

Offshore Petroleum and Natural Gas Production
Instructions for Calculating Emissions Using the
Draft 2011 Gulfwide Emissions Inventory

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Introduction

This guidance document provides instructions for extracting emissions from the Bureau of Ocean Energy Management's (BOEM's) Draft 2011 Gulfwide Emission Inventory. The 2011 emission inventory was prepared using equipment and activity data submitted by offshore platform operators using the 2011 Gulfwide Offshore Activities Data System (GOADS-2011). Carbon dioxide equivalents (CO₂e) are used as the example pollutant in this document. Estimates for other pollutants can be extracted using other pollutant codes (CH₄, CO₂, CO, N₂O, NO_x, PM_{2.5}-PRI, PM₁₀-PRI, SO₂, VOC, etc.).

The instructions in this document can be used to calculate combustion and non-combustion emissions. Combustion sources include boilers/heaters/burners, engines, and turbines. Non-combustion sources are: amine units, flares, fugitives, glycol dehydrators, losses from flashing, mud degassing, pneumatic pumps, pressure level controllers, storage tanks, and vents.

Section 1. General Instructions for Users Familiar with Microsoft Access

This section contains instructions for calculating CO₂e emissions by equipment type from the 2011 Gulfwide Emission Inventory for users who are already familiar with Microsoft Access. Detailed instructions with illustrations begin on page 4.

1. Download the Draft 2011 Gulfwide Emission Inventory from the Bureau of Ocean Energy Management (BOEM) website: <http://www.boem.gov/2011-Gulfwide-Emission-Inventory/>
2. The inventory file will download as a zipped Microsoft Access database. Extract the Microsoft Access database, 2011_GOADS_Draft_20140226.accdb, to your computer.
3. Open the 2011_GOADS_Draft_20140226.accdb file in Microsoft Access. You should see a list of 8 tables: tblPointCE, tblPointEM, tblPointEP, tblPointER, tblPointEU, tblPointPE, tblPointSI, and tblPointTR.
4. tblPointSI contains identifying information for each platform. The sixth field is labeled "BOEM-COMPLEX_ID." You will need to use BOEM Complex ID in the query to calculate CO₂e emissions. The other fields in tblPointSI contain descriptive information that you can use to ensure you know the correct BOEM Complex ID to use in your query.
5. Create a query using the following fields from tblPointEM (no other tables are needed to calculate emissions):
 - a. BOEM-COMPLEX_ID - Enter your BOEM Complex ID in the Criteria row of the query design grid.
 - b. BOEM-EQUIP_TYPE - This field contains three characters that identify the type of equipment associated with the emissions or a description of the minor source platform type that is associated with the emissions. For your reference, Table 1 presents equipment types and abbreviations.
 - c. strPollutantCode - Enter "CO2E" in the Criteria row of the design grid.
 - d. dblEmissionNumericValue
 - e. strEmissionUnitNumerator

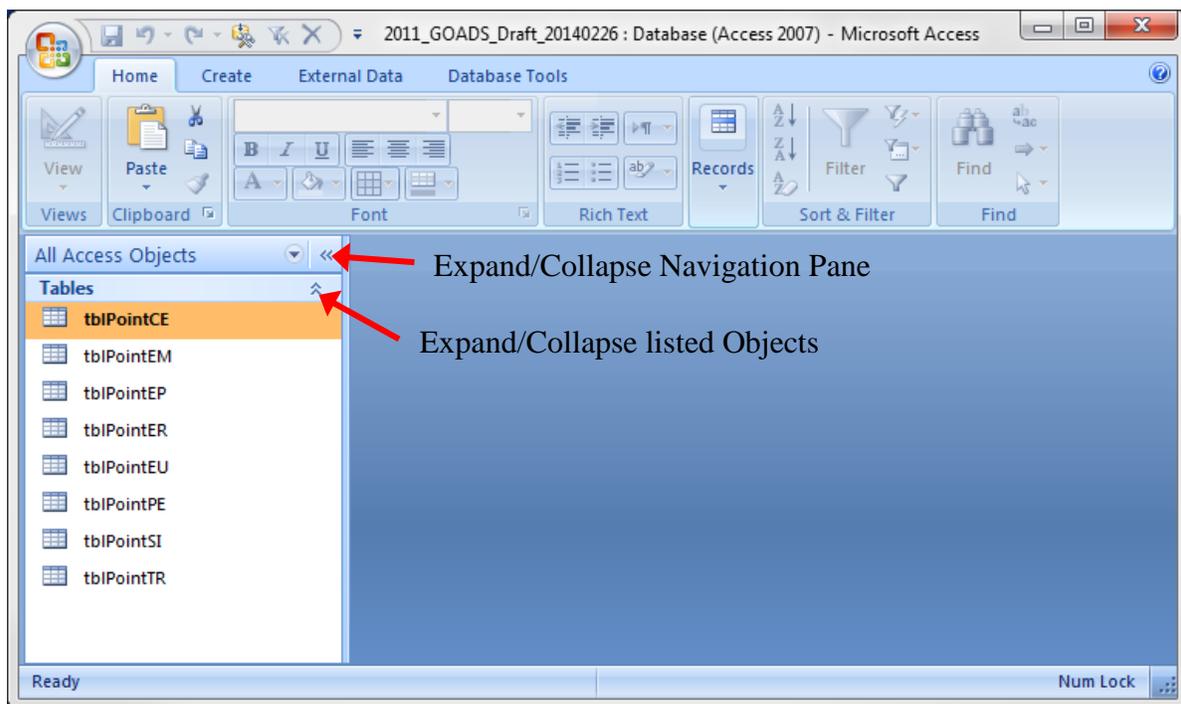
Group by these fields, and change the Total row of the design grid from "Group By" to "Sum" under the dblEmissionNumericValue field.
6. The results show the total CO₂e emissions for each equipment type at the specified complex. The CO₂e emissions are in English tons, not metric tons. To convert to metric tons, multiply the emission values by 0.90718.

Table 1. Gulfwide Inventory Equipment Types

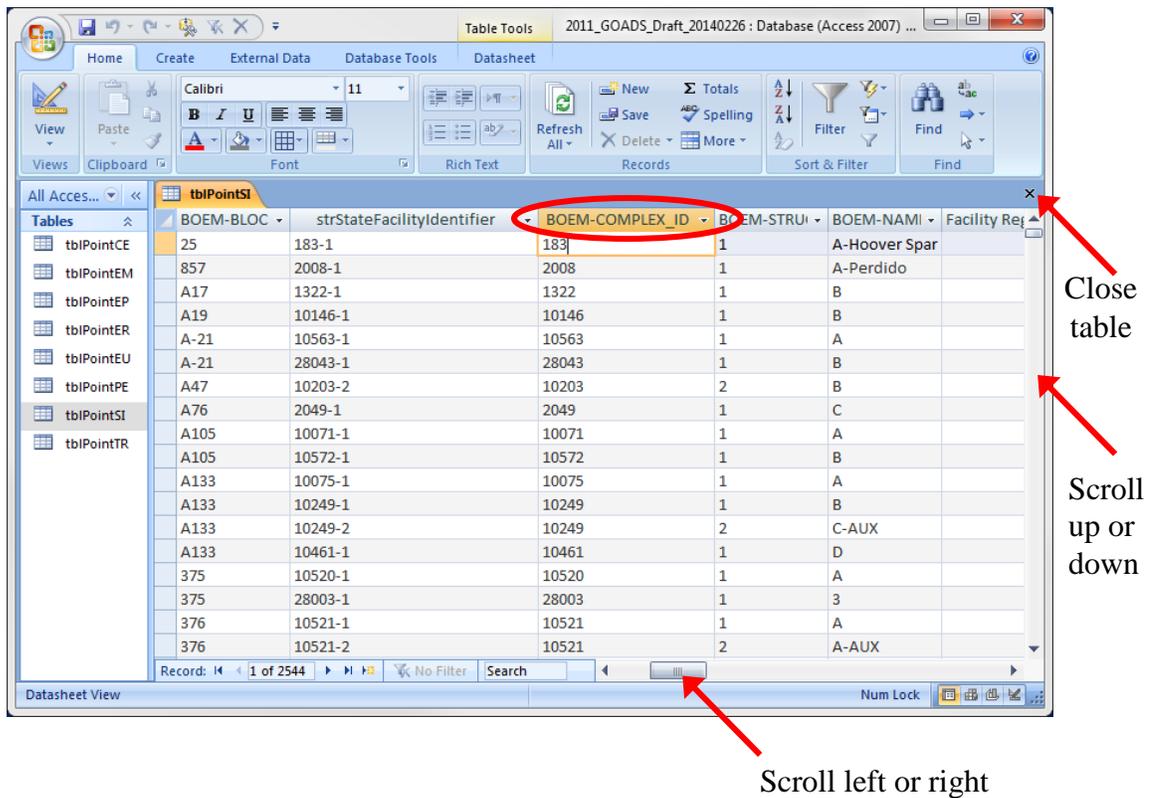
Equipment Type	Abbreviation
Boiler	BOI
Diesel or Gasoline Engine	DIE
Drilling Rig	DRI
Natural Gas Engine	NGE
Natural Gas, Diesel, or Dual-Fuel Turbine	NGT
Drilling Rig	DRI
Amine Unit	AMI
Flare	FLA
Fugitives	FUG
Glycol Dehydrator	GLY
Losses from Flashing	LOS
Mud Degassing	MUD
Pneumatic Pump	PNE
Pressure Level Controller	PRE
Storage Tank	STO
Vent	VEN
Wellhead Protector	Wellhead Protector
Caisson	Caisson
Living Quarters	Living Quarters
Other	Other

Section 2. Detailed Step-by-Step Instructions for Users Not Familiar with Microsoft Access

