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Charge of the testing operations and the subcontractor staff who will be in the field and the staff at the John Zink facility who will be operating the flare? Each subcontractor should have an organizational chart and description of the functions of staff in his organization so that the reader of the QAPP knows who will do what.

Response: _____

General

Although this document has undergone extensive revision from its first submission, the document is still labeled "Revision No. 0."

Response: _____

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The abbreviation "PAMS" stands for "Photochemical Assessment Monitoring Stations."

Response: _____

A1.2

There are no signatures on the Approval Page. Has the document been reviewed/approved by the QA Manager(s)? Does the Project Manager concur with its content? Do the various subcontractors concur?

Response: _____

1 of 3

Specific reference(s) to EPA studies performed during the 1980s (mentioned in the text) should be supplied.

Response: _____

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General

Every subcontractor reviews/validates data generated by their own organization. Is any specific member of the Project Team responsible for assembling all of the data generated and reviewing ALL of the data as a single dataset? Section A6.1 states that UT (Austin) will compile all data from the flare tests, analyze the data and produce a final project report, but this responsibility is not assigned to any specific individual or individuals in the Project/Task Organization.

Response: _____

A7.2.5

Will each subcontractor provide an assessment of completeness for their own data?

Response: _____

A9.4

Formats and media for electronic copies of all measurements should be specified (by the individual subcontractors?) to ensure that all portions of the final dataset as delivered are compatible.

Response: _____

Table B2.A

For each piece of measurement equipment, model number, manufacturer, and location should be specified. The subcontractor responsible for each measurement and each piece of equipment should be specified.

Response: _____

B2.2.1

NIST is the "National Institute of Standards and Technology."

Response: _____

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C2.1

This section talks about preparing reports of performance evaluations and TSAs that the previous section states will not be performed due to lack of funding.

Response: _____

Contents

In the List of Appendices, listed names of Appendices are not consistent with the names listed on the front page of the individual Appendix: for example, Appendix H is listed in the Table of Contents as "QC Objectives" but on the front page of Appendix H, the appendix is called "Data Quality Control Activities." The List in the Table of Contents and the title on the title page of the individual Appendix should be consistent.

Response: _____

A4

Project/Task Organization: Several individuals and groups are assigned the responsibility to review and comment on the Draft Preliminary Flare Measurements Report and the Draft Comprehensive Flare Study Report, but no individual or group is assigned the responsibility of preparing these reports. There are no assignments of any groups or individuals to prepare reports. Different subcontractor groups are responsible for performing specific measurements, but in the Project Organization section, no specific individual or group is assigned the responsibility for reviewing/validating data, preparing a data report for submission to anyone, etc. The Project Organization section deals with general management tasks but has minimal information on the individuals/groups responsible for specific project functions.

Response: _____

A4

Several individuals are assigned the responsibility of assisting QA auditors with performance evaluations and technical systems audits. However, later in the text the statement is made that these audits won't be done due to funding limitations.

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Response: _____

A5.1

This section states that preliminary results as well as "other research" indicate flare DRE may be reduced during certain operating conditions. This "other research" should be cited.

Response: _____

A6.2

The number as written in the text is "937,00." Is the intended number 93,700 or 937,000?

Response: _____

A6.5

Daily Field Activity Reports, Daily QA Reports, and a Final QA Report will be provided by each participant. However, no one is assigned responsibility for a Comprehensive Flare Study Draft and Final Report, or a Final Project Report.

Response: _____

A7.1

One of the project objectives is to complement the body of data gathered from previous flare tests. Please provide references for these "previous flare tests."

Response: _____

A7.2.5

Calculation of Completeness is discussed but no report of the assessment of completeness for any of the measurement technologies will apparently be generated.

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Response: _____

B1.1

Is there a QMP for the John Zink Companies flare test facility? If so, an on-line location should be specified or a copy should be provided. This type of document will provide a detailed description of the capabilities of the facility. Any other documentation associated with the John Zink Companies facility (i.e., SOPs, instrument manuals, etc.) should at least be cited in the text. The QAPP text supplies a very compressed description of the flare burner but very little other information about the test facility. At the very least, a citation of the on-line location of information about this facility should be included in the QAPP:
http://www.johnzink.com/tech/rd_ctr/html/t_rd_ctr.htm .

