North Carolina Division of Air Quality

Quality Assurance Project Plan

2.51 Volatile Organic Compounds (VOCs) by TO-15

Section 4.3

Raleigh Central Office Responsibilities

Standard Operating Procedure to Transfer VOC Data from the Master Spreadsheet to Text Files for AQS

Version 2015

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Approval Sign-Off Sheet

I certify that I have read and approve of the contents of this revision of the SOP to Transfer VOC Data from the Master Spreadsheet to Text Files for AQS with an effective date of 6/15/15.

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.51.4.3 Standard Operating Procedure to Transfer VOC Data from the Master Spreadsheet to Text Files for AQS.

2.51.4.3.1 Purpose: The purpose of this SOP is to describe the steps needed to transfer VOC analysis data from the master VOC spreadsheet and convert that data into a format suitable for submitting to the U.S. Environmental Protection Agency's (EPA) Air Quality System (AQS).

2.51.4.3.2 Equipment Description: PC connected to the network drive group on 'air.ncdenr.net\dfs' – usually mapped to drive letter P.

2.51.4.3.3 Directions for transferring the VOC data from the Master Spreadsheet to Text Files for AQS

2.51.4.3.3.1   Open the spreadsheet with this file name "UAT Data 2015 1st.xlsm." It will be located in P:\Toxics\Urban Air Toxics\VOC's Current Year Data\AQS Test.

2.51.4.3.3.2   Highlight the data in the VOC data sheet (not the header row) and delete it.

2.51.4.3.3.3   Open the master spreadsheet with the VOC's Current Year data. It will be in P:\Toxics\Urban Air Toxics\VOC's Current Year Data\. If you get a message that some else has the file open, cancel the open and try again later. With that file open, copy it using Windows Explorer or MyDocuments to another location (e.g. your hard drive) as a backup copy.

2.51.4.3.3.4   Now would be a good time to review the data and mark any bad data with a flag 4 so it will not be transmitted to AQS. Also, compare collocated data with primary data and make any appropriate changes there.

2.51.4.3.3.5   In the current year's spreadsheet highlight all the data you are preparing for AQS and copy it (Ctrl-C) or right click and click on copy. If you are going to prepare a calendar quarter for AQS, then, for example, for first quarter highlight all rows with sample dates in January, February and March for each site.

2.51.4.3.3.6   Go to the macro spreadsheet. The spreadsheet should only have the column headers in row 1. Click on row 2, column A and right click and paste or Ctrl-V. This will insert the data that you copied into this spreadsheet.

2.51.4.3.3.7   Once all the data has been pasted into the macro spreadsheet, save it as the year of the data you're using and what quarter it is. If it is a whole year's worth of data then don't include the quarter. For example, the Spreadsheet for 1st quarter AQS would be "UAT Data 2015 1st. xlsm."

2.51.4.3.3.8   Go back to the master spreadsheet, if you have made changes save it back to the P:\ drive then close it.

2.51.4.3.3.9   Go back to the renamed macro spreadsheet. Delete all sample IDs ending in R or S; these are repeated or replicate analyses and are not to be sent to AQS at

this time. If a sample ID has no data at all but there is a collocated data set for that site and date, the collocated data may be designated as the primary data for that site and date. Also if any of the primary data are bad the collocated data may be substituted for that data at this time. For any data so substituted, delete the collocated value and add a flag 4.

2.51.4.3.3.10   Go to the top menu toolbar and click on the word "View." Then find Macros on the far right and click on it. The window below will appear.
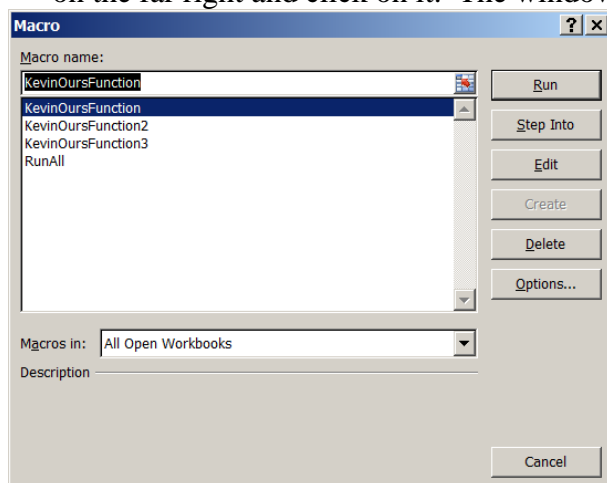
2.51.4.3.3.11   Highlight KevinOursFunction3 and click the Edit button on the right (in some screens it might appear as Module 41). The Visual Basic Editor screen will open with the macro in it to be edited.

