QUALITY ASSURANCE PROJECT PLAN (QAPP)
for
WESTERN ENVIRONMENTAL, INC.
SOIL RECLAMATION FACILITY

Prepared by:
ESRA CONSULTING LLC
183 MACK HILL ROAD
AMHERST, NEW HAMPSHIRE 03031

Prepared for:
WESTERN ENVIRONMENTAL, INC./WRT INDIO, LLC
62-150 GENE WELMAS DRIVE
MECCA, CALIFORNIA 92254

U.S. EPA REGION 9
975 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105

Approvals Signature (required prior to project start):

_____ Date: _____
ESRA Project Coordinator

_____ Date: _____
WEI/WRT Project Manager

_____ Date: _____
WEI/WRT QA Officer/Contract Lab. Lead

_____ Date: _____
EPA Project Manager/Officer

_____ Date: _____
EPA QA Manager/Representative

TABLE OF CONTENTS

Section **Page**

1.0 PROJECT MANAGEMENT

This section addresses project management and includes a description of the roles and responsibilities of the project team participants and their contact information.

1.1 Title and Approval Page (EPA QA/R-5 A1) - See page 1.

1.2 Table of Contents (EPA QA/R-5 A2) - See pages 3 - 4.

1.3 Distribution List (EPA QA/R-5 A3)

Listed below are the individuals who will receive original copies of the approved Quality Assurance Project Plan (QAPP) and any subsequent revisions. The contacts provided below are individuals who are responsible for project implementation and execution.

Name: George Bower, Ph.D.
Title: QAPP Project Coordinator
Organization: ESRA Consulting LLC
Contact Information (Address, Telephone, E-mail, etc.).: ESRA Consulting LLC, 183 Mack Hill Road, Amherst, New Hampshire 03031, Tel. No. 603-566-0745, Email: gbower@esrscience.com

Name: Becky Ross
Title: Compliance Manager
Organization: Cabazon Band of Mission Indians (CBMI)
Contact Information: 84-245 Indio Springs Pkwy., Indio, CA 92203, Tel No. 760-342-5000 Ext. 84784, Email: bross@cabazonindians-nsn.gov

Name: William Carr
Title: WEI/WRT Project Manager
Organization: Western Environmental, Inc.
Contact Information (Address, Telephone, E-mail, etc.): Western Environmental, Inc., 62-150 Gene Welmas Drive, Mecca, California 92254, Tel. No. 760-396-0222, Email: westernenvironmental@juno.com

Name: Robert Palermo, Sc.D, PE, DABET, CEP, CGWP
Title: WEI/WRT QA Officer/Contract Laboartory Lead
Organization: ERSA Consulting LLC.
Contact Information (Address, Telephone, E-mail, etc.): Dr. Robert Palermo, 187 Sanborn Lane, Reading, MA 01867, Tel. No. 784-942-0689, Email: rsp9968@comcast.net

Name: Mathew Mullen
Title: Field Operations Coordinator
Organization: Western Environmental, Inc.

Contact Information (Address, Telephone, E-mail, etc.): Western Environmental, Inc., 62-150 Gene Welmas Drive, Mecca, California 92254, Tel. No. 760-396-0222, Email: mattm@WEI/WRT-mecca.com

Name: Barry Cofer
Title: EPA Project Manager/Officer
Organization: EPA Region 9, Waste Management Division (WST-3)
Contact Information (Address, Telephone, E-mail, etc.): U.S. EPA Region 9, 975 Hawthorne Street San Francisco, California 94105, Tel. No. 415-972-3303, Email: cofer.barry@epa.gov

1.4 Project Organization (EPA QA/R-5 A4)

The key project management team is described below and shown on Figure 1-1.

ESRA Project Coordinator will have overall responsibility for assigning appropriate personnel to complete the tasks included in this QAPP and to coordinate communications and correspondence with EPA Region 9. He will ensure that the project budget is adhered to. He will communicate with the WEI/WRT Project Manager on work accomplished in this plan and be available to address any problems or deviations that need to be resolved.

CBMI Compliance Manager will have overall responsibility for coordinating QAPP activities on tribal lands as required to fully implement this QAPP. The CBMI Compliance Manager will communicate with the ESRA Project Coordinator to address any issues which rise during the execution of the QAPP.

EPA Project Manager/Officer will have the responsibility to communicate and coordinate EPA requirements with the ESRA Project Coordinator and WEI/WRT Project Manager such that EPAs' requirements are adequately addressed.

