Duplicate values reported for multiple months or multiple years
Data Processing Module: DuplicateMonths_Years

Description: Identify water rights with duplicate values reported for all months in year or annually (one APPL_ID)

Examples:
- A diverter is not measuring diversion and use amounts and instead reporting the same amounts for each month of the year (ex: equally distributing face value amount over year.)
- A diverter is not measuring diversion and use amounts and instead reporting the same amounts from year to year (ex: copying report from last year nd resubmitting.)
- Exceptions: Stacked water rights where the most senior water right is always maxed out (i.e. full face value), before reporting additional use under remaining stacked water rights. Registrations (Small Domestic, Stock pond) may have ponds that are fully emptied and refilled every year, so the capacity of the reservoir(s) is/are a legitimate consistent max diversion each year.

What (is being flagged): Water rights that have reported the same diversion and use amounts for all months of year and/or submitting identical annual report from year to year.

Why: Water rights with submitting reported with repeated monthly or annual diversion and use amounts indicates possible misreporting which may impact accuracy of water demand estimates.

How: For each "APPL_ID" and "YEAR" determine if all monthly reported values (DIVERSION_TYPE (USE, DIRECT, STORAGE) for a year are the same. If all monthly values are the same for each month of the year, then populate new field "DUPLICATE_MONTHLY_REPORTING" with Y; if different monthly values in year then populate "DUPLICATE_MONTHLY_REPORTING" with N. For each APPL_ID, determine if annual reported values "DIVERSION_TYPE (USE, DIRECT, STORAGE)" have been repeated for multiple years. If multiple years have the same reported annual values, then populate new field "DUPLICATE_YEARLY_REPORTING" with Y. If there are no years with the same reported annual values, then populate new field "DUPLICATE_YEARLY_REPORTING" with N.

Data Source(s):

water_use_report.csv

Existing Fields:

- APPL_ID - Data from water_use_report.csv
- WATER_RIGHT_ID- Data from water_use_report.csv
- YEAR- Data from water_use_report.csv
- MONTH- Data from water_use_report.csv
- AMOUNT - Data from water_use_report.csv
- DIVERSION TYPE (DIRECT, STORAGE, USE)- Data from water_use_report.csv

New Fields:

- NumberOfOccurencesWithinSingleReport - This field is calculated by counting the number of times a total monthly reported diversion amount (direct + storage) appears within an individual annual report; NOTE: It does not count the number of times a 0 value appears
- OccurencesAcrossReports - This field is calculated by counting the number of times a total annual reported diversion amount (direct + storage) appears across annual reports for the same water right; NOTE: It does not count the number of times a 0 value appears