

# CHIA HUC12 Watershed Characterization Dataset

## Key to Downloaded File Content

### Introduction:

Each watershed characterization dataset contains between 15 and 25 files in different formats. These include maps in PDF and JPEG format, Excel™ spreadsheets of water quality data, and Access™ applications that enables the user to view water quality data and mine histories. This document explains what each file is, its naming convention, and how it relates to watershed characterization.

### Update Frequency:

The Division of Mine Permits (DMP) has characterized 367 watersheds based on hydrologic unit code (HUC) 12. The process of watershed characterization is heavily supported with GIS (geographic information system) tools and map layers. These layers periodically change as new monitoring results are posted, and new features are added or enhanced. To ensure that our user community is getting the latest characterization information, the DMP updates each watershed dataset every 30 days. All time-sensitive files in the dataset package carry the date of their last update in their names. Other data is also examined every quarter, and replaced or updated as appropriate. This includes the map contents and the water quality results viewer.

### Information Key:

All of the supporting files in the information dataset carry a three character prefix. This prefix enables users to distinguish between similar files from different watersheds which would otherwise carry the same name and risk being overwritten. For the demonstration purposes of this document, we will be using files characterizing the Little Cypress Creek HUC 12 watershed. This watershed has a prefix code of "LYP", but every watershed will have its own version of this three letter code.

Some HUCs have little mining activity in them and may not contain all of the files described below. If a file seems to be missing it is because the data that file describes is not present in the HUC. Examples of this might be EDAS points, the violations spreadsheet, or the STORET water quality data.

An asterisk before a filename indicates that is file contains longitude/latitude coordinates and can be plotted in a GIS.

### Key to Data Files and Documents

- 1) **LYPEDAS.xlsx** – this is an Excel table of Division of Water (DOW) sampling points that exist within the HUC 12 boundary. Four fields of benthic results values are supported. A value of N/A in the fields means that points existed in the HUC but no data was available.
  
- 2) **\*LYP\_KGS\_GW\_Results.xlsx** – an Excel spreadsheet of groundwater quality results maintained by the Kentucky Geological Society for this HUC12.

- 3) **\*LYP\_STORET\_Results.xlsx** – an Excel spreadsheet of surface water quality results, maintained by the EPA and derived from the EPA's STORET database. There are two types of STORET points in the EPA database, legacy and modern, and this table contains results for both as well as a field that indicates whether a point is a legacy or a modern point. This database can be up to 3 years out of date, although various agencies are reporting data to STORET at this time.
- 4) **\*LYP\_SMIS\_GW\_Results.xlsx** – an Excel spreadsheet generated by the DMP's SMIS database for groundwater quality results. These files are date sensitive as new data is submitted by industry on a quarterly basis.
- 5) **\*LYP\_SMIS\_SW\_Results.xlsx** – same as above but for surface water (SW).
- 6) **Water\_Quality\_Results\_Viewer.MDB** – this is a generic water quality viewer application written in Microsoft Access. Upon opening it the user is presented with a form. By clicking on the Load New Data button at the top right center of the form, the user can load any supported data files that come with the directory downloaded. These are limited to the KGS groundwater, STORET, and SMIS SW and GW Excel files. Once loaded, the user can view the data by attaching a table from the drop-down list located in the upper left area of the form. The application is very intuitive so users should experiment with what the buttons do and become familiar with the application. See the document "How to Use the Water Quality Results Viewer" PowerPoint presentation available for download on this website.
- 7) **\*LYP\_WQ\_Violations.xls** – this is list of the water quality violations history for this watershed. It is time dated and updated quarterly.
- 8) **\*LYP\_KPDES\_Mine\_Related\_Points.xls** – this is a table of Kentucky Pollutant Discharge Elimination System points that lie within this watershed.
- 9) **Mine Histories.MDB** – this is the mine history document for this watershed. Simply double click the file to open it and a form will display from which the user can display and print the Mine History or Pending Permits reports. The user must have Microsoft Access 2007 or better loaded to view this file.

## Key to Maps

The following files are maps. They are generated by the GIS using ESRI ArcMap™ feature classes and shapefiles. They are stored in PDF format as well as JPEG, as JPEGs are more easily imported into other documents. The maps carry no titles as they are referred to as figures within the document itself. When a permit CHIA is written against the watershed characterization the specific permit boundary is displayed on these maps to illustrate the spatial relationships and proximity of the permit to various discrete map features, for example, locations of permitted water withdrawals, endangered species areas, or well head protection areas. These “stock” maps are part of the watershed characterization dataset and are revisited quarterly and updated if their legend content has changed. When a permit CHIA is undertaken, they are copied into the CHIA workspace at DMP and the permit boundary is added to the map, thereby transforming the “stock” map into a “custom” map. The maps provided in the watershed datasets are the “stock” versions, and describe specific water and mining related features existing within the watershed within the last 90 days. The features described on these maps are derived from disparate data sources. These features should be considered to be relatively accurate and not positionally accurate due to the wide variance in the accuracies of the source data.

1. **LYP\_SW\_Map\_F1** – this is the location map. It shows the position of the HUC 12 cumulative impact area (CIA) within the Commonwealth, as well as a three dimensional rendering of the topography, major streams and tributaries.
2. **LYP\_WM\_Map\_F3** – this is the water monitoring map. This map shows all of the monitoring locations for surface and groundwater for this CIA. It includes DMP SMIS SW & GW points, KGS GW points, EPA STORET points, DOW EDAS points, 7.5' Quadrangle names, and USGS gauging station locations. This map also carries the names of streams and tributaries where that data is available.
3. **LYP\_WU\_Map\_F4A & F4B** – these maps describe water use. There is an “A” and a “B” version of this map because KGS groundwater wells are largely synonymous with DOW groundwater well locations, but not in every case. Therefore, in order to ensure comprehensive coverage, KGS groundwater locations are displayed by themselves on the “A” series, while DOW groundwater locations, water utility lines, wells, well sources, permitted SW and GW withdrawal points, and surface and spring sources are delineated on the “B” series. These maps are intended to give the user an overall impression of the water use activity within the CIA.
4. **LYP\_WR\_Map\_F5** – this is the water resources map. This map displays DOW and KGS spring locations, priority watersheds, DOW SWAPP zones, wellhead protection areas, designated use waterways, outstanding and exceptional waterways, 305(b) coldwater aquatic habitats, endangered species areas, areas not suitable for mining, drinking water supported waters, 303(d) approved TMDL sites, and wild rivers designated waterways. This map is intended to give the user an overall impression of surface water quality and reporting agency designated waterways within the CIA.

5. **LYP\_MN\_Map\_F6** – this is the mining situation map. This map displays all active, released, and pending mine permits within the CIA. The locations of the mining activity icons reflect the position of the intersection between the mine access road and the nearest state or local highway, and may or may not reflect the position of the actual mining activity.

#### Glossary

CHIA – Cumulative Hydrologic Impact Assessment  
CIA – cumulative impact area  
DMP – Division of Mine Permits  
DOW – Division of Water  
EDAS - Ecological Data Application System (DOW)  
EPA – Environmental Protection Agency  
ESRI – Environmental Systems Resource Institute  
GIS – geographic information system  
HUC – hydrologic unit code  
KGS – Kentucky Geological Society  
KPDES – Kentucky Pollutant Discharge Elimination System  
SMIS – Surface Mining Information System  
STORET – STOrage and RETrieval  
SWAPP – Source Water Assessment and Protection Program  
TMDL – Total Maximum Daily Load