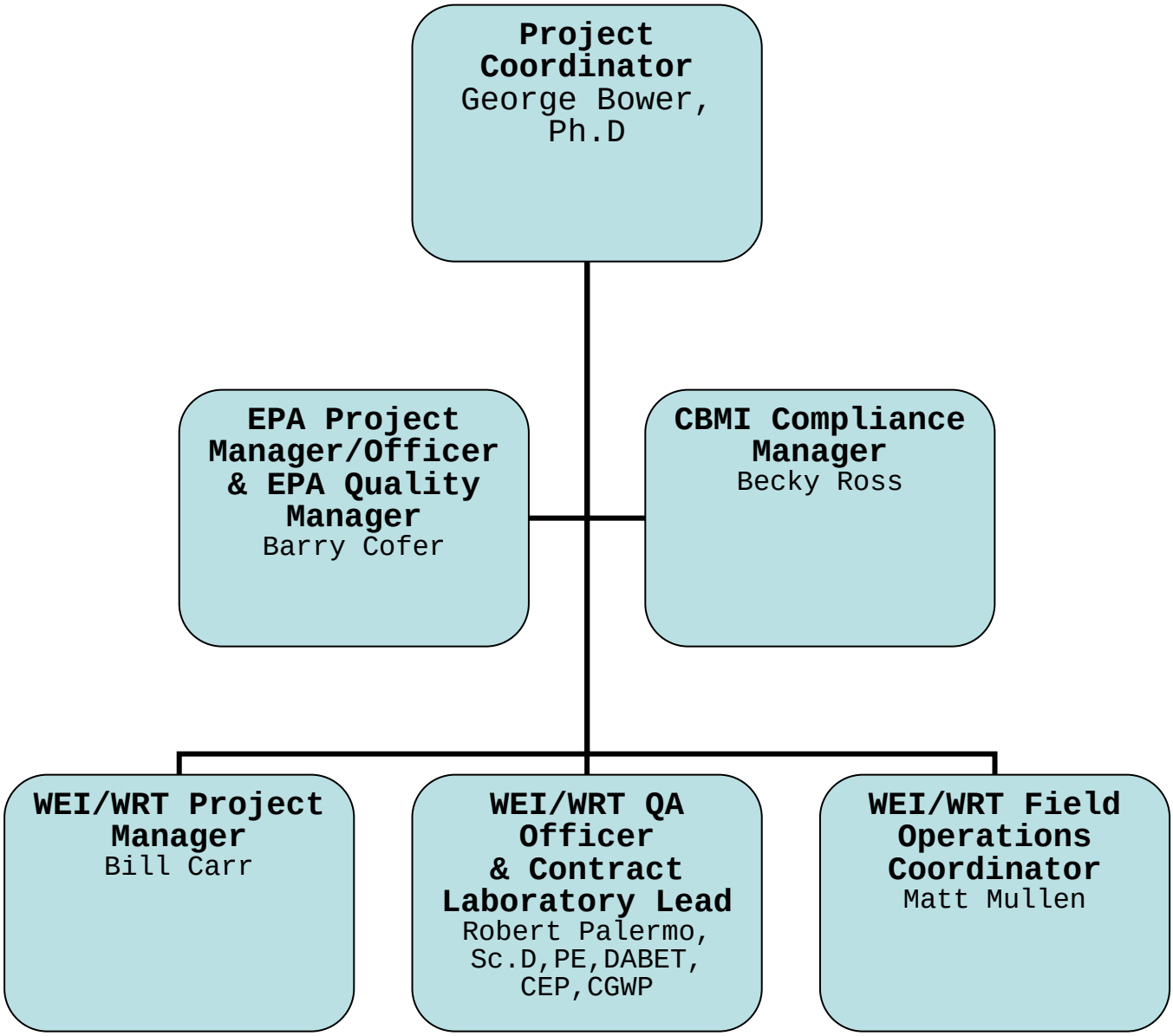
WEI/WRT Project Manager will be the responsible on Site official for this project overseeing the overall project and budget, as well as tasking WEI/WRT employees and contractors with work required to complete this project. He will communicate project needs to all respective team personnel including contractors.

WEI/WRT QA Officer or Designee will be responsible for reviewing and approving the QA Project Plan. He will provide technical input on proposed sampling design, analytical methodologies, and data review. He may also assist with coordinating laboratory services.

WEI/WRT Field Operations Coordinator will be responsible for the oversight of WEI/WRT personnel during all on Site screening for odorous VOC and coordinating appropriate mitigative measures to control odors. He has overall responsibility for coordinating all field activities. He will report to the WEI/WRT Project Manager.

Contract Laboratory Lead or Contact will be responsible for coordinating laboratory analytical services and communicating with laboratory staff to perform the analyses specified in this plan.

See Figure 1-1. Organization Chart



1.5 Problem Definition/Background (EPA QA/R-5 A5)

WEI/WRTs' Mecca, CA operations involve the treatment of petroleum impacted soils, biosolids, composted materials, solid waste and the reclamation of soil and building construction demolition products which by their very nature contain odorous components (e.g., aromatic petroleum hydrocarbons, soy whey, etc.). This QAPP will address both the screening of odorous soils and recycled materials entering the site and the assessment of mitigative measures to control odors while materials are being processed, stored and treated on Site.

1.6 Project/Task Description and Schedule (EPA QA/R-5 A6)

This QAPP has been prepared to address odor screening and control measures to be implemented at the WEI/WRT, Inc. site located at 62-150 Gene Welmas Drive in Mecca, CA. The work is to be executed over the next six (6) months from June 1 through December 30, 2011.

The work to be performed includes the screening of soil on Site using direct reading instruments as well as periodic air sampling off site to determine odorous background concentrations. The primary direct reading instruments include direct reading colorimetric reaction tubes (Drager and Sensidyne) and a MIRAN Infrared Spectrometer (IRS).

Periodic air sampling will also be performed at the Site perimeter boundaries using the noted direct reading instruments and confirmatory air sampling may also be conducted off site to determine background airborne odors concentrations. Confirmatory and ambient background sampling will also include sample collection and analysis by EPA Method TO-15 for volatile organic compounds and EPA Method TO-17 for tentatively identified compounds (TIC).

1.7 Quality Objectives and Criteria for Measurement Data (EPA QA/R-5 A7)

The proposed air screening and air sampling is being conducted to identify the odor compounds present on Site and characteristics odors associated with customer material(s) being received at the site. Once the odor has been identified by the use of the colorimetric reaction tubes and the MIRAN IRS it will be documented and an appropriate mitigative will be applied to control the odor. The objective of the screening is to identify what odorous vapors/gases are present in a customer shipment that is being received at the Site for the odorous compounds noted on Table 1-1. The proposed air screening and sampling protocol is described in the proposed air screening protocol (see Appendix A-4).

The quality objective and criteria for measurement must be capable of measuring and detecting odors near the human odor threshold as noted in Appendix 5, Table 1 but not necessarily at or below it. As noted on Table 1 several of the compounds have very low odor thresholds but the detection tubes and MIRAN IRS are capable of detecting these odorous compounds at, near or slightly above the odor thresholds shown on Table 1. Therefore, the screening methodology and procedures discussed below will be utilized to identify the odor(s) when present by the screening procedure involving the use of colorimetric reaction tubes and the MIRAN IRS to confirm or not to confirm the presence in a received

customer shipment. Table 1-1 establishes Project Action Levels (PALs) for each odorous VOC which if exceeded on site will require mitigative measure to be implemented. The PALs were arrived at by applying a 10 times adjustment factor to the odor threshold reported on Table 1 (see Appendix A-4, Table 1). This adjustment was arrived at by application of the EPA AERSCREEN screening air dispersion model at the downwind school and day care center located on Lincoln Street.

