

# **APPENDIX B TECHNICAL SYSTEMS AUDIT CHECKLIST EXAMPLE**

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## **TECHNICAL SYSTEMS AUDIT CHECKLIST EXAMPLE**

The Area and Non-mobile Inventory Quality Assurance Checklist provides guidelines for a thorough evaluation of the inventory development program implemented by a contractor and state agency. It includes assessments of the following critical phases of the work:

- Planning/Management;
- Inventory Development;
- Documentation/Data Entry; and
- Reporting.

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**NYSDEC AREA AND NON-MOBILE EMISSIONS INVENTORY  
QUALITY ASSURANCE CHECKLIST**

Auditor \_\_\_\_\_ Date \_\_\_\_\_

Personnel Interviewed \_\_\_\_\_  
\_\_\_\_\_

This checklist is to be used to document the findings from the audit of activities and data associated with area and non-road mobile emissions inventory development. Use the applicable parts of the checklist to identify the quality concerns associated with each task. Document the results and use them to generate the audit report.

	Yes	No
<b>Planning/Management</b>		
1. Work Plan		
a. Was the work plan approved prior to commencing work?		
b. Was the work plan revised?		
c. If yes, were the revisions documented and approved?		
2. Are the resources required for the work adequate?		
3. Were the staff adequately trained?		
4. Was an adequate number of project personnel available to perform the tasks assigned?		
5. Are project meetings held two times a week or at an appropriate interval to keep project personnel abreast of the status of the work?		
6. Are NYSDEC and EPA routinely kept abreast of inventory development milestones and problems?		
7. Senior Technical Review		
a. Were the results from senior technical peer reviews documented?		
b. Were problems identified?		

	Yes	No
c. If yes, were the problems documented and resolved to the satisfaction of the reviewer and project personnel involved?		
d. If no, attach a description of the problems and how they will be or were resolved?		
8. Was conformance to EPA guidelines checked by completing applicable sections of the EPA <i>Quality Review Guidelines</i> checklist?		
<b>Area and Non-Road Mobile Source Inventory</b>		
1. Were 1990 estimates made for the following:		
a. VOC sources emitting <10 tons per year (TPY) using <i>Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources</i> (EPA-450/4-91-016)?		
b. Stationary sources of nitrogen oxides (NO <sub>x</sub> ) that emit <25 TPY using the above document?		
c. Stationary sources of CO that emit <100 TPY using the above document?		
d. Other sources of VOCs, NO <sub>x</sub> , and CO by county or equivalent city emission areas and non-attainment designations using demographic, 1990 census, and industrial and commercial data with appropriate AP-42 factors or other valid sources?		
e. Non-road sources of VOCs, NO <sub>x</sub> , and CO using <i>Volume IV of the Procedures for Emission Inventory Preparation</i> ?		
2. Were area source estimates adjusted to account for point sources to avoid double-counting?		
3. Were estimates provided for VOCs, NO <sub>x</sub> , and CO for non-attainment areas?		
4. Was the approach used to determine the completeness of the determination of all non-attainment areas described?		
5. Were EPA guidance documents used and referenced for area and non-road estimates?		

	Yes	No
6. Were the references used to determine non-road mobile and area sources given?		
7. Are 1990 emissions for other non-road engine and vehicle categories extrapolated to other NY non-attainment areas using population as recommended by EPA?		
8. Are the data for all of the counties applicable to this work included? (See work plan and revisions for list of counties.)		
9. Were all estimates reported as "0" explained?		
10. Were estimates made from biogenic and surface impoundment data prepared by NYSDEC reviewed prior to use?		
11. Were pre-processed (LOTUS spreadsheets) data reviewed prior to entry into AIRS-AMS?		
12. Database		
a. Are electronic data and hard copies compared to determine if they agree?		
b. Are all defaults clearly explained?		
13. Was the Inventory Preparation Plan developed by NYSDEC followed?		
a. If yes, is an approved copy available in the project file?		
14. Reporting		
a. Was a comprehensive draft report describing the development of the area sources inventory written and submitted to EPA by 9/30/92?		
b. Was a comprehensive final report be submitted after completion of the point source inventory (10/15/92)?		
c. Is EPA kept abreast of the need to revise these deadlines?		

	Yes	No
<b>On-Road Mobile Sources</b>		
1. Were procedural reviews of the methodology used by NYSDEC to determine vehicle miles traveled data (VMT) and MOBILE4.1 inputs conducted by Radian?		
a. Were the results from the review documented?		
b. If problems were found, were they resolved to the satisfaction of NYSDEC and Radian?		
2. Were MOBILE4.1 input files checked for accuracy and reasonableness prior to running models?		
3. Were representative numbers of the VMT and MOBILE4.1 emission factors checked?		
4. Was a representative number of the data entered into AIRS-AMS checked for accuracy and completeness?		
<b>Documentation/Data Entry</b>		
1. Are the data documented in a manner that will allow reconstruction of project activities? (notebooks, contact reports, memos, notes to the file)		
2. Was the receipt of data from NYSDEC and others documented and the data controlled to provide a complete master file?		
3. Are data sources and guidance documents identified?		
4. Are telephone calls documented in project dedicated notebooks or on telephone contact report forms?		
5. Were data entry worksheets used and reviewed prior to input into AIRS-AMS?		
a. Was this review adequate to assess the accuracy and completeness of the data?		
b. Were the results from the reviews documented?		
6. Were spreadsheet estimates compared to AIRS-AMS estimates to assess the reasonableness and accuracy of the database calculations?		

	Yes	No
<b>Reporting</b>		
1. Was each report formatted as required in the EPA guidance document for emissions inventory reports?		
2. Was a report describing the development and implementation of the QA program written?		
3. Were the procedures for determining the completeness and accuracy of the database discussed in the inventory development report?		
4. Were the final electronic files compared to the hardcopies prior to delivery to NYSDEC and EPA to ensure that they both agree?		
5. Did the reports meet the 9/30/92 deadline?		

Comments:

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