total database size is 37.5Mb. Base-data is from 1:2,000,000-scale Digital Line Graph (DLG) data (roads, railroads, streams, water bodies, and international boundaries) and 1:100,000 scale DLG data (state and county boundaries). Original source and scale for other data are described in the *coverage* entries below. All *coverages* except *sec06rr* contain attribute information beyond the usual ARC/INFO attributes, and some covers contain annotation subclasses. The ARC/INFO generated attributes include area and perimeter for polygon coverages, and internal control numbers and id numbers for point, arc, and polygon covers.

Data used for the pipeline information is proprietary and used with permission. Original digital data from PennWell Publishing Company (1995) is available.

The projection used is Albers Equal-Area, with central meridian at 88°W, and standard parallels at 29°30'N and 45°30'N. Latitude of the projection's origin is at 23°N. The scale of the published plates for this Professional Paper is 1:2,500,000.

The EXPORT command was used to create the 'data.e00' files, using full compression. The IMPORT command will generate the ARC/INFO coverages for your use.

A brief description of each coverage follows:

- alb96alb88.prj*: projection file used to convert DLG to project projection
- pp1538cities*: 53 cities; digitized on-screen matching published maps to digital road network  
point attributes: city = name  
capital = 1 for yes, 0 for no  
pop=1980 population, in thousands
- pp1538cnty*: county and state lines; 1:100,000 scale DLG data  
arc attributes: bndytype = 1 for states, 2 for counties, 3 for international
- pp1538dams*: 804 dams; digital data from Water Resources Division  
point attributes: self-explanatory, defined by Water Resources Division
- pp1538epri*: 25 earthquakes with Modified Mercali Intensity > 5; digital data from Electric Power Research Institute  
point attributes: year, mon, day  
mag = moment magnitude,  
estimated for historical earthquakes from felt area
- pp1538geol*: boundaries of Quaternary and Cenozoic-Mesozoic units; digitized from King and Biekman (1974), scale 1:2,500,000  
polygon attributes: unit = Quat (Quaternary),  
Cz-Mz (Cenozoic- Mesozoic),  
or water
- pp1538grat*: graticule for study area; generated in decimal degrees
- pp1538grattic*: graticule tic marks; generated in decimal degrees
- pp1538mmi*: outlines of hypothetical Modified Mercali Intensity values; digitized from Algermissen and Hopper (1985), scale about 1:6,670,000  
polygon attributes: mmi = VI through X
- pp1538nukes*: 44 facilities housing significant nuclear material; digitized from U.S. Geological Survey maps, scale about 1:7,500,000  
point attributes: type = character description  
x-coord and y-coord in decimal degrees
- pp1538rds*: selected interstate and first class roads, 1:2M DLG data  
arc attributes: see National Mapping Program (NMP) data users guide
- pp1538rr*: all railroads except those in sec06, 1:2,000,000 DLG data  
arc attributes: see NMP data users guide
- pp1538sec06rr*: sec06 railroads, 1:2,000,000 DLG data, NOTE -- no attribute codes

- pp1538str*: all streams, 1:2,000,000 DLG data, not used in final version  
           arc attributes: see NMP data users guide  
           polygon attributes: see NMP data users guide
- pp1538usa*: usa national borders; 1:2,000,000 DLG data  
           arc attributes: see NMP data users guide
- pp1538wb*: outlines of large water bodies (oceans, Great Lakes); 1:2,000,000 DLG data  
           polygon attributes: none

## REFERENCES

- Algermissen, S.T., and Hopper, M.G. 1984, Estimated maximum regional seismic intensities associated with an assemblage of great earthquakes that might occur along the New Madrid seismic zone, east-central United States: U.S. Geological Survey Miscellaneous Field Studies Map MF-1712, 1 sheet, scale about 1:3,770,000.
- King and Biekman, Geologic Map of the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey 1974, 3 sheets, scale 1:2,500,000.
- National Mapping Program, 1990, Digital Line Graphs from 1:2,000,000-scale maps: U.S. Geological Survey, Data Users Guide 3, 70 p.
- PennWell Publishing Company, 1995, Natural gas pipelines of the United States and Canada: Tulsa, Oklahoma, Topographic Mapping Company, digital database.
- 1995, Products pipelines of the United States and Canada: Tulsa, Oklahoma, Topographic Mapping Company, digital database.
- 1995, Crude oil pipelines of the United States and Canada: Tulsa, Oklahoma, Topographic Mapping Company, digital database.
- Wheeler, R.L., Rhea, Susan, and Tarr, A.C., 1994, Elements of infrastructure and seismic hazard in the central United States, *in* Shedlock, K.M., and Johnston, A.C., eds., Investigations of the New Madrid seismic zone: U.S. Geological Survey Professional Paper 1538-M, 3 plates, scale 1:2,500,000, 61p.

## ACKNOWLEDGEMENTS

Compilation of digital data base assisted by Mike Crane and Art Tarr. Data contributions from Water Resources Division, PennWell Publishing Company, Electric Power Research Institute, and other U.S. Geological Survey scientists is greatly appreciated. This work was supported by the U.S. Geological Survey National Earthquake Hazard Reduction Program.