1.7.1 Objectives and Project Decisions

Materials received at the Site are pre-characterized by the generator by appropriate SW-846 analytical methods and are included as part of the Generator Waste Profile Sheet (GWPS) which is received with or prior to the material shipment. Based on a review of the generator pre-characterization analytical results and GWPS, materials will be categorized as described below. The objective of the odor sampling is to screen all odorous materials received at the Site as categorized below. Once the material is categorized it will be screened as described in Section 1.7 above, the screening results will be tabulated along with the mitigative measure applied to odorous materials to reduce the odors (see Section 1.9.2). Once an odor detection profile has been established for a specific generator material profile the same odor screening profile can be applied to screen subsequent shipments of the same material. The odorous VOC and materials received at the Site will be categorized as follows:

Category 1 – Non Odorous

If Category 1 Non Odorous soils analyzed prior to be received at the Site contain < 500 mg/kg TPH by California Method 8015B (SW846-8015) the soils will be initially categorized as non odorous but will be undergo further screened for odorous containing compounds and PEL/TLV exceedances as described below:

1. If Category 1 - Non Odorous soils screened prior to being received at the Site contain odorous Volatile Organic Compounds (VOC) by EPA Method SW846-8260 for the VOC shown on Table 1-1 then they will be further screened when they arrive at the Site as Category 2 – Potentially Odorous. If when screened at the Site the odorous VOC concentration exceeds the PAL odor level as reported on Table 1-1 (10x odor threshold adjustment factor) then the material will be handled as Category 2 - Potentially Odorous with appropriate mitigative measures applied.

2. If Category 1 - Non Odorous soils screened prior to being received at the Site contain VOC for which published Occupational Exposure Limits (OEL) including both the OSHA PEL or ACGIH TLV-TWA are reported as shown on Appendix A-4, Table 1 then they will be screened when they arrive at the Site as Category 2 - Potentially Odorous. If when screened the Occupational Exposure Limit(s) is exceeded the material will be handled as Category 2 – Potentially Odorous. Handling the material in this manner will result in applying mitigative measures that will result in reducing the on Site exposure to these compounds.

3. If when Category 1 - Non Odorous materials are received at the Site and are observed as odorous upon arrival at the Site regardless of the conditions as noted in (1) and (2) above it shall be at the

discretion of the WEI/WRT receiver to screen the material for odorous containing compounds as described in Table 1. If the screening indicates that neither condition (1) or (2) noted above exist but the material has been determined to be odorous based on direct olfactory observation it shall be at the discretion of the WEI/WRT receiver to handle the materials as Category 2 – Potentially Odorous and apply appropriate mitigative measures.

Category 2 – Potentially Odorous

If Category 2 – Potentially Odorous soils are identified on the GWPS and the pre-characterization sample analysis then the material will be screened and if required [see conditions (1), (2) and (3) above] will be mitigated as an odorous material.

Category 3 – Odorous

If Category 3 - Odorous materials are identified on the GWPS and the pre-characterization sample analysis then the material will be managed as an odorous material and the most appropriate odor mitigative measures(s) will be applied. Odor screening may be undertaken if it is beneficial to do so to further characterize the material for the purpose of determining the most appropriate mitigative measure as discussed in Section 5.2.3 – Materials Accepted for Feasibility Study at the WEI/WRT/WRT Facilities of the Work Plan.

1.7.2 Action Limits/Levels

The action limits/levels are defined as follows:

1. A detected air concentration resulting from odor VOC screening as described above in Section 1.7.1;(1) where the odor screening exceeds the PAL(s) for any compound shown on Table 1-1; or
2. Pre-characterization analysis and/or on Site screening indicates that an OEL has been exceeded as noted on Appendix A-4, Table 1 and as described above in Section 1.7.1; (2); or
3. It is determined by the WEI/WRT material receiver as described above in Section 1.7.1;(3) that the material is odorous based on olfactory observation regardless of the instrument screening results.

See Table 1-1. Analytical Parameters and Project Action Levels (PAL).

1.7.3 Measurement Performance Criteria/Acceptance Criteria

Quality measurements for performance evaluation will be employed during be the screening of material(s) on the Site. The data quality needs for the screening of odorous materials and assessment for OELs will be satisfied by the use of the direct screening methods/instruments as described above in Section 1.6 and Section 1.7 and Table 1-1. Measurement for sample accuracy and precision are described below:

Measures of Accuracy:

Accuracy is the degree of agreement of a measurement with an accepted reference or true value. The accuracy of the screening methods fall within acceptable criteria established by NIOSH for accuracy at ± 35% at ½ the PEL/TLV and ± 25% at 1.0, 2.0 and 5 times the PEL/TLV. The usual method of measuring accuracy for laboratory samples is by laboratory control samples (matrix spikes). Samples are fortified with surrogates and matrix spikes before the sample is processed. Accuracy is reported as the percent recovery of the known concentrations that were added to the sample aliquot. Since the air detection protocol is being applied as a screening protocol laboratory samples/spikes are not required.

Measures of Sample Precision:

Precision is a measure of mutual agreement among individual measurements of the same property. Duplicate samples will be collected to assess sample precisions. Quantitatively, precision is generally expressed as Relative Percent Difference (RPD) between duplicate samples. Duplicate samples will be handled in the same manner as the sample and the RPD of the measured results will represent the precision (reproducibility) of the measurement. The RPD shall be calculated as follows:

RPD = Range/Mean * 100

Range = Absolute Value of (Sample Concentration – Duplicate Concentration)
Mean = (Sample Concentration + Duplicate Concentration)/2

EPA data validation guidelines typically use criteria for RPDs of field duplicates of <50 for soils, <30 for waters and <25 for air.

Measures of Sensitivity:

Sensitivity is the ability of the method to detect the contamination of concern at the concentration of interest expressed as a reporting limit (RL). The colorimetric reaction tubes and MIRAN IRS are capable of generating sample results within the range of sensitivity required to assess odors and exceedances of the Appendix A-4, Table 1 OELs. It is not necessary for the instrument sensitivity to be capable of measuring sample concentrations at or below the noted odor thresholds since the odor screening procedures is being applied as a semi-quantitative measure to identify the compound(s) present in the materials received. Therefore, the required sensitivity is adequate at the PALs reported on Table 1-1 and will be utilized to identify the presence of the odorous compounds near or above the human odor olfactory threshold.

