

2008 National Emissions Inventory

Emissions Inventory System Implementation Plan

Appendix 11 Preparing GIS Data for Export

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Appendix 11

Preparing GIS Data for Export

This appendix provides instructions on how to provide GIS data to the EIS. For further information on how to attach these files to your XML document, see [Section 5, "Submitting XML Data to the EIS."](#)

A11.1 Preparing Shapefiles

For 2008, the EIS will support the submission of shapefiles associated with Event data. Shapefiles stores non-topological geometry and attribute information demonstrating spatial features in a dataset. These shapefiles can be created by exporting data from tools such as ARC/INFO, ArcView GIS, or other spatial database engines (SDE). Outputs from ARC/INFO and ArcView GIS can be converted to other usable formats.

A shapefile consists of a main file, an index file, and a dBASE table. All three files must be submitted together to constitute a complete shapefile. The collection of files with ".SHP," ".SHX," and ".DBF," share a common prefix name (e.g., "fire.*"). The actual shapefile relates specifically to files with the ".SHP" extension; however, this file alone is incomplete for distribution, as the other supporting files are required.

These three individual files are required to store the core data that constitute a shapefile. There are further, optional, files that store index data to improve performance. Each individual file should conform to the MS DOS 8.3 file naming convention (eight character filename prefix, full stop, three character filename suffix, such as shapefil.shp) in order to be compatible with all applications that handle shapefiles.

Required files to be submitted to the EIS:

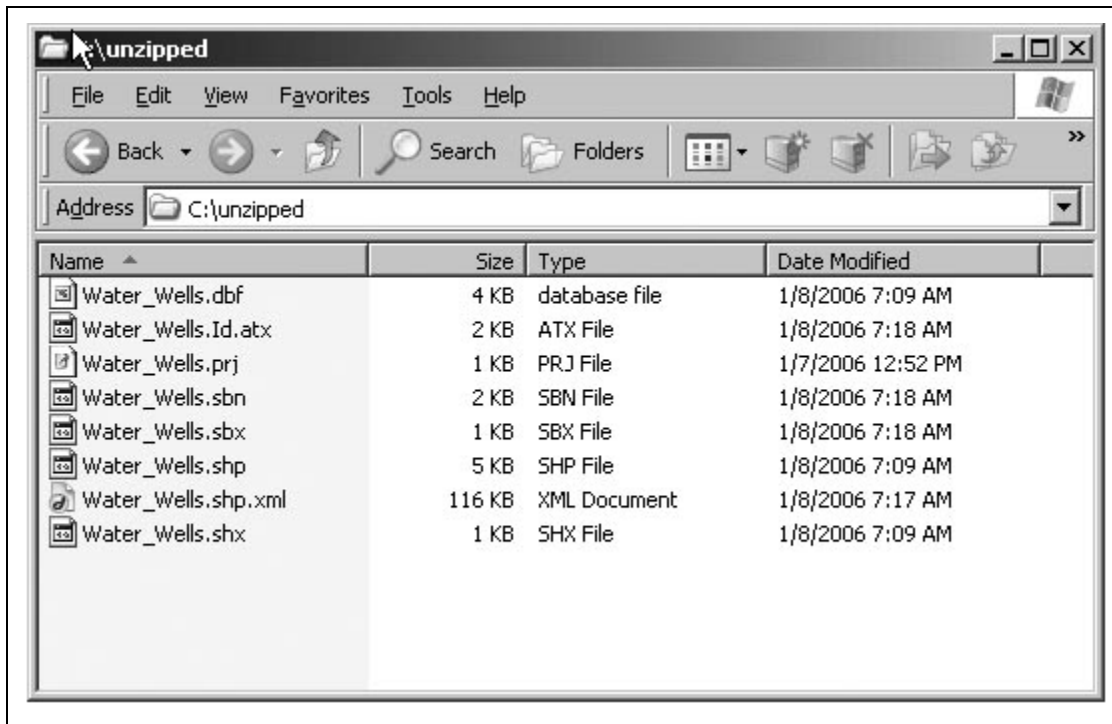
- .shp - shape format containing the feature geometry;
- .shx - shape index format, which provides an index to the feature geometry; and
- .dbf - attribute format containing columnar data for each shape, in dBase III format.

Optional files:

- .prj - projection format containing the coordinate system and projection information;
- .sbn and .sbx - spatial index of the features;
- .fbn and .fbx - spatial index of the features for shapefiles that are read-only;
- .ain and .aih - attribute index of the active fields in a table or a theme's attribute table;
- .ixs - geocoding index for read-write shapefiles;
- .mxs - geocoding index for read-write shapefiles (ODB format);
- .atx - attribute index for the .dbf file in the form of *shapefile.columnname.atx* (ArcGIS 8 and later); and
- .shp.xml - metadata in XML format.

Figure A11-1 shows some of the files that make up a shapefile in Windows Explorer.

Figure A11-1
Shapefiles in Windows Explorer



The attribute or ".DBF" file is a direct access, variable-record-length file in which each record describes a shape with a list of its vertices. In the index file, each record contains the offset of the corresponding main file record from the beginning of the main file. The dBASE table contains feature attributes with one record per feature. The one-to-one relationship between geometry and attributes is based on record number. Attribute records in the dBASE file must be in the same order as records in the main file.

The typical contents of the dBASE file would contain the attributes of the shapefile. However, for the reporting of these data to the EIS, the attributes of this file are largely unimportant. The exception is that for each shape identified in the main shapefile, an attribute record must exist in the dBase table, as well as a primary EventIdentification that can be matched in the Event complex type. See [Section 11, "Reporting Instructions for Event Emissions,"](#) for further information on this topic.

These three files should be zipped and attached to the XML document. See [Section 5, "Submitting XML Data to the EIS,"](#) for information on attaching files through reference in an XML document.