Response: _____

Appendix A. Appendix A is cited as providing the “diagrams and aerial photos” of the John Zink facility. There is one diagram, but not a word of text to explain to the reader the significance of various items in the diagram. There is apparently only one aerial photo, and this photo is completely undecipherable because of its poor quality and there is likewise no accompanying text to explain the significance of the photo to the reader.

Response: _____

Appendix J

The Sampling Devices are shown in Appendix J. The title of the Appendix infers that the Appendix contains a “Flare Plume Sampling Device Diagram” but the Appendix contains only two fuzzy photos of the sampling devices. Parts of the sampling device are not labeled in the photos, so the discussion in Section B1.1 of the text is difficult to relate to the pictures in Appendix J. The pictures of the sampling devices need to be made clearer and the parts of this equipment clearly labeled and identified. Neither Appendix J nor text in Section B1.1 specifies what materials the sampling devices are made of. What is the difference between a “Horizontal Plume Sampling Device” and a “Vertical Plume Sampling Device” and what criteria are used to determine which device should be used in a given

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situation? How many of these devices are available for use in the program? Who will set up the Sampling Devices and operate them?

Response: _____

B1.1

How will the "point where combustion has ceased" be determined, and why is this point important? Why is it undesirable to sample in an area where combustion reactions may still be occurring?

Response: _____

B1.1

Please clarify what "three parameters" will be used as determinants in the positioning of the collector during sampling and how these parameters will be used? The parameters are apparently temperature (measured how?), oxygen level (measured how?), and carbon dioxide (measured how?), but how these parameters will interact to position the entrance to the collection apparatus is not obvious. Who will make the decision that the correct point for sampling has been attained?

Response: _____

B1.3

The only mention of meteorological data to be collected by each participant is found in Section 1.3. There is no assignment of responsibility for making meteorological measurements in the Project Organization section, no mention of who will make what measurements, no mention of what equipment will be used by each of the subcontractors to make meteorological measurements, nor any indication of how the "comparison" of each participant's meteorological data to other participants' meteorological data and to the "nearby National Weather Service" will be made. Can meteorological data be used as a basis for invalidation of some measurements?

Response: _____

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Table B2.A No definition of "D_p" is supplied with the Table. There is a column labeled "Detection limit (2 x 1s precision)" but no indication of how the Detection Limit was determined or by whom. What is "(2 x 1s precision)"? Instrumentation should be clearly identified by company performing the measurement, model number, manufacturer, location. For example, the Table shows that the PM size distribution will be determined by "SMPS," but there is no indication of which company will make the measurement or what specific instrument will be used. What is a "ThermoElectron 42i"? What is a LI-COR? There is no meteorological measurement equipment included in the Table.

Response: _____

B2.2.1 Appendix B does NOT contain EPA Method 19. This Appendix contains a TRC Standard Operating Procedure with the title "Determination of Mass Flow and Mass Emission Rates Based on Fuel Flow and Fuel Analysis (40 CFR Part 60, Appendix A, Method 19)" RATHER THAN Method 19 itself.

Response: _____

B2.3 What protocol will be followed if one or more of the pieces of measurement instrumentation fails? Will ALL sampling be cancelled if one instrument is not functional? Or will functional instrumentation continue with the tests as scheduled? How will data be compared if one of the pieces of test equipment does not participate in all of the testing?

Response: _____

B3 Since no physical samples will be taken for analysis at a remote location, the entire section on Sample Handling and Custody is superfluous. Likewise, since no samples are taken for analysis at a remote location (the general understanding of Analytical Methods), Section B4 is also superfluous.

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Response: _____

B5

What quality control measures will be used by John Zink to ensure that the flare is operating properly? What tolerances on the various measurements are acceptable for proper operation of the flare?

Response: _____

D1, D1.2, etc. It is pointless to repeat the same text multiple times changing only the name of the subcontractor. The sentences can be inserted into the document once, with the observation that they apply to all subcontractors.