1.8 Special Training Requirements/Certification (EPA QA/R-5 A8)

Training on the proper use of the direct reading instruments utilized for odor screening as discussed in the Work Plan (WP) and QAPP will be provided to WEI/WRT personnel prior to use of the direct reading instrumentation. The training will include both manufacturer operator level training and

training on the use and application of the equipment as described in the WP and QAPP. Training of personnel will be documented on a Sign-In-Sheet which will contain the employee name and signature, the date the training was provided, the topic(s) covered, and the instructor's name and signature. The Sign-In-Sheet will be appended to the QAPP (see Appendix A-6).

1.9 Documents and Records (EPA QA/R-5 A9)

Field documentation is required for material being received at the Site to capture needed information which will be utilized to characterize and profile a customers material received and when odors are discovered at the Site (complete a odor investigation reporting form) as discussed below in this section.

1.9.1 QA Project Plan Distribution

The QAPP will be distributed to the team members listed in Section 1.3 along with all subsequent updates and revisions.

1.9.2 Field Documentation and Records

All screening measurements of materials being received at the Site will be documented in an Excel material screening survey report (MSSR) spreadsheet and will include the following information:

- Customer Information (Name, Address, Contact Phone Number and Email);
- Date Received;
- Description of Material Received (soil, liquid, sediment, etc.);
- Odor Category Classification (Category 1, 2 or 3);
- Results of Drager/Sensidyne Tube Screening;
- Results of MIRAN IRS Screening (if used);
- Olfactory Response (odor observed if any);
- Recommended Mitigative Measure to be Applied (e.g., hydroseeding, polymer application, water spray application, limiting soil stockpile height, mixing with non odorous material, etc); and
- Wind Direction and Wind Speed (obtained from local meteorological stations [see Section 2.4.1]).

1.9.3 Laboratory Documentation and Records

Laboratories may be used when periodic sampling is performed at the site perimeter and/or when sample background odor samples are collected. Laboratory analytical reports for EPA Methods TO-15/TO-17 will be maintained for inclusion in the final report (see Section 1.9.4 below).

1.9.4 Quarterly and/or Final Reports

A final report will be prepared and submitted to EPA at the completion of the odor screening and mitigative measures studies have been completed as discussed in Section 7.0 of the WP. The final report will contain a compilation of data collected in Section 1.9.2 above.

Odors discovered or encountered once a material has been received will be investigated by completed the Appendix A-3, Table 2 – Odor Source Investigation and Reporting Form.

2.0 DATA GENERATION AND ACQUISITION

This section describes the project design and implementation elements and appropriate methods for sampling, measurement and analysis, data collection and handing, and sampling quality control requirements.

2.1 Sampling Design (Experimental Design) (EPA QA/R-5 B1)

The sample design includes real time screening as materials are received at the Site and periodic screening at the Site perimeter as shown on Figure 2-1 and as referenced on Table 1-1. Screening at the site perimeters may take place at upwind, downwind, or at locations where potentially odorous material is in storage (see Figure 2-1 and Figure 2-2). Additionally, area background samples may be collected off Site to assess downgradient/downwind impact.

On Site air screening and air sampling locations are shown on Figure 2-1. The sampling design and rational is described on Table 1-1 and Table-2-1. The summary of field quality control (QC) samples collected as part of the odor screening and mitigative measures protocol is described on Table-2-2.

2.2 Sampling Methods (EPA QA/R-5 B2)

The analytical methods, sample containers, sample preservation requirements and required holding times are presented in Table 2-3 and apply to EPA Air Sampling Methods TO-15 and TO-17 and not to the use and application of the direct reading instruments.

2.3 Sample Handling and Custody (EPA QA/R-5 B3)

The samples Chain of Custody (COC) form is Included in Appendix A-3. The COC will be used to accompany all summa canister samples shipped to the laboratory where EPA Method TO-15 and/or TO-17 air analysis is being performed. The sample holding time is 14-days from sample collection. The summa canisters do not require any specific temperature, pressure or refrigeration preservation requirements other then being stored at standard atmospheric pressures and temperature but the canisters have a specific set-up and sample shipment procedure which is described below.

Summa Canister Sampling Procedure:

1. Ensure that the valve is fully closed (the knob should be turned completely clockwise).
2. Using a 9/6" wrench, remove the brass cap from the valve on the top of the Summa Canister.
3. Attach the flow controller to the valve on the top of the canister. Tighten down with your fingers first, then tighten gently with a 9/16" wrench. The flow controller should be set at the laboratory to the desired air flow and sampling duration.
4. To open the canister valve, turn the knob counterclockwise until there is no resistance. This is approximately 1 ¼. Then turn back clockwise slightly until resistance is detected. Since the flow controller restricts the airflow, you will not hear a hissing noise as the vacuum dissipates and draws air in.
5. At the end of the sampling period, close the valve by turning the green knob clockwise. Do not over-tighten.
6. Label the sample with the tag provided, then attach the tag to the canister with the plastic tie.
7. Remove the flow controller. Wrap securely in bubble wrap.
8. Replace the brass cap on the canister valve. Tighten it with a 9/6" wrench.
9. Complete a COC Form.
10. Place the COC Form, the bubble-wrapped flow controller and the canister back in the original box in which they were shipped to you.

Important Notes:

- Care must be used with the canister valves. Do not over-tighten the valves.
- Flow controllers must be securely wrapped in bubble wrap for shipping.
- The valve fitting is a /4" male Swagelock fitting.
- Do not make any markings directly on the canister or affix any labels.
- Please call the laboratory with any questions regarding the proper shipping of canisters

The specific EPA air sampling method procedures are contained in Appendix B-2: TO-15 for Volatile Organic Compounds and Method TO-17 Tentatively Identified Compounds (TIC). Sample tags are provided by the laboratory for the summa canisters and the following information will be included on each summa canister sample tag:

- Sample Location (e.g., WEI/WRT Site Northeast Perimeter);
- Sample Number (e.g., S001 thru SXXX, D-S001 = Drager Tube, S-S001 = Sensidyne Tube, IRS-S001 = MIRAN Infrared Spectrometer)
- Sample Time (e.g., 0880 hrs.- 1600 hrs.); and
- Sample Date (e.g., July 15, 2011).