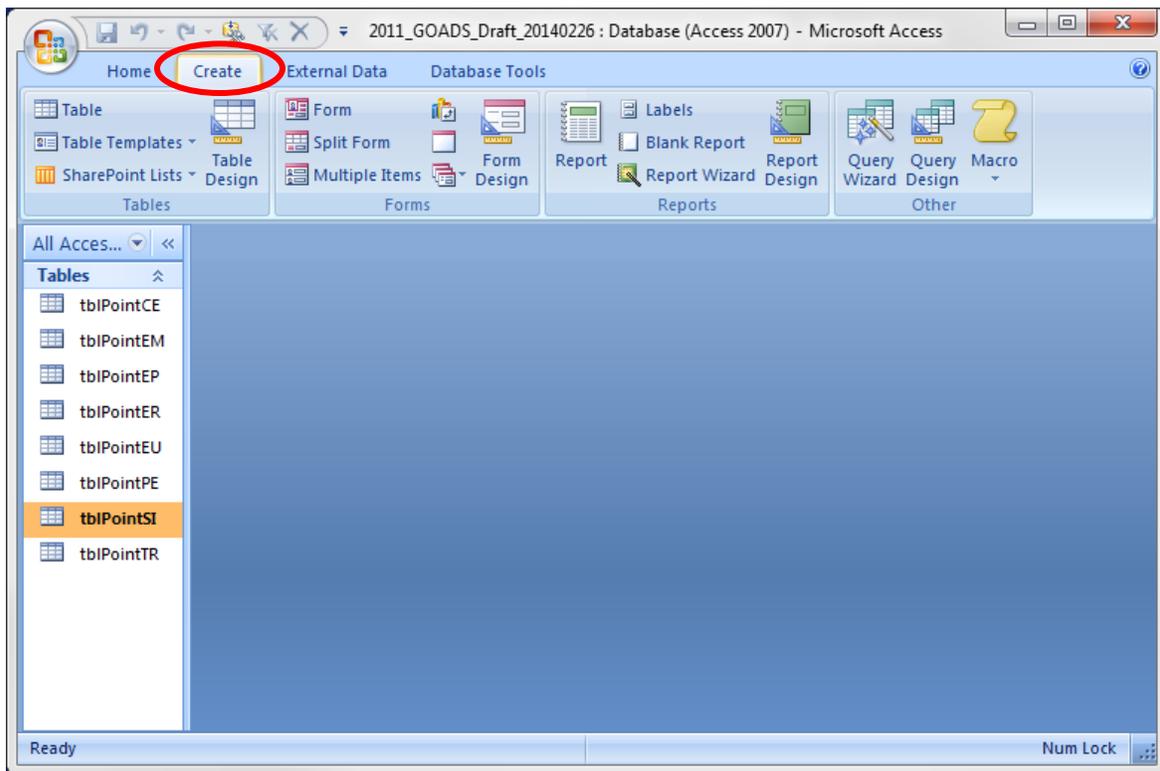
1. Download the Draft 2011 Gulfwide Emission Inventory from the Bureau of Ocean Energy Management (BOEM) website: <http://www.boem.gov/2011-Gulfwide-Emission-Inventory/>
2. The inventory file will download as a zipped Microsoft Access database. Extract the Microsoft Access database, 2011_GOADS_Draft_20140226.accdb, to your computer.
3. Open the 2011_GOADS_Draft_20140226.accdb file in Microsoft Access. You should see a list of 8 tables in the Navigation Pane as shown below. You can expand or collapse the Navigation Pane itself or the lists of Access Objects on the Navigation Pane by clicking the double arrows:



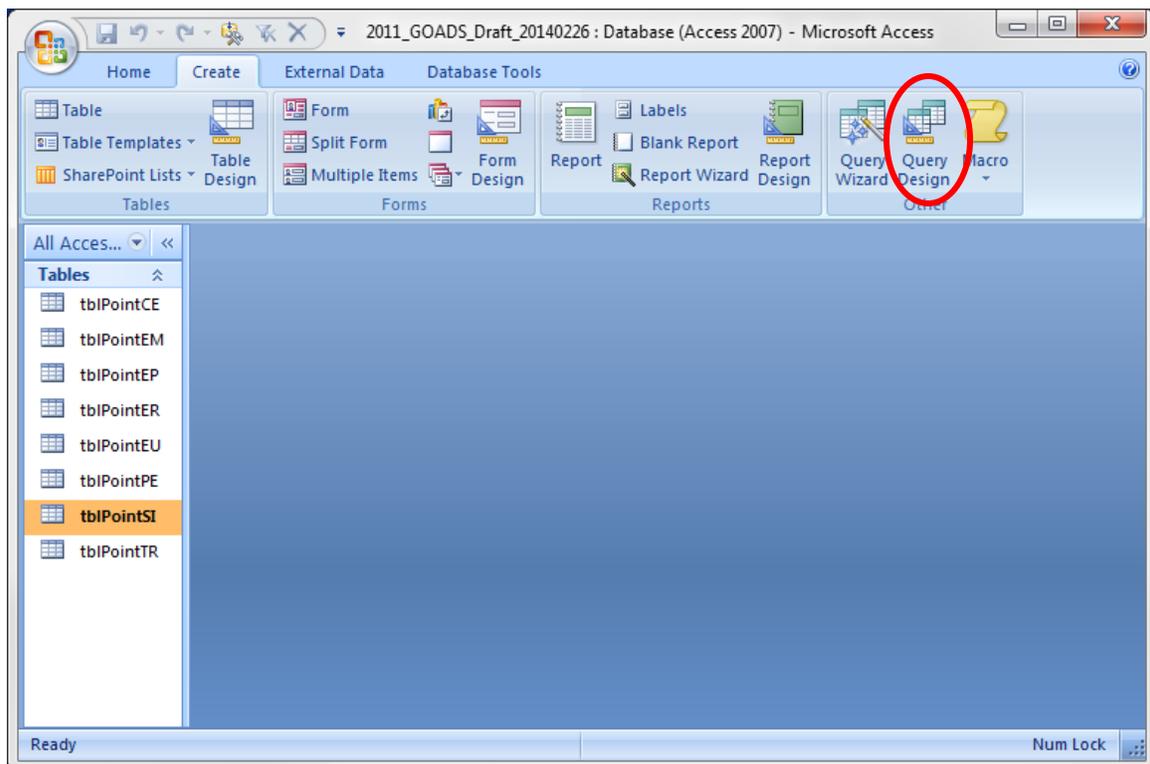
- Double click tblPointSI to open that table. tblPointSI contains identifying information for each platform. The sixth field is labeled "BOEM-COMPLEX_ID." You will need to use the BOEM Complex ID in the query to calculate CO₂e emissions. The other fields in tblPointSI contain descriptive information that you can use to ensure you know the correct BOEM Complex ID to use in your query. To close tblPointSI, click the small "x" near the top right corner of tblPointSI. To scroll to the right or left to view additional fields, use the scroll bar at the bottom of tblPointSI. To scroll up or down to view additional rows, use the scroll bar on the right side of tblPointSI.



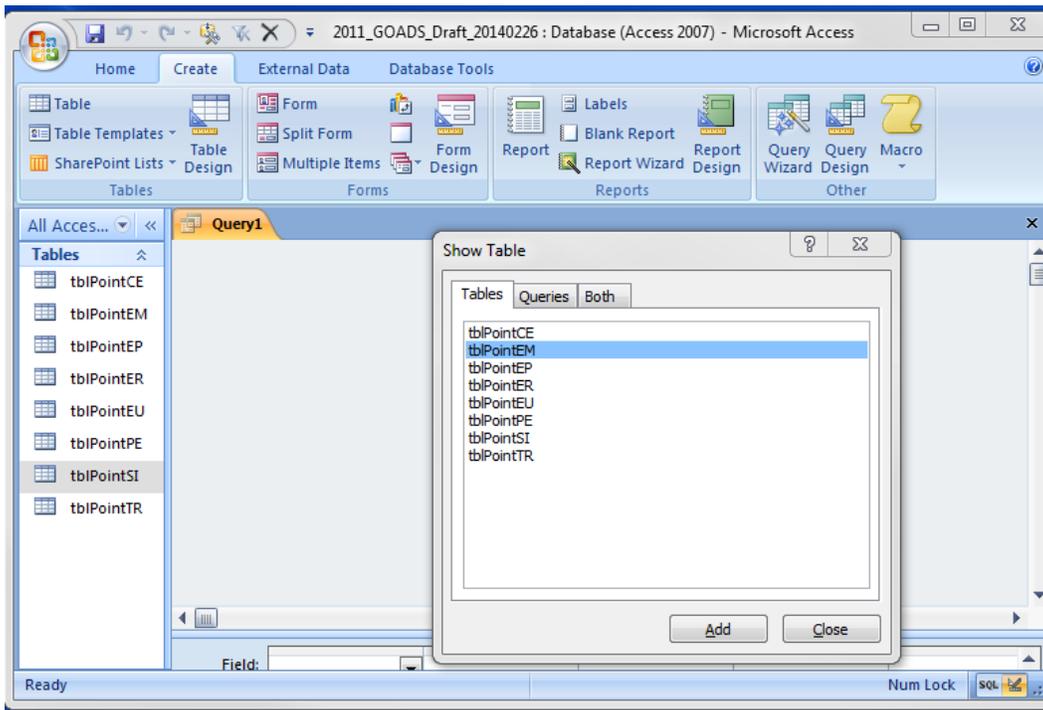
5. Click the Create tab (circled in red below):



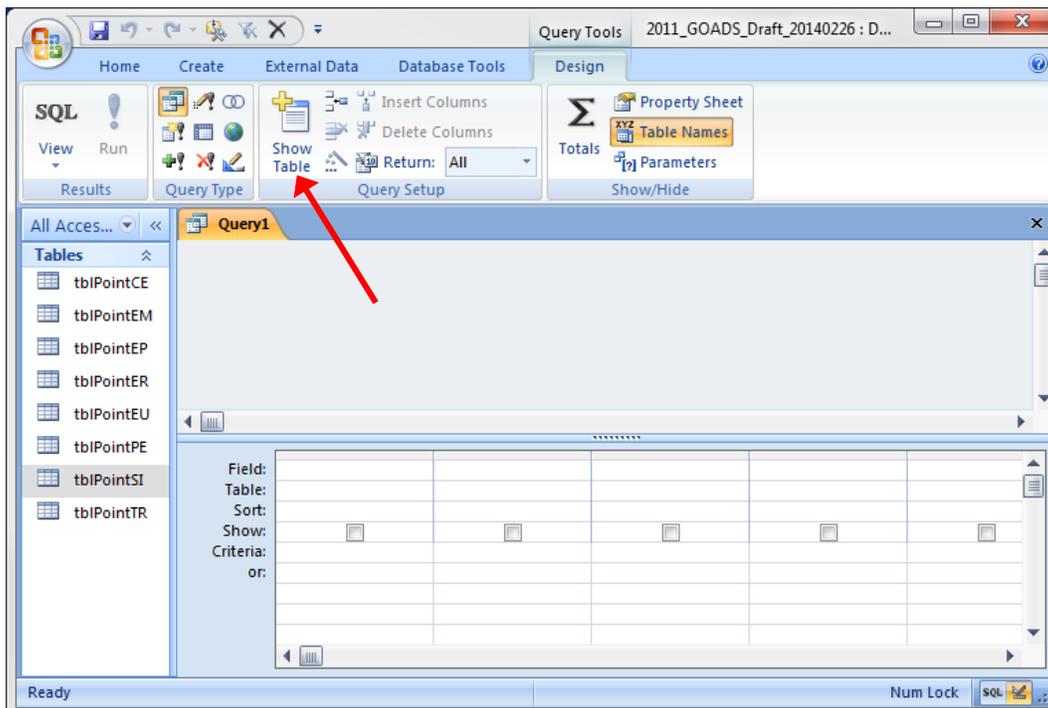
6. Click "Query Design" (circled in red below):



