Colorado Stratigraphy Website – Resources Metadata

Updated 3/31/2019 by Kathy Robinson

COAL PRODUCTION:

Methods:

- EIA and CGS data sets were joined using mine name
- Basins were assigned based on reported county, township, range data and relating these to position on Basin map posted on Colorado Stratigraphy website
- Reported formations were aggregated into main formations.

Data Update Procedure:

- Once per year, visit EIA web page linked above.
- Under "Production" sub-menu, select latest year from dropdown list, and an Excel file entitled "coalpublic[year]" will automatically download onto your computer.
- Open and filter this sheet to only the state of Colorado, copy and paste the year, MSHA ID, mine name, and production fields into the "EIA" tab of the "Coal Mines Data – TOTALS" spreadsheet for reference. Save this file as "Coal Mines Data – TOTALS – [today's date]" to preserve earlier versions.
- Copy and paste these fields from the "EIA" tab to the "data" tab of the spreadsheet. Filter on each newly added mine name and use past records of each mine to fill in missing data fields (basin, rock unit, age, location information, etc.) corresponding to each mine.
    - If production data is reported for a new mine that is not previously on the sheet, research the mine details to fill in missing information.
- Populate "TotalProduction(millionshorttons)" field with a formula to convert each reported short tons value into MMSt.
- On the "totals" tab of the spreadsheet, refresh pivot table to incorporate new data into the totals shown.

OIL AND GAS PRODUCTION:

Methods:

- Basins were assigned based on reported county and relating these to position on Basin map posted on Colorado Stratigraphy website.
- Formation details reported were aggregated into main formations.
    - If multiple formations reported on a single record, the first formation in list was used
        - Example: DAKOTA-ENTRADA-NIOBRARA becomes DAKOTA
    - For historic production, formations were assigned as follows:
        - 1997-1998 data: No formations were reported for these years as data was obtained via custom request. To estimate formations, each field was checked for reported production in other years, and if available, the formation showing the greatest total production for a given field was assigned to 1997-98 data.
        - Production reported with formation as "UNKNOWN" or "NOT COMPLETED" were omitted from the data
- Data on website represents the highest-producing oil and gas fields in Colorado, totaling 99.7% of oil production and 99.4% of gas production. We have omitted the remaining

smaller-producing fields due to limited available space on the web page to illustrate the data.

Data update procedure:

- Once per year, visit COGCC web page linked above.
- Under "Production Data" menu, click on "Production Summaries" and click on the link to the zip file for the latest year.
- Unzip the file and open the Access file contained there. Right-click on the table name "Colorado Annual Production [year]" on the left side and click "Export" and then "Excel." This is a very large file and may take several minutes to open.
- Save this file, as you will use this sheet to organize and clean up the data before adding it to the running totals for the website.
- Name the current tab "RAW-Colo_Annual_Production_[year]." Make two copies of the entire sheet on a second and third tab. Name one tab "CLEAN-Oil" and the other "CLEAN-Gas." Going forward, manipulate only the data on the "clean" tabs and leave the "raw" data intact for reference.
- On the "CLEAN-Oil" tab, delete all columns except name, api_county_code, formation_code, report_year, and oil_prod. Do the same to the "CLEAN-Gas" tab but keep gas_prod instead of oil_prod. Complete the remaining steps for both sheets:
    - Use vlookup to convert "api_county_code" to county name per https://cogcc.state.co.us/COGIS_Help/API_County_codes.pdf
    - Use vlookup to convert county name to basin name per prior years' spreadsheets. Each county was assigned to a particular basin in past years; refer to one of these sheets to assign them in the same way.
    - Use vlookup to convert "formation_code" to formation name per http://cogcc.state.co.us/documents/about/COGIS_Help/formation_list.pdf
    - Formation name will be in the format of a string of formation names separated by dashes. Use the text-to-columns tool in Excel to split these up and isolate only the first formation name in each string.
    - Use a filter to eyeball the list of formation names and aggregate or group them into main formations and update formation names accordingly. Refer to prior years' spreadsheets to see how formations were grouped and renamed in the past.
        - Example: Filter to select Dakota, DSand, JSand, Lakota, and Muddy. Update all of these formation names to "Dakota".
    - Use concatenate to join formation name, a vertical pipe symbol, and basin name.
    - Use filters to go back and check each of the columns of data that you have created/manipulated to look for any #N/A values. Where you find them, research the details and update these with valid data. Continue to do this until there are no more #N/A values in any of the columns.
    - Highlight all data on the tab and create a pivot table on a new worksheet. Choose the following fields to populate the table:
        - Rows: Formation|Basin
        - Values: Sum of oil_prod (or Sum of gas_prod)
    - Look over the pivot table to identify any data issues or items that need cleaning up. Where you find these, update data as needed on the "clean" tab and refresh the pivot table.
- Open the Excel file entitled "Oil and Gas Prod All Years – TOTALS." Save this file as "Oil and Gas Prod All Years – TOTALS – [today's date]" to preserve earlier versions.

- For each of the tabs “OIL TOTALS” and “GAS TOTALS,” copy and paste the “Formation|Basin” and “sum of oil/gas_prod” columns from the pivot tables you created for this year’s data, and fill in the year column.
- Use text-to-columns to split “Formation|Basin” into two separate columns of formation name and basin name.
- For oil convert bbl to MMbbl, and for gas convert MCF to BCF. For both, also convert the value to kg. See past spreadsheets for conversion formulas.
- On the “Gas_Table” and “Oil_Table” tabs refresh pivot table to incorporate new data into the totals shown.