2.51.4.3.3.12   Once you have the macro open, go to the Path statement, it should be just a few lines from the top below the comment line 'Manually set the path to where to save the text files.'
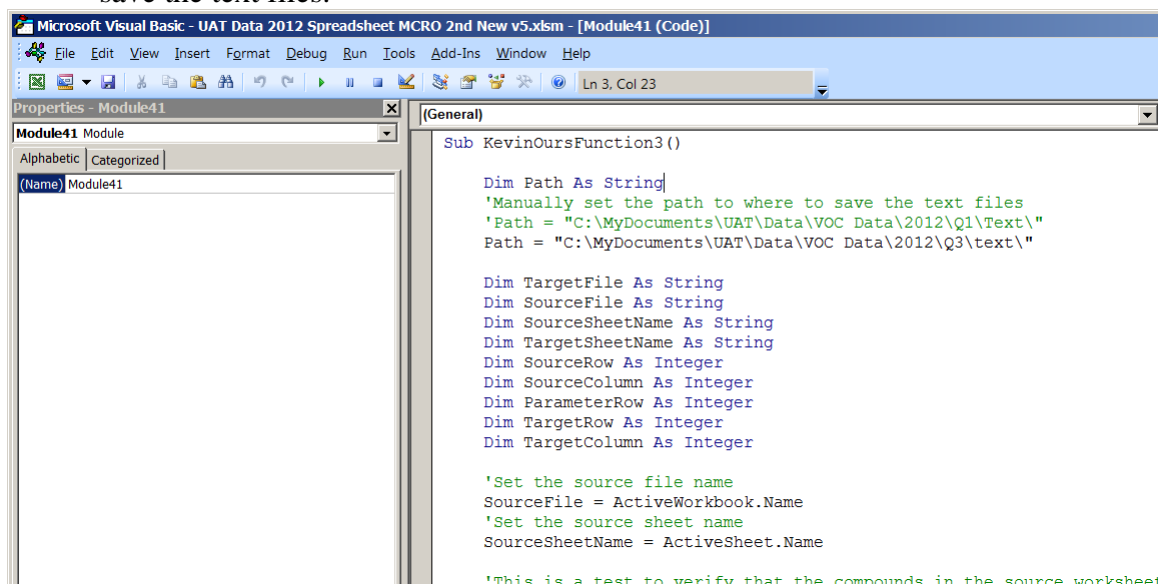
2.51.4.3.3.13   Change the path to where you want the text files to be saved. For example, highlight everything between the quotation marks (" ") in that line, delete and

enter where you want the files to be saved and make sure to add a backslash right before the last ". This folder must already exist. My path would be, for example, Path= "C:\AQS Stuff\AQS Text Files\2012 Text\".

2.51.4.3.3.14 After you have inserted the path, save the macro and spreadsheet.

2.51.4.3.3.15 After saving the new path you are ready to run the macro. There are two ways to run the macro. Close the Visual Basic Editor, then open macros again, and you can double click on the KevinOursFunction3 macro or highlight it and click the run button on the right. The Macro could take 5 minutes or longer to run depending on how many data sets are being processed.

2.51.4.3.3.16 The text files will be located in the location that you assigned for your path. The spreadsheets for each site will be located with the text files. You may wish to combine all but Garinger into one text or spreadsheet so as not to have to repeat sorting and changing operations for each site separately.

2.51.4.3.3.17 Open the spreadsheet to examine the data. First make sure that all the columns are text, i.e. the codes have preceding zeroes where they are needed and the date is in the proper AQS format – 20120912. At this time you want to make sure all the flags and codes are located in the right places and compare it to the master spreadsheet. **This is what will take the longest time.** Process Garinger collocated data, if any, first because it is a smaller data set, then the Garinger primary data set. Change the POC numbers per the Table of POC Numbers below as needed.

2.51.4.3.3.18 Sort the spreadsheet by concentration values (column M) and look at all the high values. Any legitimate value over 10 give a flag of "EH" to indicate it is above our calibration range. Other high values may need other flags such as LJ if they had a flag 3c1 in the master spreadsheet. You may wish to make a list of all compounds and their parameter codes and dates that have flag 3c1 in order to check their flags in the next step.

Sample ID Code Letters	Site	AQS Site #	VOC POC #	Aldehyde POC#
A	Asheville	37-021-0035	1	3
AD	Asheville Collocated	37-021-0035	2	4
B	Battleship	37-129-0010	1	3
BD	Battleship Collocated	37-129-0010	2	4
C	Candor	37-123-0001	1	3
CD	Candor Collocated	37-123-0001	2	4
G	Garinger	37-119-0041	2	3 or 1
GD	Garinger Collocated	37-119-0041	5	4?
M	Millbrook	37-183-0014	1	3
MD	Millbrook Collocated	37-183-0014	8	4
W	Winston-Salem	37-067-0022	2	3
WD	Winston-Salem	37-067-0022	8	
L	Lee County	37-105-0002	1	3
LD	Lee County Collocated	37-105-0002	2	4

2.51.4.3.3.19   Sort the data by parameter code (column F) and delete all records for hexanal=43517, butanal=43510, propanal=43504, acetone=43551, acetaldehyde=43503, ethanol= 43302, isopropanol=43312 and butanol=43305. Check all compound records that you have identified as having flag 3c1 and make sure they at least are flagged LJ.