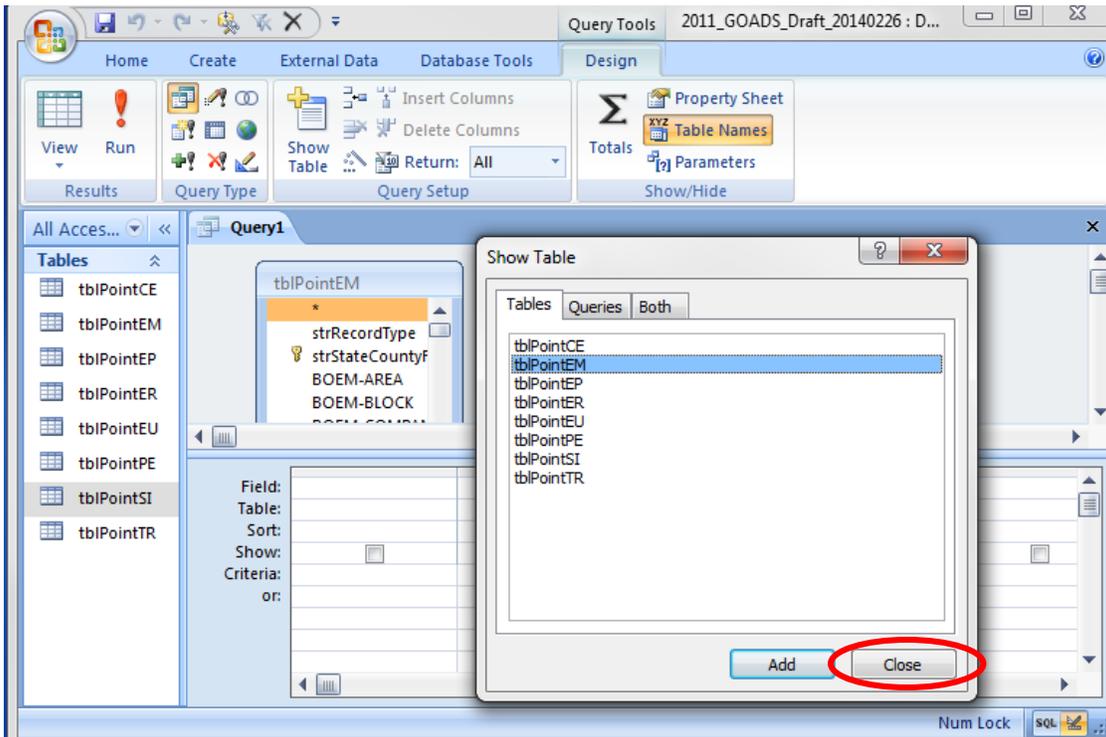
7. A query will open with a "Show Table" pop-up box as shown below. Click "tblPointEM" once to highlight that table, then click the "Add" button:



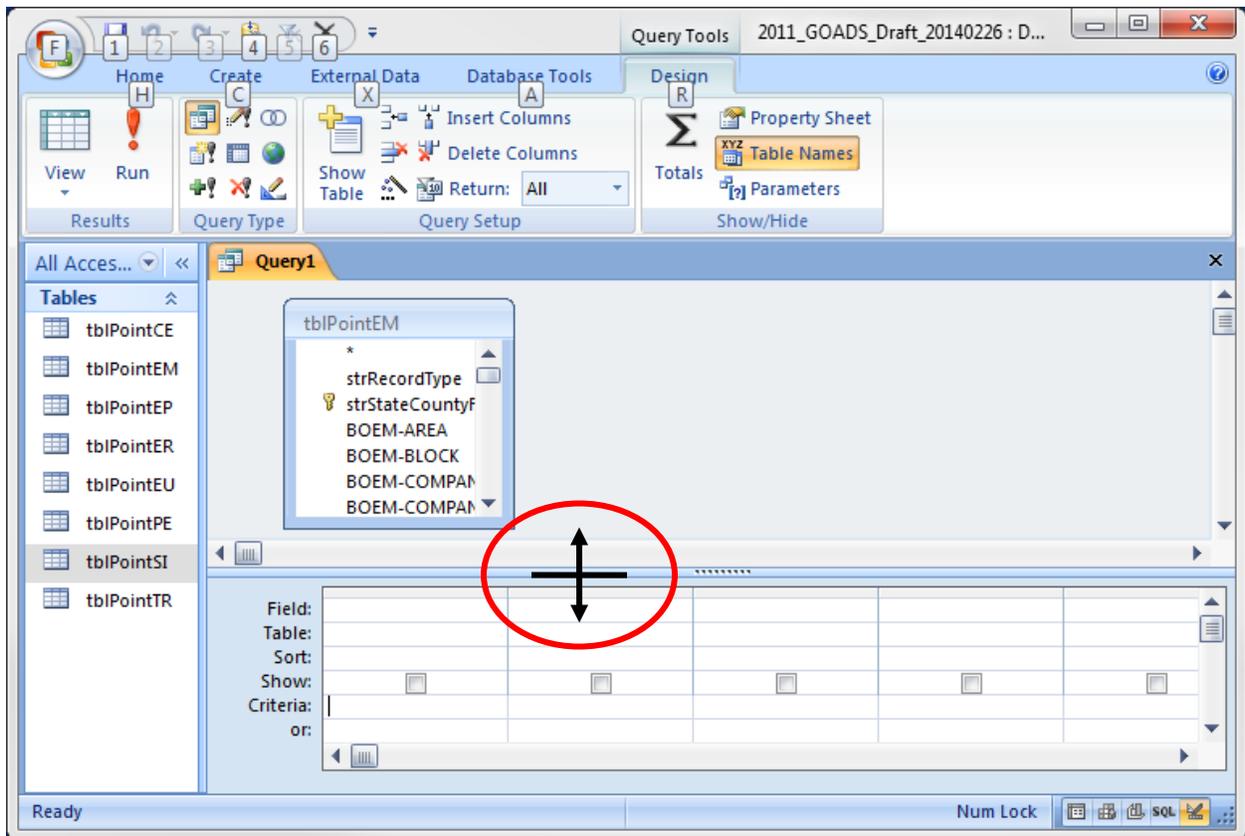
If the "Show Table" pop-up box does not automatically appear, click the "Show Table" icon (shown by the red arrow below) to open the pop-up box. Then follow the steps above to select tblPointEM and add it to query window.



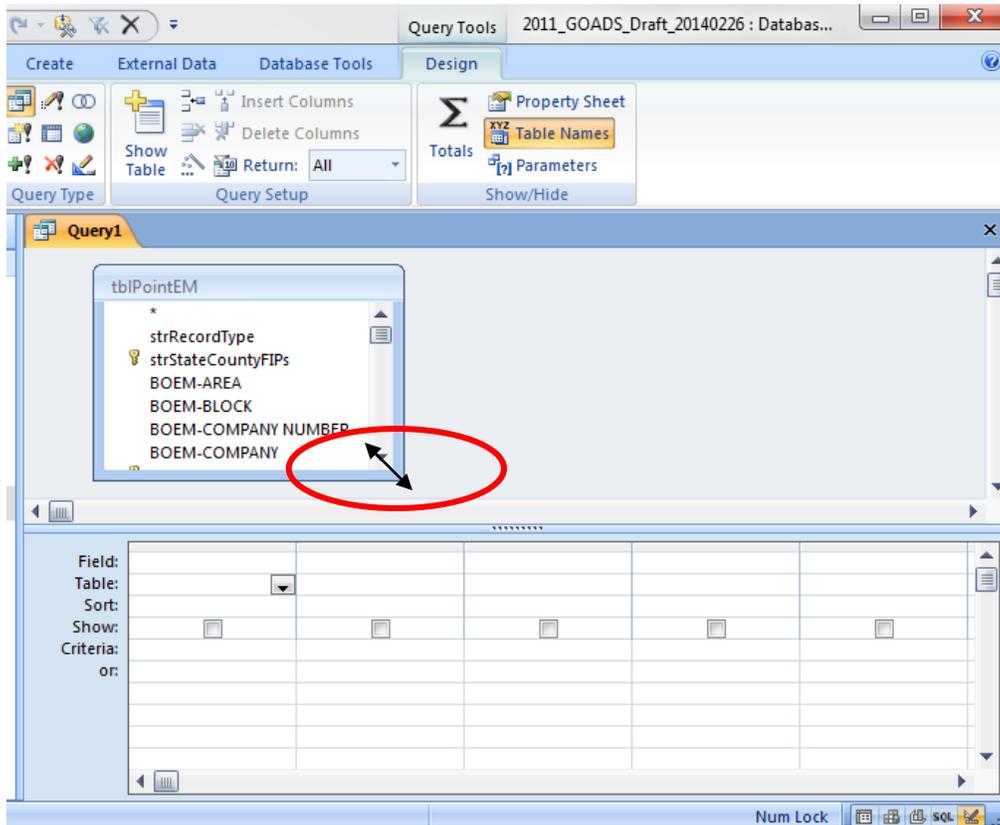
8. You should now see tblPointEM in the background of your query window as shown below. Click the "Close" button in the "Show Table" pop-up box (circled in red below):