2.4 Analytical Methods (EPA QA/R-5 B4)

The analytical methods include EPA Methods TO-15 and TO-17. Table 2-3 contain a summary of the field and quality control samples to be collected. The respective laboratory methods and air analytical methods are included in Attachment B-1 and B-2. The field measurements are describe in Section 1.6 and involve the use of direct reading instruments.

2.4.1 Field Measurements Methods

The field measurements involve the collection of wind direction and wind speed. This information will be important to determine the direction that the odors are traveling as they leave the Site. The wind direction and wind speed information will be obtained from local meteorological weather stations including the Palm Springs, California Jacqueline Cochran Regional Airport, Thermal, California Weather Station or Dos Palmas California, Mecca, California Weather Station. The web links are provided below:

http://www.city-data.com/forecast/w-Mecca-California.html
http://www.wunderground.com/US/CA/Mecca.html
http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=MTR439

2.4.2 Field Analyses Methods

2.4.2.1 Screening

The field screening analysis measurements involve the use of the colorimetric detection tubes and a MIRAN IRS to screen for odorous VOC as shown in Table 1-1.

2.4.2.2 Definitive

Confirmatory sampling by EPA Methods TO-15 and TO-17 for VOC analysis will also be conducted on a periodic basis (if determined necessary) to establish area background VOC concentrations in the Mecca, CA area or to further document the VOC concentrations at the WEI/WRT site perimeter.

2.4.3 Laboratory Analyses Methods (Off-Site)

EPA air sampling method TO-15/TO-17 will be utilized for off site analysis. Table 2-3 notes the analytical method, containers, preservation, and holding time requirements.

2.5 Quality Control Requirements (EPA QA/R-5 B5)

The laboratory quality control requirements are discussed in the Appendix B. Tables 2-4 and Table 2-5 outline the quality control requirements for analysis and field measurements.

2.5.1 Field Sampling Quality Control

Manufacturer instrument checks, instrument zeroing and calibrations checks as recommended in the instruction handbooks will be routinely performed to maintain quality control of field samples.

2.5.2 Field Measurement/Analysis Quality Control

2.5.2.1 Field Measurement QC

Quality control analysis of field measurements will involve a review of the procedures to collect screening data by the WEI/WRT QA Officer on a routine basis as required in Section 1.9.2. Additionally, the WEI/WRT QA Officer will periodically observe WEI/WRT personnel on Site during the collection of screening data using the Drager/Sensidyne tubes and MIRAN IRS. Any observed deficiencies will be corrected and if required additional instrument training will be provided to the appropriate personnel.

2.5.2.2 Field Analysis QC (Screening and Definitive)

Field analysis quality control screening will involve duplicate samples and a comparison of relative percent difference.

2.5.3 Laboratory Analysis Quality Control

The laboratory QC requirements are outlined in Appendix B.

2.6 Instrument/Equipment Testing, Inspection, and Maintenance (EPA QA/R-5 B6)

Instrument operation, testing and maintenance requirements are specified in the manufacturer handbooks included in Appendix A. The Drager/Sensidyne tubes and MIRAN IRS have minimal maintenance requirements. See Table 2-6 notes the field equipment and instrument calibration, maintenance, testing, and inspection requirements.

2.6.1 Field Measurement Instruments/Equipment

This information is included in the instrument/equipment manuals contained in Appendix A-1.

2.6.2 Field Instruments/Equipment (Screening and Definitive)

This information is included in the instrument/equipment manuals contained in Appendix A-1.

2.6.3 Laboratory Analysis Instruments/Equipment (Off-Site)

The laboratory instruments/equipment will be operated and laboratory analysis will be provided consistent with the requirements and methods noted in the laboratory quality control manual as noted in Appendix B-1 and analyzed according to the air method requirements described in Appendix B-2.

2.7 Instrument/Equipment Calibration and Frequency (EPA QA/R-5 B7)

Instruments will be calibrated according to the manufacturer's recommendations as noted in Appendix A-1. Instruments will be checked and calibrated prior to use unless the manufacturers requirements indicate that longer periods of use are permitted between calibration cycles.

2.7.1 Field Measurement Instruments/Equipment

Operator instructions and instrument set up procedures are contained in the respective equipment manuals contained in Appendix A-1. Table 2-6 summarizes the field equipment/instrument calibration, maintenance, testing, and inspection requirements.

2.7.2 Field Instruments/Equipment (Screening and Definitive)

This information is included in the instrument/equipment manuals contained in Appendix A-1. Table 2-6 summarizes the field equipment/instrument calibration, maintenance, testing, and inspection requirements.

2.7.3 Laboratory Analysis Instruments/Equipment (Off-Site)

This information is included in a Laboratory QA Manual contained in Appendix B-1.

2.8 Inspection/Acceptance Requirements for Supplies and Consumables (EPA QA/R-5 B8)

All supplies and consumables will be inspected prior to use. Any damaged or supplies out of specification will be rejected and not used to collect screening data. All supplies and consumables necessary to operate the screening instruments for odor screening and control are defined as critical.

2.8.1 Field Sampling Supplies and Consumables

Drager/Sensidyne detection tubes will be consumed and will be ordered in advance such that an adequate inventory of tubes will be maintained on Site.

2.8.2 Field Measurement/Analyses (Screening and Definitive) Supplies and Consumables

This information is included in the instrument/equipment manuals contained in Appendix A-1.

2.8.3 Laboratory Analyses (Off-Site) Supplies and Consumables

This information is included in a Laboratory QA Manual contained in Appendix B-1.

2.9 Data Acquisition Requirements (Non-Direct Measurements) (EPA QA/R-5 B9)

The screening data will be utilized to characterize materials received at the Site and to determine the most appropriate odor control measures. The data acquired will be from direct reading instruments, meteorological data from local weather stations and analytical data obtained from laboratories when air analysis is performed.

2.10 Data Management (EPA QA/R-5 B10)

The screening data collected on Site will be maintained in an electronic format (see Scetion 1.9.2) with daily working logs maintained in a 3-ring binder. The WEI/WRT Field Operations Coordinator will be responsible for maintaining both the daily log and electronic files for all on Site screening data. The WEI/WRT Project Manager will review the daily logs on a weekly basis for data completeness. All daily material screening logs will be maintained for the full duration of the project (6 months).