Response: _____

Appendix B TRC SOP AM-203A (supplied in Appendix B) refers repeatedly to a "sampling probe." How does the "sampling probe" discussed in Appendix B relate to the "Sampling Devices" shown in Appendix J?

Response: _____

Appendix B1 Appendix B1 is not "Method 18 GC Analysis"; this Appendix is TRC SOP Am-218, which is applicable to all TRC measurements programs using the Method 18 Direct Interface method for the collection and field analysis of hydrocarbons. This SOP deals with the GC analysis of collected samples, and shows the collection of samples by a heated probe (how is this heated probe related to the sampling devices shown in Appendix J?) and transported by a heated sample line to the analytical system.

Response: _____

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Appendix B2 Appendix B2 contains TRC SOP AM-219 for Determination of Mass Flow and Mass Emission Rates Based on Fuel Flow and Fuel Analysis. Since the fuel discussed in this SOP is presumably the fuel for operating the flare, will these TRC calculations parallel the calculations performed by John Zink personnel? The Procedure in this SOP states that "a sample of the fuel is collected and analyzed to determine the heating value." How will this fuel sample be collected? This procedure must be executed with close cooperation with John Zink personnel. How will responsibilities be divided between TRC personnel and John Zink personnel?

Response: _____

Appendix B4 Where can the references cited in the Aerodyne Specific Instrumentation Methods be found? There is no Reference section in the Method. The Aerodyne Methods, as shown in Appendix B4, are generic. Which instrumentation and which specific methodology will be used in this program? How will test material be introduced to the analytical system(s)? Will one or more of the sampling devices shown in Appendix J be used? If so, how will this equipment be used?

Response: _____

Appendix B6, B7 Will both Zephyr and John Zink be calculating the Tip Exit Velocity of the flare for purposes of comparison? Will Zephyr be on site during the testing to make independent measurements or will information be relayed to Zephyr by John Zink?

Response: _____

Appendix C Appendix C is a Schematic of Flare Test Measurements which shows only Aerodyne, TRC, and Zink. Where are IMACC, Telops, Leak Surveys, Inc.? Will Zephyr be on site?

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Response: _____

Appendix D Appendix D purports to be a Comprehensive Flare Study Proposed Test Plan, but the Test Plan describes only how the flare will be operated. Appendix D does not state which of the subcontractors will be testing for what and where. Test Points are listed in the tables, but there is no indication of what the significance of the listed Test Points may be, or where on the Schematic of Flare Measurements (Appendix C) these test points are located. Where will the sampling devices shown in Appendix J be deployed?

Response: _____

General Leak Surveys, Inc. appears to have no project function. There are no methods/SOPs from this subcontractor and the company is not shown on the diagrams.

Response: _____

Appendix J The title of Appendix J is "Flare Plume Sampling Device Diagram," which would lead the reader to believe that there will be a diagram of the sampling devices with parts clearly labeled. There is no diagram in this Appendix; there are only two unlabeled poor quality photographs of the Sampling Devices and no indication in either the Appendix or the text of criteria for deployment of any specific plume sampling device and no text in the Appendix to accompany the illustrations. There is a diagram in Appendix J1, but again no explanation or description of where/how these sampling devices will be deployed. Is there an SOP for use of these devices? Appendix J is completely anonymous as to the source of these sampling devices; Appendix J1 is identified with John Zink. Are these sampling devices experimental, a new design for this specific program, or have these devices been used for testing by John Zink? Information about the application of these sampling devices is minimal – it is not obvious how they operate and how the sampling devices interact with the equipment proposed for use by the subcontractors? For example, does the Sampling Device" pull sample into a

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manifold from which the various subcontractors can extract their samples using their own heated probes? Are there Test Points along the length of the Sampling Device where the subcontractors can sample directly? How do these Sampling Devices work?

Response: _____

General

All situations of duplicate/overlapping measurements should be clearly designated – see the example of the meteorological measurements above – and the proposal for comparison of these overlapping measurements clearly delineated.

Response: _____

General

Among the many responsibilities that have not been assigned, editorial responsibility has not been assigned to any person or organization. The editorial quality of this QAPP is very poor. Editorial comments are shown in the text.

Response: _____

