

The WQ\_Results table in WaterQuality.mdb contains a variety of water quality sampling data collected across several years and at a variety of locations (lakes, streams, etc.) within Oklahoma. Using the WA\_Results table, write a query to complete the following problems:

1. List the Station\_ID, Parameter, and the Sample\_Val for all samples (records) in the table. Arrange the records in alphabetical order of the Parameter values.

```
SELECT Station_ID, Parameter, Sample_Val
FROM WQ_Results
ORDER BY Parameter ASC;
```

2. In such a large data table, it is possible (if not likely) that some of data may be missing. That is, the value in the Sample\_Val field may null for some records. Modify the query used in above so the records with null values are not included in the output list. (Do **not** remove them from the table itself!)

```
SELECT Station_ID, Parameter, Sample_Val
FROM WQ_Results
WHERE Sample_Val IS NOT NULL
ORDER BY Parameter ASC;
```

3. Count the number of samples (records) in the Chloride table. The result of your query should be a single number that is the same value as the number of records in the Chloride table.

```
SELECT COUNT (ObjectID)
FROM Chloride_Samples;
```

Count = 28121.

4. The Chloride table indicates that the units for the Sample\_Val are ug/L (micrograms per Liter). For each sample in the table, convert the ug/L unit values into mg/L values (where 1 mg/L = 1000 ug/L). Include all fields in the output table. Create the output so that the records are shown in order of the largest to smallest Sample\_Val.

```
SELECT Sample_Val, Sample_Val/1000 AS Sv_mgl
FROM Chloride_Samples
ORDER BY Sample_Val DESC;
```

5. Calculate the average Sample\_Val in the table. How does Access deal with null values when calculating the average?

```
SELECT AVG (Sample_Val)
FROM Chloride_Samples;
```

Average = 451.052715

Access ignores null values to calculate average.