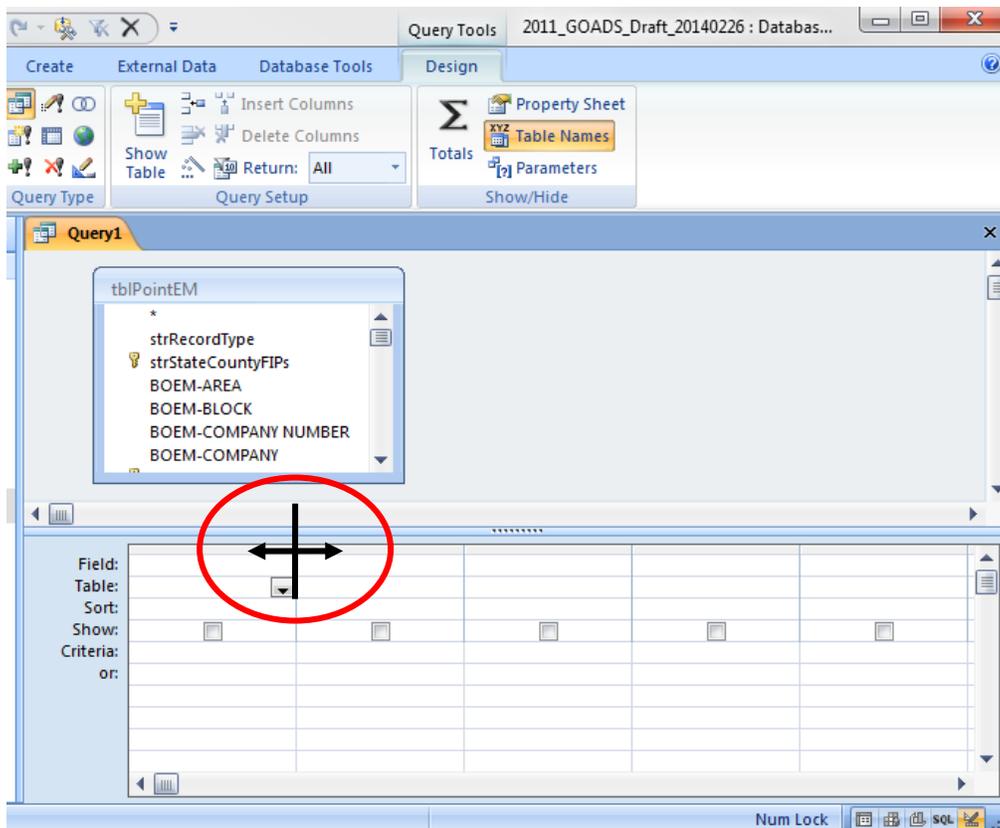
9. You can adjust your query window to enlarge the area shown around tblPointEM or to enlarge the area shown for the grid in the bottom half of the window by moving the cursor between these two panes until it looks like the shape circled in red below. When the cursor matches the shape below, click and drag (holding down the left mouse button) up or down to change the size of the panes.



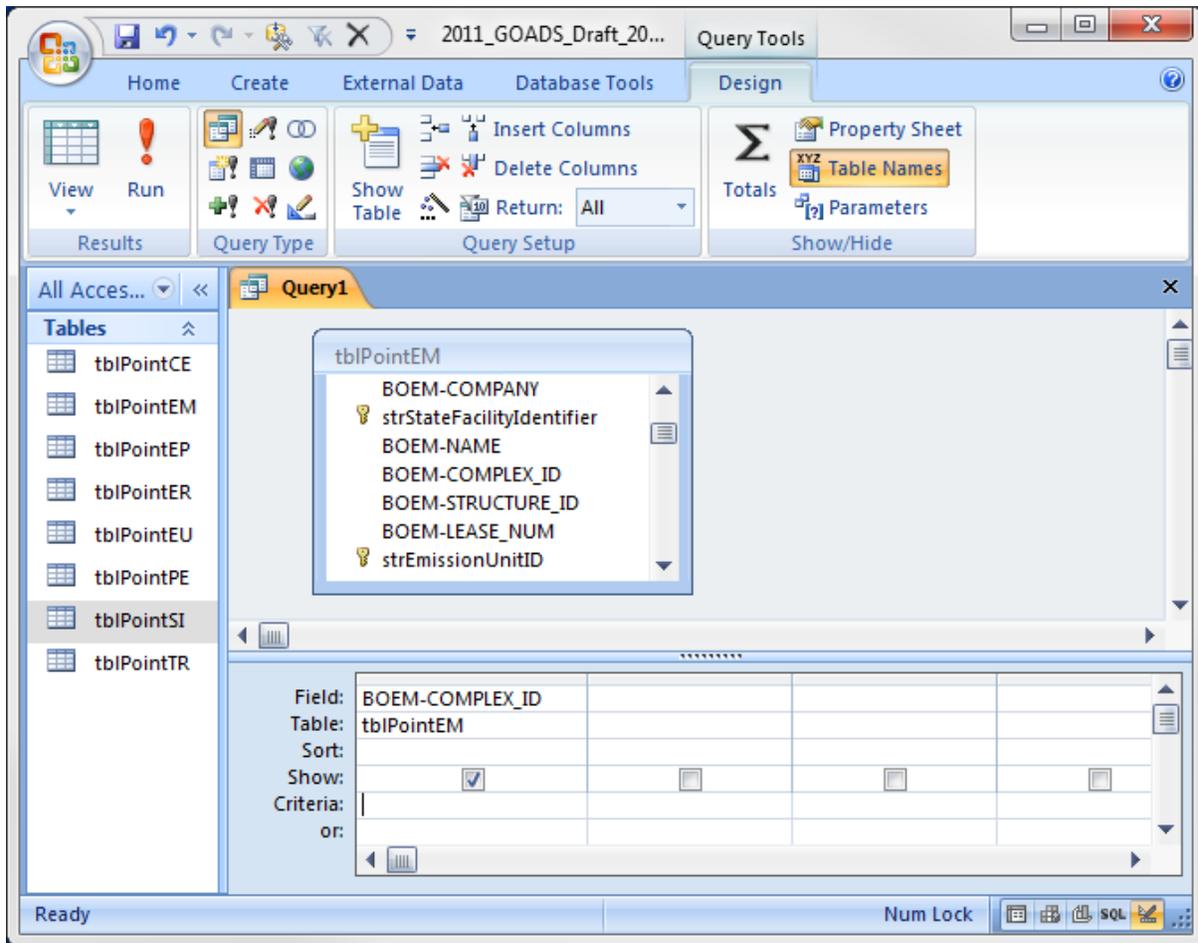
10. You can also adjust the size of tblPointEM by moving the cursor over the lower right corner until it looks like a diagonal arrow (circled in red below). Click and drag (holding down the left mouse button) to adjust the size of tblPointEM.



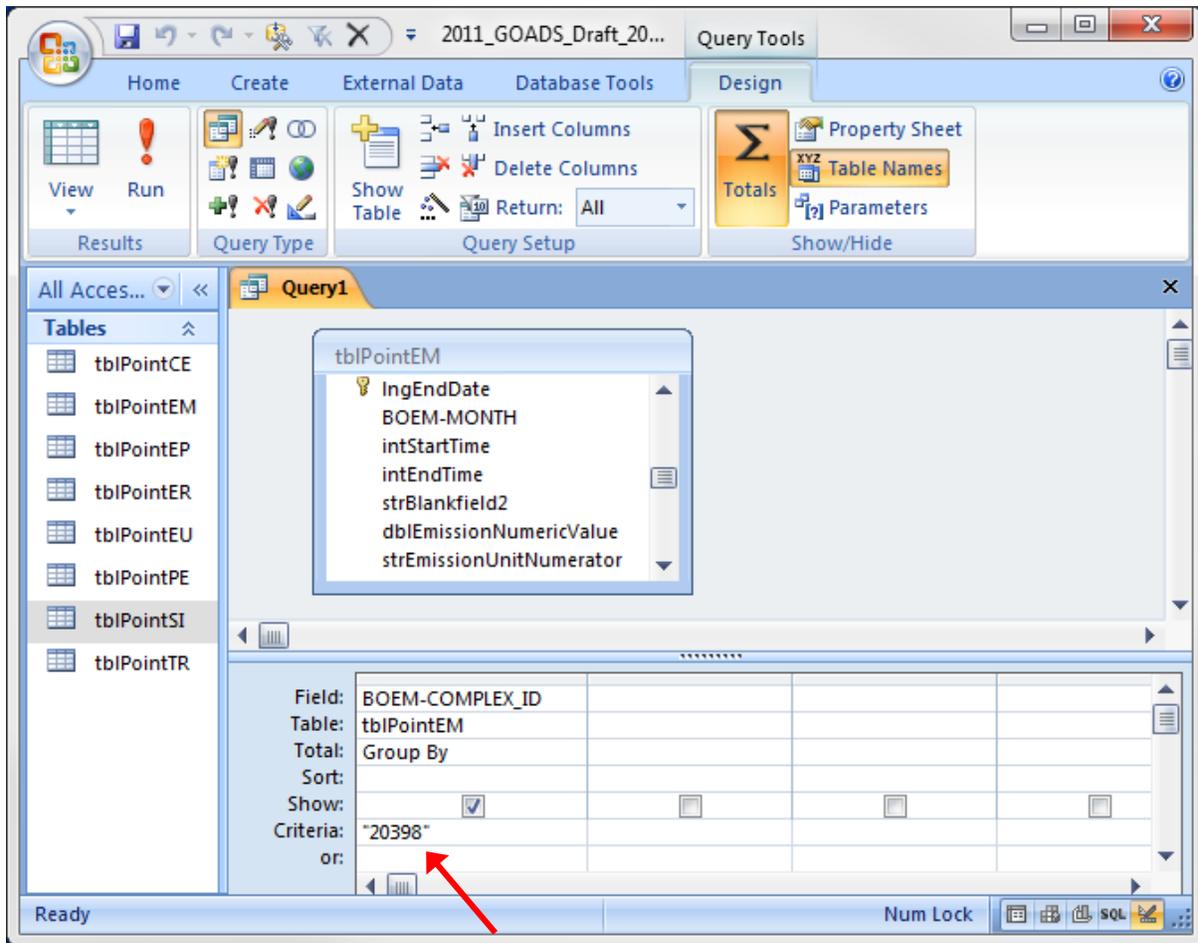
11. You can adjust the width of the columns in the grid by moving the cursor between two columns until it looks like the shape circled in red below. When the cursor matches the shape below, click and drag (holding down the left mouse button) left or right to change the width of the column.