3.0 ASSESSMENT AND OVERSIGHT

This section describes the activities for assessing the effectiveness of the implementation of the project and associated quality control activities to ensure that the quality assurance project plan is implemented as required.

3.1 Assessments/Oversight and Response Actions (EPA QA/R-5 C1)

The assessment, oversight and required response actions being applied at the Site will be based on odor screening results using the Drager/Sensidyne detector tubes and from the use of the MIRAN IRS. Mitigative actions and measures will be applied as appropriate as discussed in the WP (see Sections 4.0 and Section 5.0). The WEI/WRT Project Manager will be responsible for day to day assessment of screening results and to ensure that the appropriate mitigative measures to control odors are be properly executed and maintained.

All direct reading instrument screening results will be document on a summary spreadsheet as described in Section 1.9.2 of this QAPP. The screening of materials will take place on a daily basis and will be performed on material received and materials being stored/treated on Site. Odors discovered during Site operations will be documented as noted on Table 2- Odor Source Investigation and Reporting Form (see Appendix A-3). Differentiate between odor on site and off site when completing Table 2.

3.2 Reports to Management (EPA QA/R-5 C2)

As discussed in Section 7.0 of the WP a final report will be prepared to discuss the results of the work done to date on the WEI/WRT/WRT Site over the projected six month activity period for which the

QAPP work is anticipated to be completed. The report will present the results and findings of the odor screening and control measures implemented at the Site and will include the following report sections:

- Introduction;
- Discussion of On-Site, Perimeter and Background Monitoring;
- Discussion of Mitigative Actions Taken;
- Reporting of Odor and Odorous Materials; and
- Summary and Conclusions.

The report will be prepared by ESRA Consulting LLC for WEI/WRT/WRT, Inc. and be distributed to key project team members as noted in Section 1.3. The QAPP Project Coordinator will communicate with EPA on a monthly basis and as required to ensure successful implementation of the project work.

4.0 DATA REVIEW AND USABILITY

This section describes the quality assurance activities that occur following the data collection phase of the project work to ensure that the sampling data conforms to the QAPP specified criteria.

4.1 Data Review, Verification, and Validation Requirements (EPA QA/R-5 D1)

All screening results for materials received will be reviewed on a daily basis by the WEI/WRT QA Officer and/or his or her designee. The WEI/WRT Project Manager will in conjunction with the WEI/WRT QA Officer verify that the screening data has been collected and reported correctly. Data which is of unacceptable quality will be rejected for use and the sample measurements will be recollected.

Laboratory analytical results (e.g., internal laboratory method blanks and sample surrogate recoveries) will be reviewed for completeness and that sample holding times and method detection limits were achieved. Field sample duplicates and trip blanks will also be reviewed to assess the quality and usability of sample data. A review of the laboratory QA/QC reports as provided with the analytical results will be conducted to verify and validate that the data is of an acceptable quality.

4.2 Verification and Validation Methods (EPA QA/R-5 D2)

The data validation/verification process to be utilized for the screening of odorous VOC materials received on Site and screening of odorous materials which are storage/processing/treatment on Site will involve the steps noted below:

1. Evaluate the MSSR (see Section 1.9.2) for consistency;

2. Review QC information (see Tables 2-2 and table 2-5);

3. Summarize deviations and determine impact on data quality,

4. Document actions taken to resolve deficiencies. If required recollect erroneous sample screening results and repeat sample measurement(s) if necessary.

4.3 Reconciliation with User Requirements (EPA QA/R-5 D3)

The Project Coordinator and WEI/WRT Project Manager will be responsible for addressing all anomalies in methods used to analyze and mitigate on Site odors. All screening data will be reviewed by the WEI/WRT QA Officer and/or his or her designee and then forwarded on to the WEI/WRT Project Manager for subsequent review. The WEI/WRT Project Manager and WEI/WRT QA Officer will evaluate and validate all discrepancies in sample results and will reconcile any such inconsistencies consistent with the project objectives and measurements of performance as described in Section 1.7 of this QAPP.

5.0 REFERENCES

There are no additional references noted that have not been provided in the subject QAPP Appendices.

FIGURES:

Figure 1-1. Organization Chart

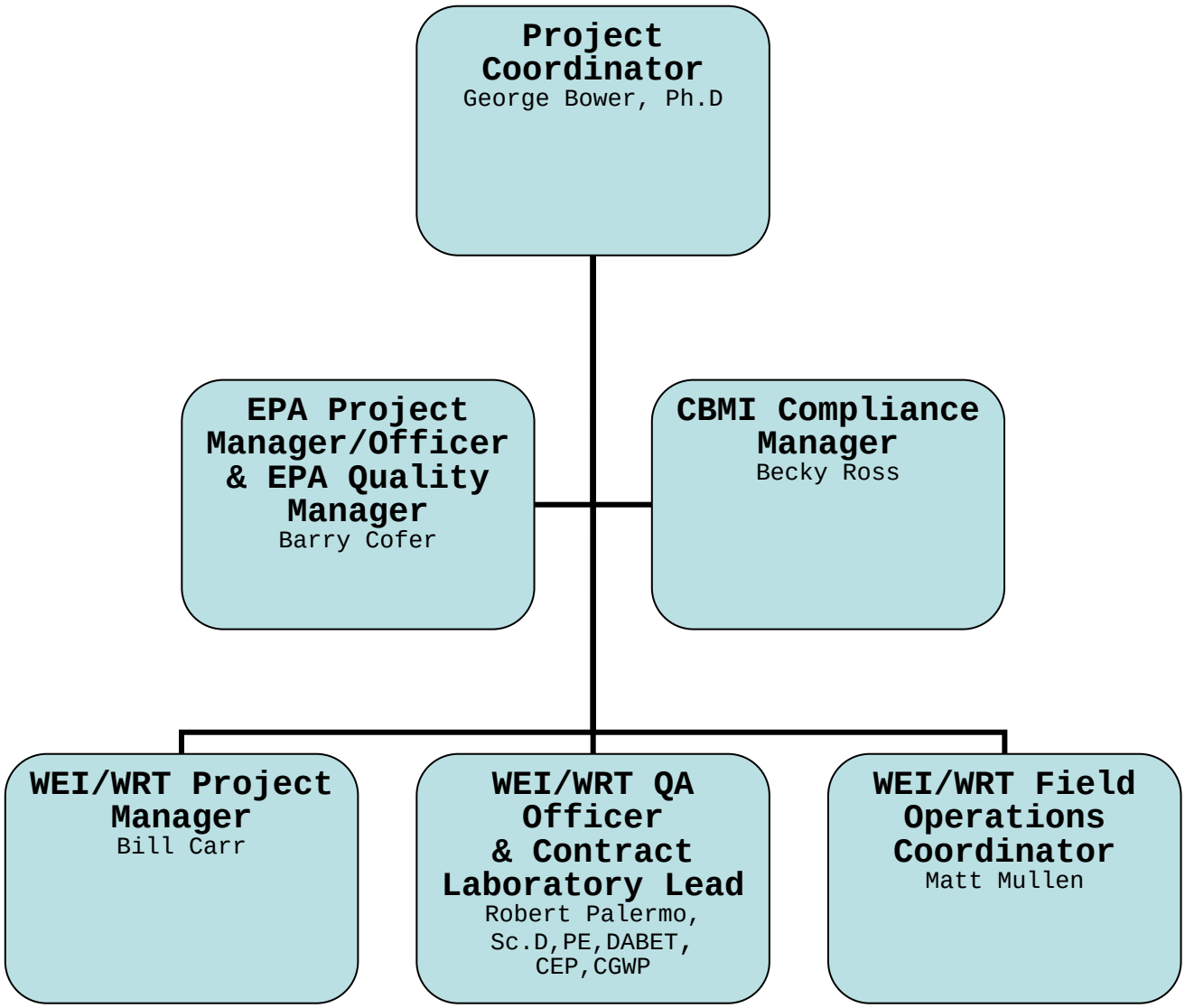


Figure 2-1. WEI/WRT Site Map with Sampling Locations

Figure 2-2. WRT Site Map with Sampling Locations

TABLES:

Table 1-1. Analytical Parameters and Target Limits

Matrix/Media:

Analytical Parameter[1]	Project Action Levels 10 x Olfactory Odor Threshold (ppm)	MIRAN Infrared Spectrometer (IRS) Detection Limits 1 (ppm)	Drager/Sensidyne Detector Tubes Detection Limits 1 (ppm)
Acetone	620 ppm	5 ppm	100 ppm
Aromatic Odors (Hydrocarbons)	1 ppm	0.25 -1.5 ppm	0.1 ppm
Amines (Diethyl and Dimethyl))	10 ppm	0.6 ppm	1 ppm
Benzene	2 ppm	2 ppm	0.5 ppm
2-Butanone [MEK]	160 ppm	1.6 ppm	200 ppm
Cyclohexane	14 ppm	6 ppm	100 ppm
Dimethyl Disulfide	0.3 ppm	-	5 ppm
Dimethyl Sulfide	0.3 ppm	-	1 ppm
Dimethyl Trisulfide	0.3 ppm	-	5 ppm
Ethylbenzene	30 ppm	1.2 ppm	30 ppm
Hydrogen Sulfide	0.094 ppm	-	0.2 ppm
Mercaptans (Methyl and Ethyl)	0.04 ppm	-	0.1-0.5 ppm
m-xylene	200 ppm	1.3 – 7 ppm	10 ppm
Sulfur Dioxide	2.7 ppm	1.2 ppm	0.1 ppm
Oil Odor	1 ppm	0.25 - 1.7 ppm	1ppm
Toluene	16 ppm	1-4 ppm	5 ppm

Note: (1) The detection instrument with the lower detection limit as noted above will be utilized to monitor for the presence of the odorous compounds noted above in Table 1-1 above.

Table 2-1. Sampling Design and Rationale

Sampling Location/ID Number	Matrix/ Media	Depth (Appropriate Units)	Analytical Parameter[1]	Rationale for Sampling Design[2]
WEI/WRT Site Perimeter	Air	5-feet above ground surface	EPA Method TO-15 for Volatile Organic Compounds	Periodic Site Perimeter Sampling May be Undertaken to Determine if VOC are Migrating Off Site
WEI/WRT Site Perimeter	Air	5-feet above ground surface	EPA Method TO-17 for Tentatively Identified Compounds	Periodic Site Perimeter Sampling May be Undertaken to Determine if VOC are Migrating Off Site

[1] Analytical parameters include all planned field measurements (e.g., dissolved oxygen, turbidity, pH, etc.), field screening analysis (e.g., PCBs by immunoassay test kit, selected metals by XRF), and laboratory analyses.
[2] Rationale supports the selection of sampling locations and associated analytical parameters.

Table 2-2. Summary of Field and QC Samples To Be Collected

Matrix/ Media	Analytical Parameter[1]	No. of Sampling Locations	Depth[2] (feet above ground surface)	No. of Field Duplicates	Organic Analyses[3] No. of:		Inorganic Analyses[3] No. of:		No. of Trip Blanks (for VOCs only)	No. of Equipment Blanks	No. of PE Samples[4]	Total No. of Samples
					MS	MSD	Dup	MS				
LABORATORY ANALYSES – SITE PERIMETER SAMPLES BY EPA TO-15/TO-17:												
Air	VOC	4	5 ft.	1	1		NA	NA	1	NA	NA	7
LABORATORY ANALYSES – AMBIENT/BACKGROUND SAMPLES BY EPA TO-15/TO-17:												
Air	VOC	4	5 ft.	1	1		NA	NA	1	NA	NA	7
FIELD ANALYSES – ON SITE USING MIRAN INFRARED SPECTROMETER:												
Air	VOC	≈ 15 samples/ day	1 ft. above material surface	10%	NA	NA	NA	NA	NA	NA	NA	Daily/ Shipment
FIELD MEASUREMENT – ON SITE USING DRAGER/SENSIDYNE COLORIMETRIC REACTION TUBES:												
Air	VOC	≈ 15 samples/ day	1-ft. above material surface	10%	NA	NA	NA	NA	NA	NA	NA	Daily/ Shipment

[1] Analytical parameters include all laboratory analyses, field analyses (e.g., nutrients by various field test kits, PCBs by immunoassay test kit, select metals by XRF, etc.), and field measurements (e.g., dissolved oxygen, turbidity, pH, etc.).
2 When samples are collected at different depths at the same location, information for each depth category (e.g., surface, mid, or deep/bottom) is provided on a separate line.
3 Information includes the number of associated analytical QC samples, if collection of additional sample volume and/or bottles is necessary. If the QC samples listed are part of the analysis and don't require the collection of additional sample volume and/or bottles, "NAS" (for "no additional sample") is included in the column. (Note: MS=matrix spike, MSD=matrix spike duplicate, Dup=laboratory duplicate/replicate.)
4 PE or Performance will be submitted for laboratory analysis along with the associated field sampled where noted.