2.51.4.3.3.20   Search for parameter codes 43805 and 43214. There should be none. If there are records with these codes, change all 43805 to 43843 and change all 43214 to 43270.

2.51.4.3.3.21   Sort the data by QA flag (column Q) and check that 0.000 has been added to all Flag NDs and NDs are in the QA column not the null flag column. You can then sort by null flag (column N) to help perform this check.

2.51.4.3.3.22   In preparation for the next step, make a list of all the data sets that have no data in the master spreadsheet or were analyzed as a Field or Trip Blank. These data should not be reported to AQS and their records need to be flagged according to the reason for no data. Here's an example list.

Records to mark with a null code in AQS				
Sample ID	**Site Code**	**Reason for no data**	**AQS Code**	**Done**
070212W	067-0022	Power failure	AV	
070812W	067-0022	911 malfunction	AN	
072012W	067-0022	operator error, didn't open can	AQ	
072612AD	021-0035	operator error, didn't open can	AQ	
081312M	183-0014	911 malfunction	AN	
082512GFB	119-0041	911 malfunction	AN	
091212G	119-0041	911 malfunction	AN	
091212M	183-0014	911 malfunction	AN	

2.51.4.3.3.23   Sort by site ID (columns D and E) and date (column K). Check the sites and dates you've listed to be sure they have the correct null codes. If they have data (for example if the can was analyzed as a blank and the blank data is in the records), place the AQS null code flag in the null code column, delete all data values and delete any QA flag values. Check off the records that you have completed.

2.51.4.3.3.24   Repeat the process (steps 2.51.4.3.3.17 through 2.51.4.3.3.23) for Garinger primary data, then it may be easier to combine all the other sites into one spreadsheet and repeat the process for them all together.

2.51.4.3.3.25   After you make corrections in the Excel spreadsheet save it as a spreadsheet and save it as a Text (Tab delimited) (*.txt) file. You may change the name of the file to indicate this is a corrected file. There should be one or two Garinger files and at least one other than Garinger file.

2.51.4.3.3.26   Now you are ready to perform the final edit on the text files to get them into the correct AQS format. Open each file in Notepad; you may be able to simply double click on the file name to open it. (If double clicking the file name does not work and you don't have Notepad handy, go to START on the bottom left

hand corner of the screen. Click on All Programs, which is the first icon right above Start, and scroll up to and click on Accessories and scroll down to and click on Notepad to open it.)

2.51.4.3.3.27   Once your text file is open, highlight the space between RD and I. Right click and copy or Ctrl-C. Then go to Edit, scroll down and click on Replace or Ctrl-H. The Replace dialog box will appear.

2.51.4.3.3.28   Click in the blank beside "Find What:", right click and then paste to insert what you copied or Ctrl-V.

2.51.4.3.3.29   In the "Replace with:" box put the pipe character (|) which is the shift key and the key right below backspace on the keyboard.

2.51.4.3.3.30   Then click on the box that says Replace All. How much data is being put into AQS will determine how long it will take. It may appear to stall after the first 20 lines or so but let it go, and it will replace them all.

2.51.4.3.3.31   After it has finished running go back to the Replace box and type in "end" after "Find What:" being sure the previous contents of that box were deleted, and delete the pipe character leaving "Replace with:" empty or blank.

2.51.4.3.3.32   Then click on Replace all. Close the Replace box when finished. Look over the data and make any correction if need be where things don't line up. Remember the pipes are where there was a separate column in the excel spreadsheet.

2.51.4.3.3.33   Go to the bottom of the file and make sure there is no blank row or extraneous characters at the bottom.

2.51.4.3.3.34   Once you have reviewed the data, go to file and save as. Save the text file as RDTX[quarter#]Q[2 digit year]_VOCsAllExceptGaringer.TXT. For example, "RDTX4Q14_VOCsAllExceptGaringer.TXT". This is the 4th quarter for all sites except Garinger in 2014.

2.51.4.3.3.35   Close Notepad and reopen it. Repeat steps 2.51.4.3.3.26-34 for each site or group of sites.

2.51.4.3.3.36   Once you have completed all sites, send all the text files to the appropriate data managers. Now you are done for this portion of data you are preparing for AQS.

2.51.4.3.3.37   If you are the UAT Data Manager, send the Garinger files to Mecklenburg County Air Quality -- Jeff Francis and Suzanne Hollenbeck -- and copy the others to P:\Ambient\PUB\RegOffices.NC\AQS\Manual Upload Files\ and notify the AMS Data Manager. Prepare a MS Excel spreadsheet for each site, and send them to the respective site operators.