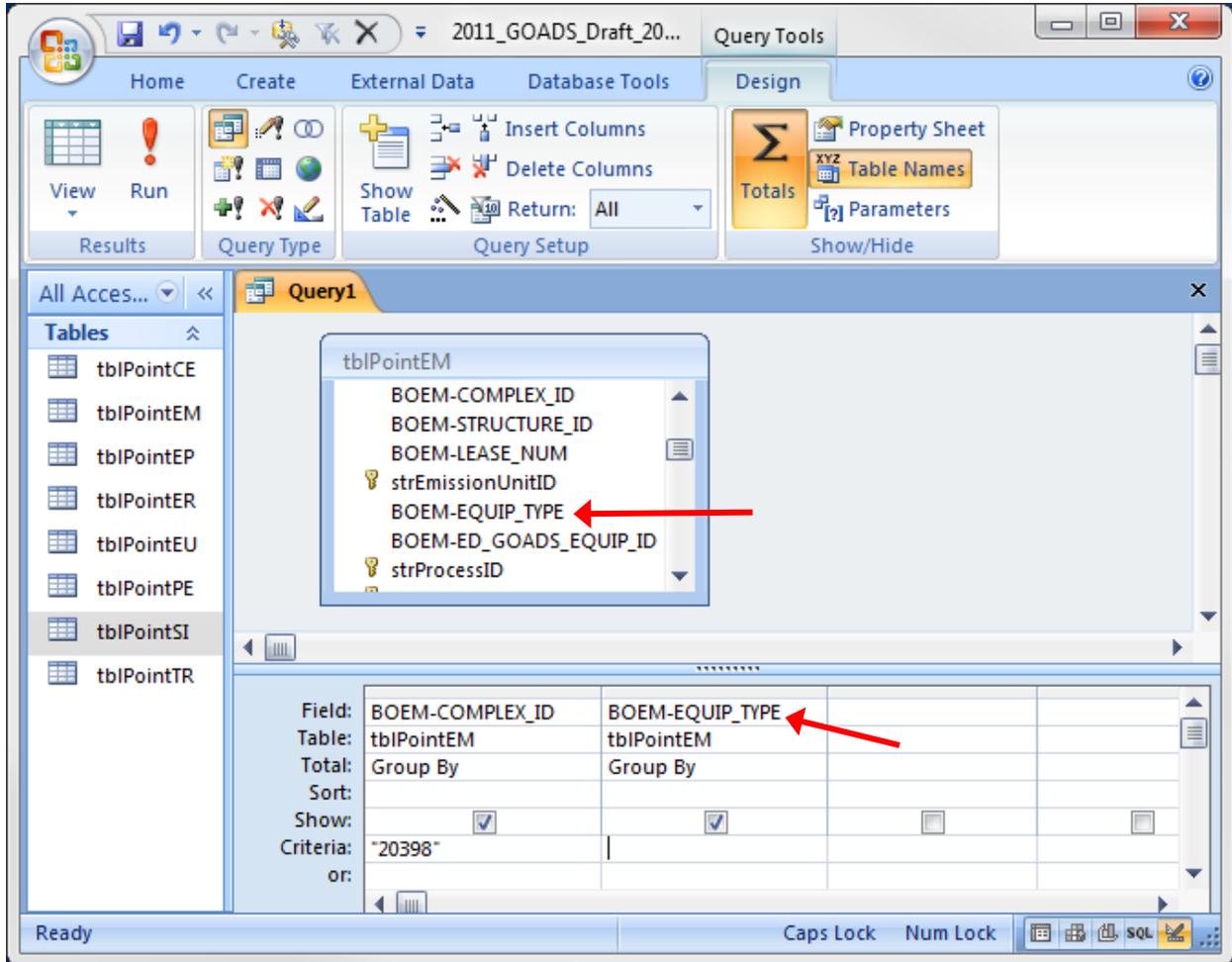
12. Double click "BOEM-COMPLEX_ID" in the tblPointEM box. You will then see the field "BOEM-COMPLEX_ID" in the grid as shown below.



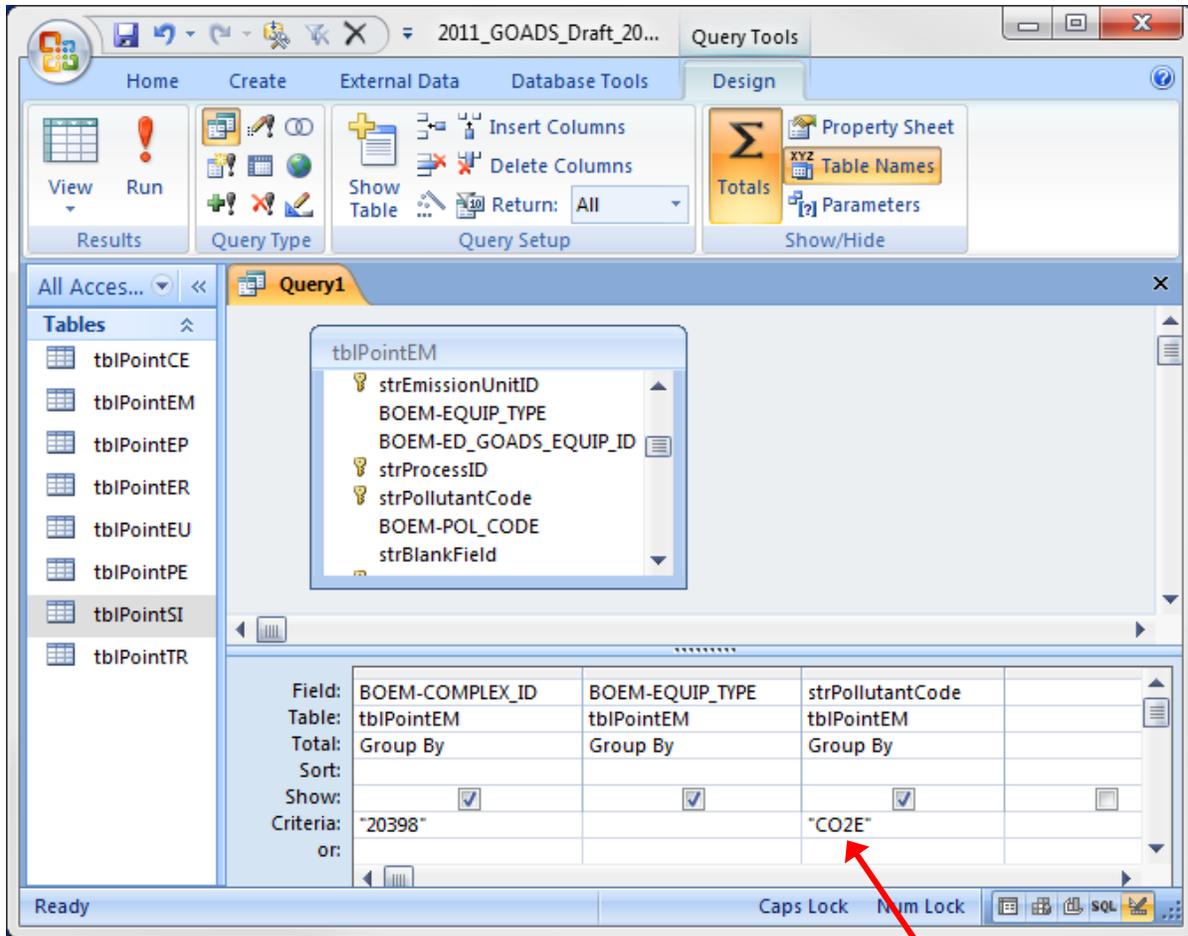
13. Type the BOEM Complex ID in the Criteria row of the grid as shown in the example below. In this example, we will use BOEM Complex ID 20398.



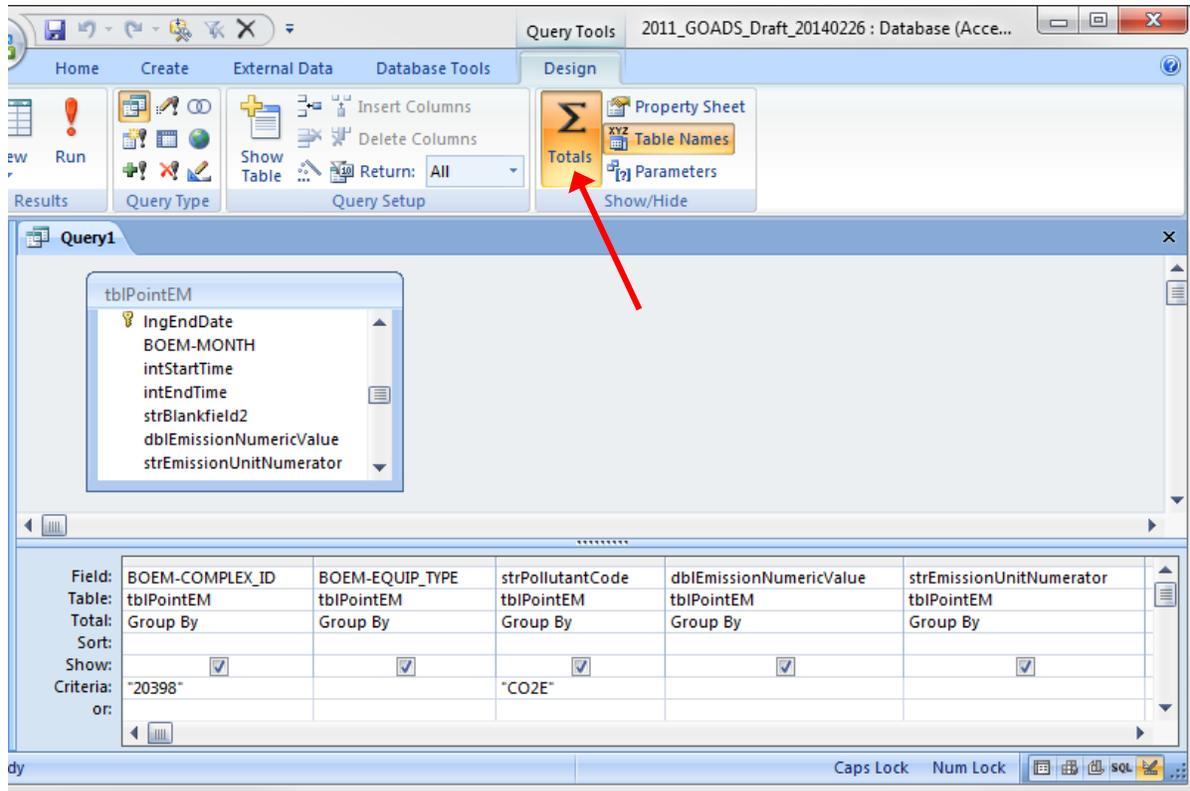
14. Double click "BOEM-EQUIP_TYPE" in the tblPointEM box. You will then see the field "BOEM-EQUIP_TYPE" in the grid as shown below.



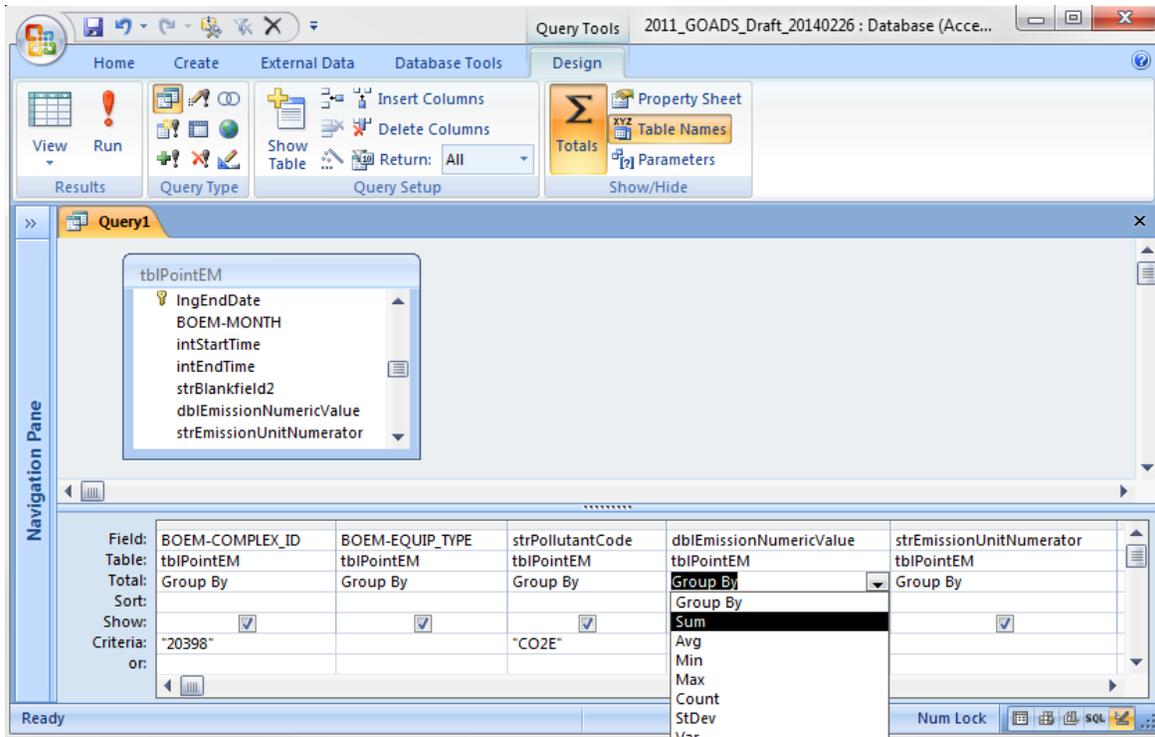
15. Next double click "strPollutantCode" in the tblPointEM box. The field "strPollutantCode" will then appear in the grid. In the Criteria row under "strPollutantCode", type "CO2E" as shown below.



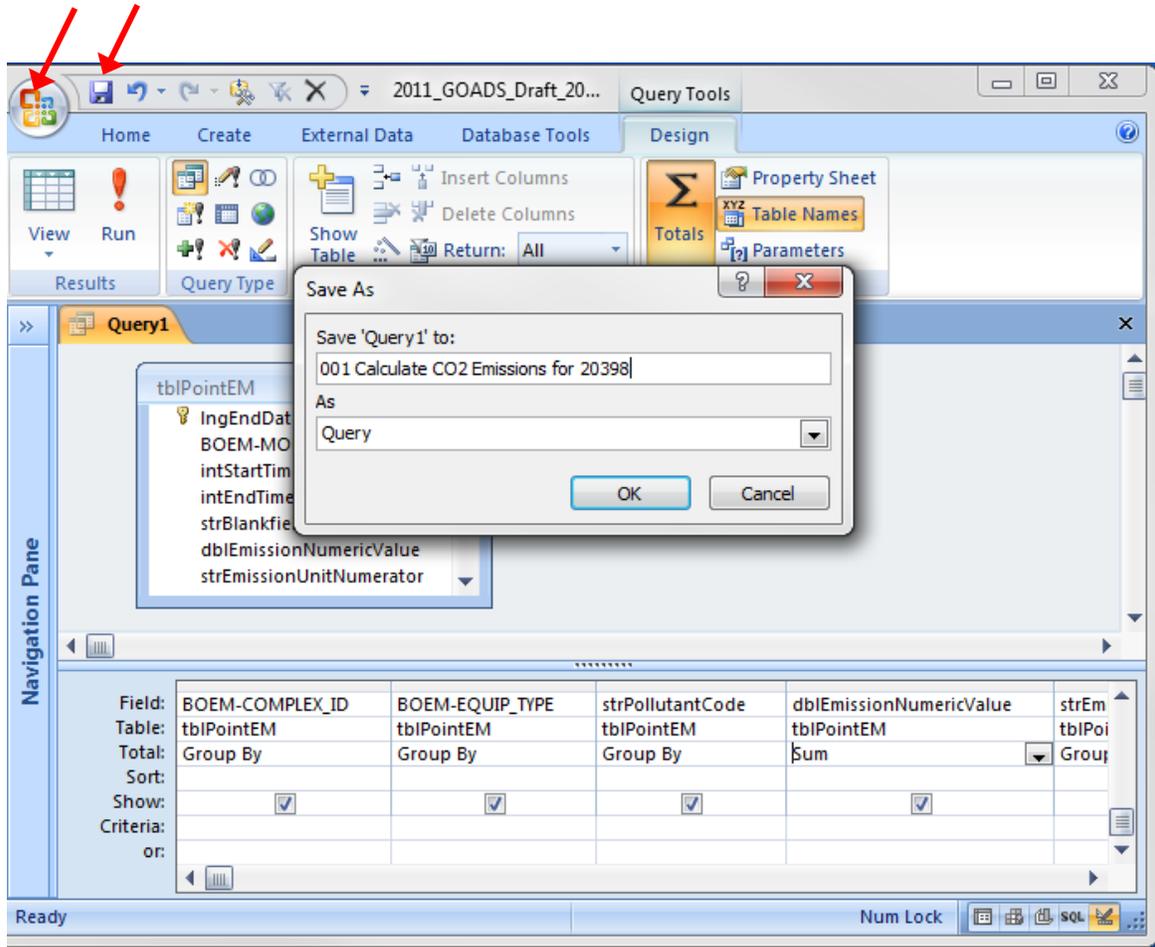
16. Double click dbIEmissionNumericValue and then double click strEmissionUnitNumerator to bring these two fields into the grid. Then click the Group By icon in the Show/Hide section under the Design tab (shown by the red arrow below).



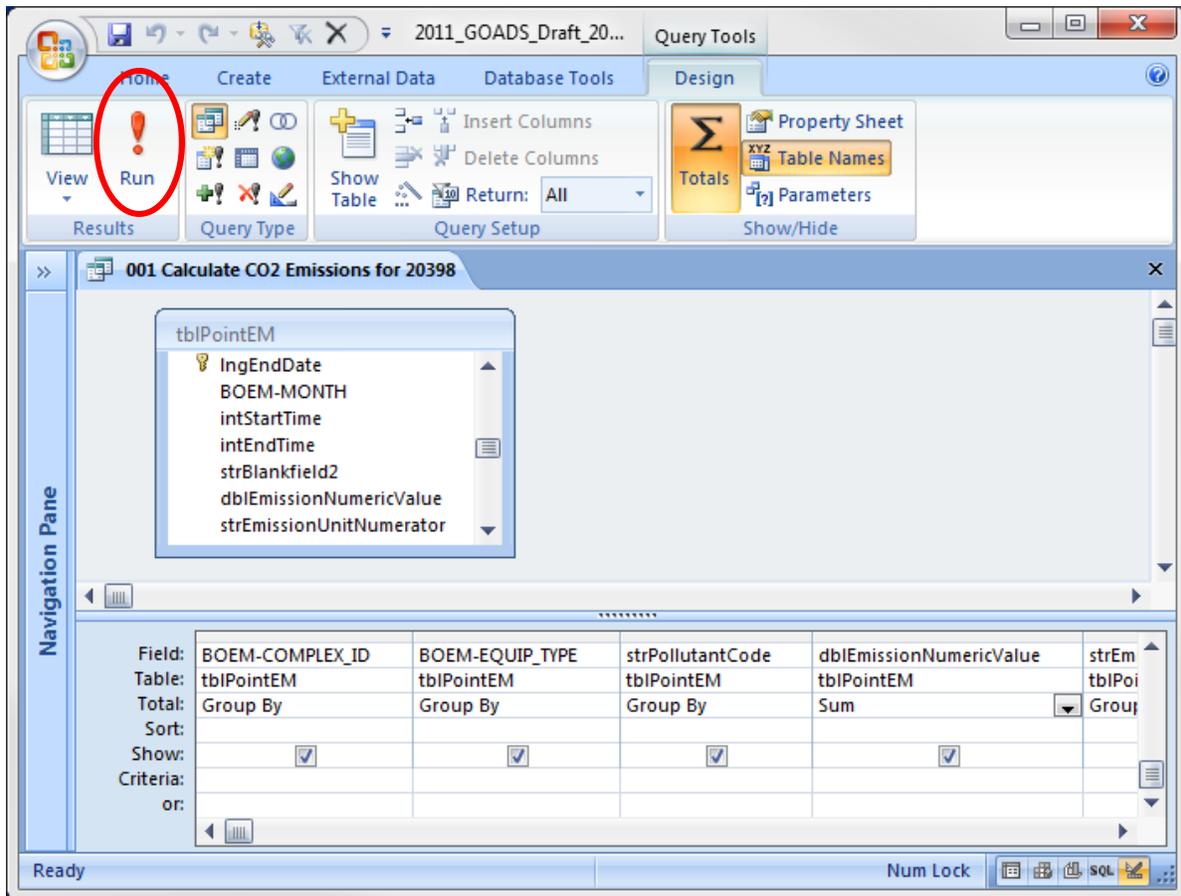
- Click in the cell with the words "Group By" under the field dbIEmissionNumericValue (fourth column from the left in this example) to get a drop down list as shown. Select "Sum" from the drop down list.



18. If you have not already done so, you may want to save your query at this point. Click the Save icon (blue disk) or click the Microsoft Office button, go to Save As, and then Save Object As. A box will appear with a place for you to name the query. After you have typed a name for this query, click OK.



19. Now you are ready to run the query. Click the Run icon under the Results section of the Design tab (circled in red below).



20. The results of the example query are shown below. The results show the total CO₂e emissions for each equipment type at complex 20398. The CO₂e emissions are in English tons, not metric tons. To convert to metric tons, multiply the emission values by 0.90718.

For your reference, Table 1 (presented in Section 1) presents equipment types and abbreviations.

2011_GOADS_Draft_20140226 : Database (Access 2007) - Micr...

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Navigation Pane

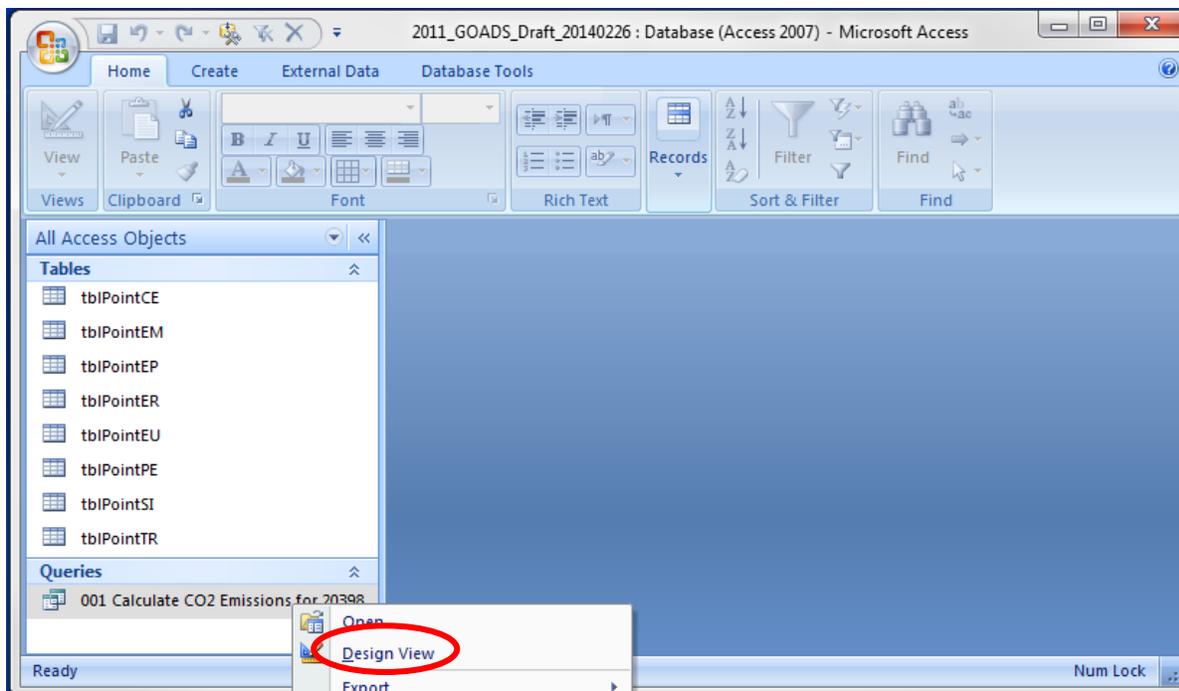
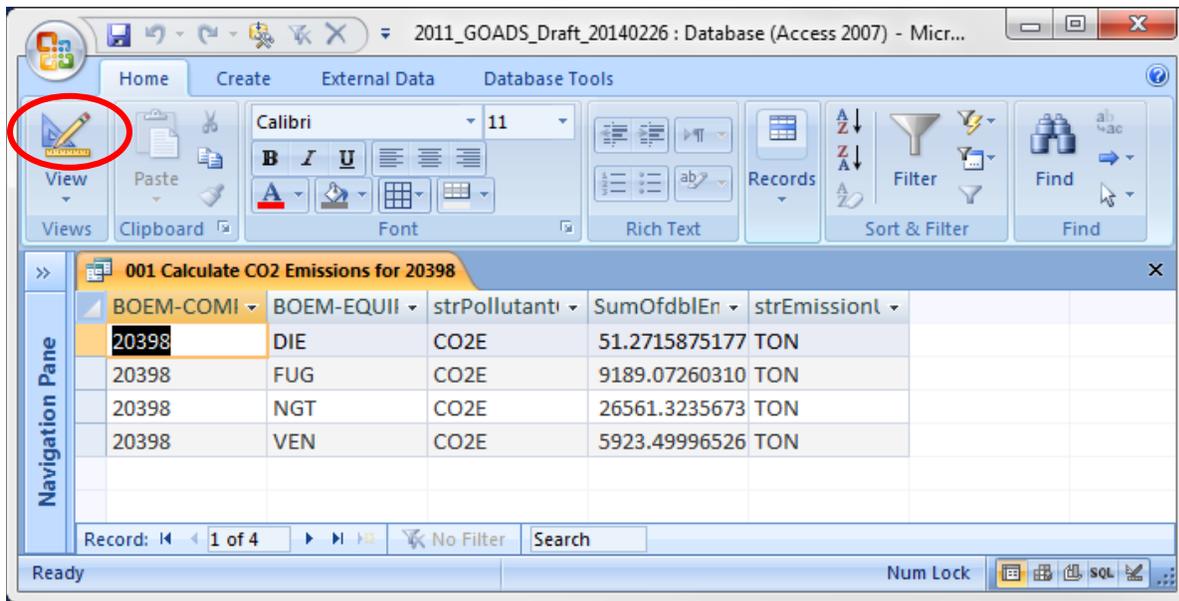
001 Calculate CO2 Emissions for 20398

BOEM-COMI	BOEM-EQUIP	strPollutant	SumOfdblEn	strEmissionU
20398	DIE	CO2E	51.2715875177	TON
20398	FUG	CO2E	9189.07260310	TON
20398	NGT	CO2E	26561.3235673	TON
20398	VEN	CO2E	5923.49996526	TON

Record: 1 of 4 No Filter Search

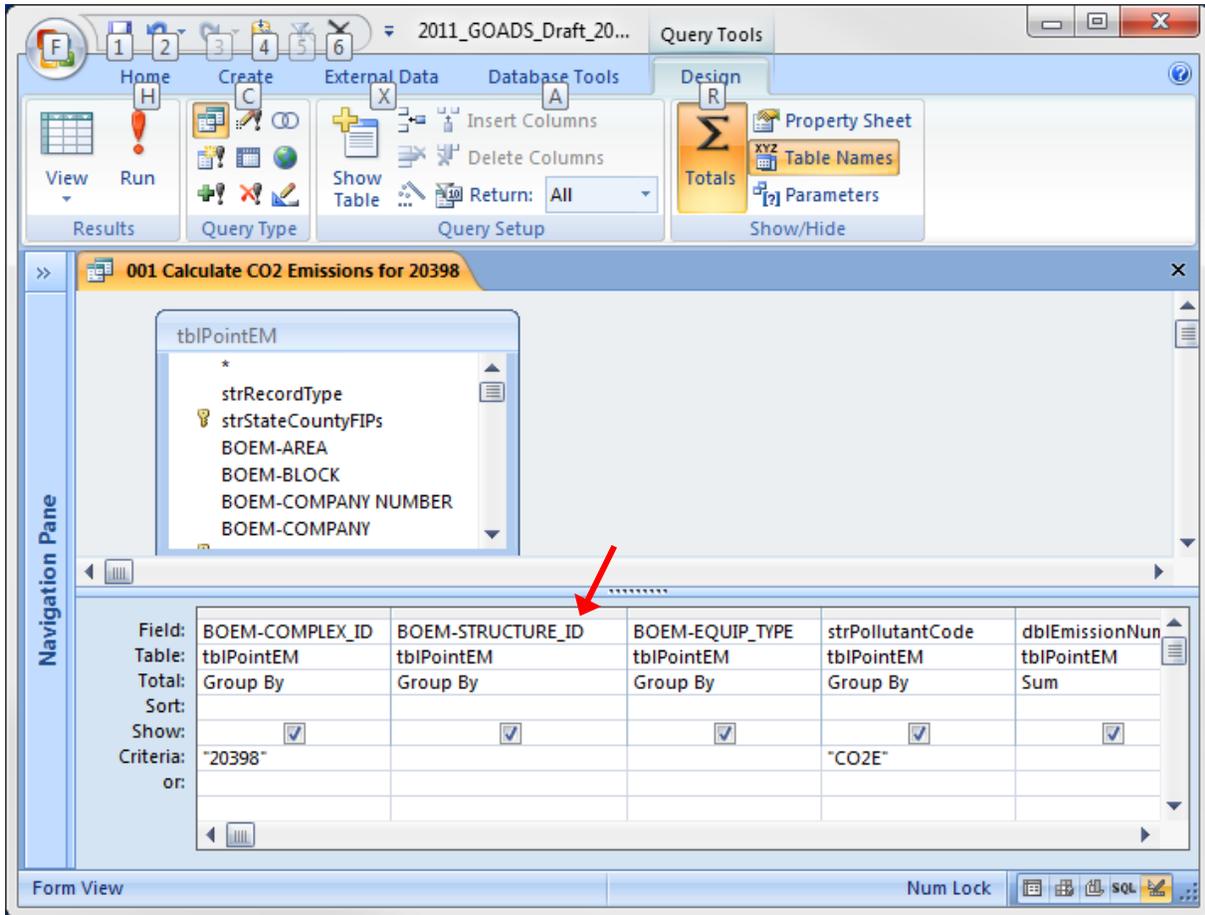
Ready Num Lock

21. The example complex 20398 has three platforms or Structure IDs in the 2011 Gulfwide inventory. In order to see the emissions associated with each individual platform, you can go into the design view of the query you created and add the BOEM-STRUCTURE_ID field. To open a query in design view, you can either click the Design View icon from the query results screen or from the navigation pane:



If you want to open your existing query in design view from the Navigation Pane, right-click the desired query, and then select Design View. If you double click the query, it will open to the results screen.

22. From the design view of the query, double click BOEM-STRUCTURE_ID to bring this field into the grid. Alternatively, you can click and hold the left mouse button on the BOEM-STRUCTURE_ID field name in the tblPointEM box to drag and drop the field into the grid in the column of your choice. If you drop the field on top of another field already included in the grid, the corresponding fields will shift to the right. Then run the query again.



Results including the BOEM-STRUCTURE_ID field:

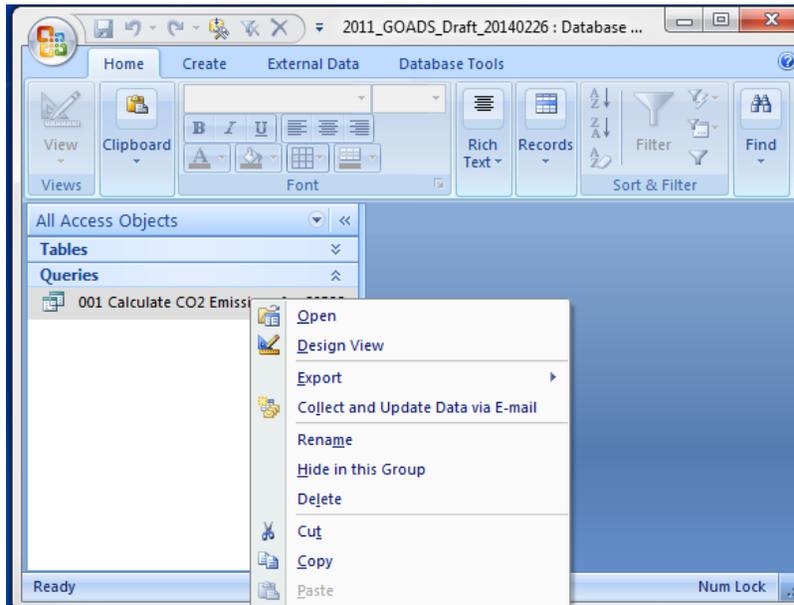
001 Calculate CO2 Emissions for 20398

BOEM-COMI	BOEM-STRU	BOEM-EQUI	strPollutant	SumOfdblEmissic	strEmissionl
20398	1	DIE	CO2E	1.58391432624113	TON
20398	2	DIE	CO2E	43.153820141844	TON
20398	2	FUG	CO2E	7482.47336809177	TON
20398	3	DIE	CO2E	6.53385304964539	TON
20398	3	FUG	CO2E	1706.59923501273	TON
20398	3	NGT	CO2E	26561.3235673496	TON
20398	3	VEN	CO2E	5923.49996525741	TON

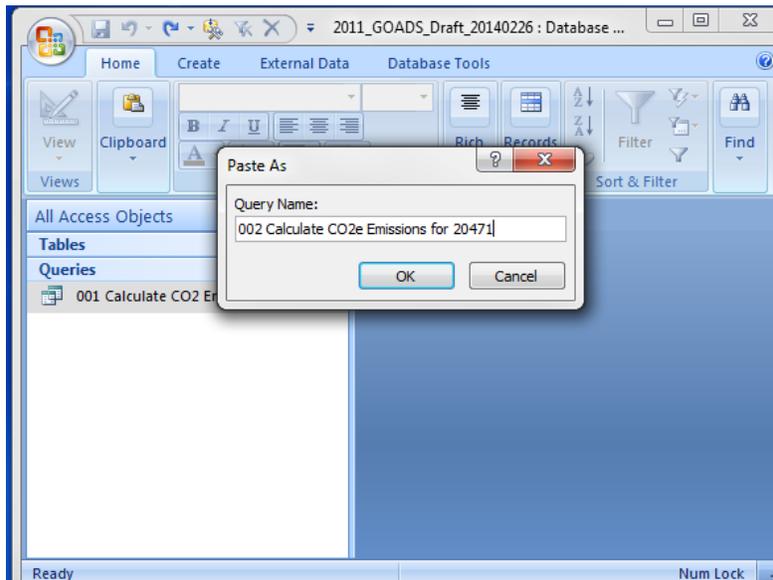
Record: 1 of 7 No Filter Search

Section 3. Instructions for Calculating Emissions from Multiple Complexes

1. If you want to calculate the emissions for additional complexes, you can go into the design view of the query you created, change the BOEM Complex ID, and run the query again.
2. If you want to save a separate query for each complex, you can create another query following the steps from Section 1 or Section 2 above, and save it under a different name. Alternatively, you can copy and paste the original query and simply revise the BOEM Complex ID in the design view of the new query:

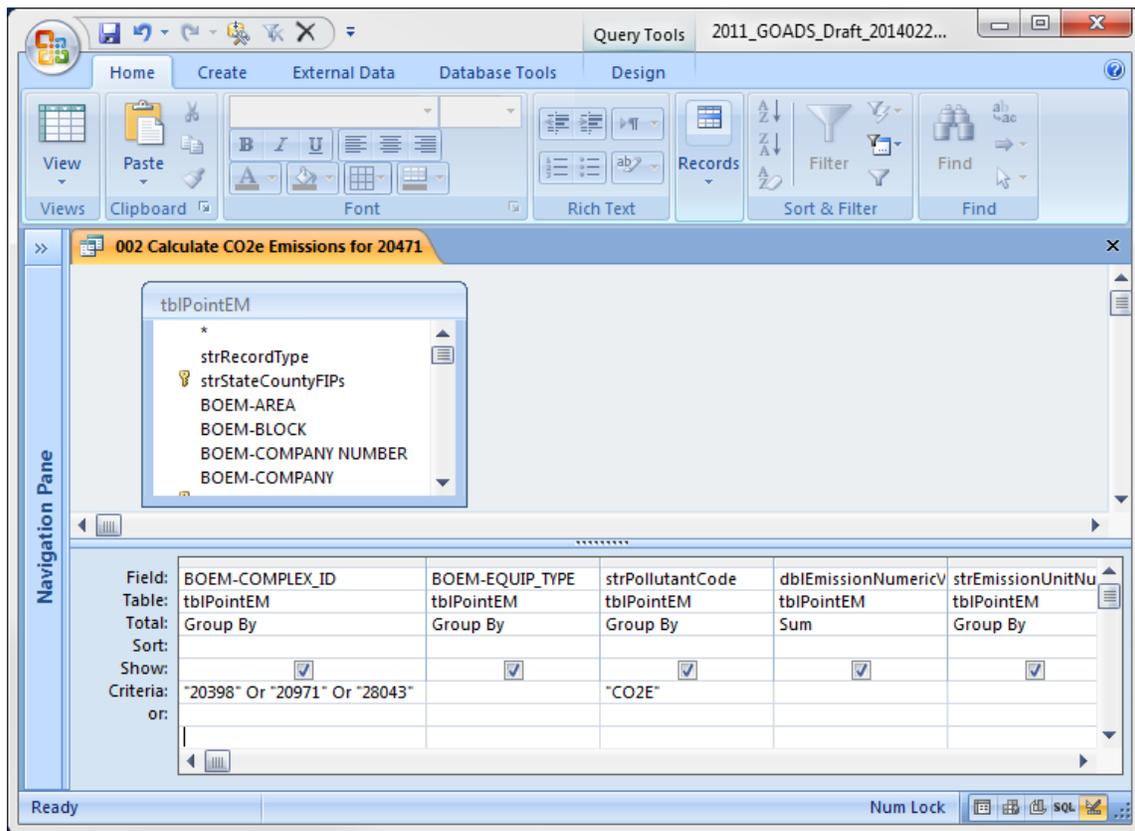


Right click on the query name from the Navigation Pane and select Copy.



Right click anywhere in the white space of the Navigation Pane and select Paste. Enter a name for the new query and click OK. Then go into the design view of the new query and change the BOEM Complex ID. After you revise the BOEM Complex ID, save the query again.

3. If you want to calculate the emissions for several complexes at one time, you can enter multiple BOEM Complex ID's in your query using either method shown below. Leave the words "Group By" in the Total row for BOEM-COMPLEX_ID and make sure that the box is checked in the Show row. If you were to instead select "Where" in the total row or uncheck the box in the Show row, the query results would show the combined total emissions for all of the listed Complex IDs.



Query Tools 2011_GOADS_Draft_20...

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View Paste Font Rich Text Records Sort & Filter Find

Navigation Pane

002 Calculate CO2e Emissions for 20471

tblPointEM

- *
- strRecordType
- strStateCountyFIPs
- BOEM-AREA
- BOEM-BLOCK
- BOEM-COMPANY NUMBER
- BOEM-COMPANY

Field:	BOEM-COMPLEX_ID	BOEM-EQUIP_TYPE	strPollutantCode	dblEmissionNumericV	strEmissionL
Table:	tblPointEM	tblPointEM	tblPointEM	tblPointEM	tblPointEM
Total:	Group By	Group By	Group By	Sum	Group By
Sort:					
Show:	<input checked="" type="checkbox"/>				
Criteria:	"20398"		"CO2E"		
or:	"20971"		"CO2E"		
	"28043"		"CO2E"		

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