Table 2-3. Analytical Method, Containers, Preservation, and Holding Times Requirements

Matrix/Media:

Analytical Parameter[1] and/or Field Measurements[2]	Analytical Method Number	Containers (number, size/volume, type)	Preservation Requirements (chemical, temperature, light protection)	Maximum Holding Times[3]
ANALYTICAL PARAMETER:				
Volatile Organic Compounds	TO-15 and TO-17	6-Liter Summa Canister	Store and Ship at STP	14-days
FIELD ANALYSIS/MEASUREMENTS:				
Table 1 - Volatile Organic Compounds	MIRAN Infrared Spectrometer	14-liter/minute with sampling wand (sample cell volume=2.23 liters)	NA	Direct Reading (3-5 minutes)
Table 1 - Volatile Organic Compounds	Drager/Sensidyne Tubes	1-tube per analysis (volume is tube specific)	NA	Direct Reading (3-5 minutes)

[1] Analytical parameter includes both field and laboratory analyses.
[2] Field measurement parameters include those parameters measured directly in the field (e.g., dissolved oxygen, turbidity, pH, etc.).
[3] Maximum holding times include all pertinent holding times for each analytical parameter (e.g., from sample collection to sample preparation, from sample preparation to analysis, from sample collection to analysis, etc.) and field measurement (e.g., from sample collection to measurement).
STP = standard temperature and pressure
NA = not applicable

Table 2-4. Quality Control Requirements for Analyses

Air Analysis for Volatile Organic Compounds [1, 2]

Analytical Method/SOP:

QC Sample:	Data Quality Indicator (DQI)	Frequency/ Number	Method/SOP QC Acceptance Limits	Acceptance Criteria/ Measurement Performance Criteria[1]	Corrective Action
LABORATORY ANALYSIS:					
EPA TO-15	Sample Variability, Precision and Accuracy	1/10%	Relative Percent Difference (RPD)	30%	Review Laboratory QA/QC Performance During Sample Run, Possible Reanalysis
EPA TO-17	Sample Variability, Precision and Accuracy	1/10%	Relative Percent Difference (RPD)	30%	Review Laboratory QA/QC Performance During Sample Run, Possible Reanalysis

[1] Information supports the acceptance criteria/measurement performance criteria introduced in Section 1.7.3.
[2] Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, Compendium Method TO-15 Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS), Center for Environmental Research Information Office of Research and Development U.S. Environmental Protection Agency, Cincinnati, OH 45268, January 1999, EPA/625/R-96/010b.
Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, Compendium Method TO-17 Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes Center for Environmental Research Information Office of Research and Development U.S. Environmental Protection Agency Cincinnati, OH 45268 January 1999, EPA/625/R-96/010b.

Table 2-5. Quality Control Requirements for Field Measurements

Air Analyses for Volatile Organic Compounds

Field Parameter:

QC Sample:	Data Quality Indicator (DQI)	Frequency / Number	Method/SOP QC Acceptance Limits	Acceptance Criteria/ Measurement Performance Criteria[1]	Corrective Action
FIELD MEASUREMENTS:					
MIRAN Infrared Spectrometer	Sample Variability, Precision and Accuracy	1/10%	Relative Percent Difference (RPD)	30%	Recalibrate and Rezero the Instrument then Reanalyze the Sample
Drager/Sensidyne Detection Tubes	Sample Variability, Precision and Accuracy	1/10%	Relative Percent Difference (RPD)	± 35% at ½ the PEL/TLV and ± 25% at 1, 2 and 5 times the PEL/TLV	Check for Leaks, Damages Tubes, Gaskets and Seals

[1] Information supports the acceptance criteria/measurement performance criteria introduced in Section 1.7.3.

Table 2-6. Field Equipment/Instrument Calibration, Maintenance, Testing, and Inspection

Analytical Parameter	Field Equipment/ Instrument	Calibration Activity	Maintenance Activity	Testing/ Inspection Activity	Frequency	Acceptance Criteria	Corrective Action
VOC	MIRAN Infrared Spectrometer	Before Each Use	Charge Battery	Before Each Use	Daily When in Use	Successful Calibration and IR Zeroing	Refer to Manufacturers Troubleshooting Procedures
VOC	Draeger/Sensidyne Tubes	Check Before Each Use	Clean and Store According to Manufacturer Instructions	Before Each Use	Daily When in Use	Passing Leak and Bellows Compression Test	Refer to Manufacturers Troubleshooting Procedures

Note: See manufacturer's operator manuals for MIRAN Infrared Spectrometer and Drager/Sensidyne Detection Tubes in Appendix A-1.

APPENDICES

APPENDIX A. Field Documentation

A-1. MIRAN Infrared Spectrometer Instruction Manual, Drager Tube Instruction Handbook and Sensidyne Detector Tube Instruction Handbook
A-2. OSHA Standard Operating Procedures for Direct Reading Instruments
A-3. Field Data Forms - Table 2: Odor Source Investigating and Reporting
A-4. Attachment 1 – Draft Screening Protocol for California Hazardous and Non-Hazardous Waste Materials Received At Western Environmental, Inc. Facility, Mecca, California, Table 1 – Air Screening Protocol
A-5. Training Sign-In-Sheet

APPENDIX B. Laboratory Documentation

B-1. Alpha Analytical QA Manual
B-2. EPA Air Sampling Methods for EPA Method TO-14A: Summa Canisters, TO-15: Volatile Organic Compounds and TO-17: Tentatively Identified Compounds
B-3. Data Report Format (See Section 1.9.2)
B-4. Chain of Custody Forms
B-5. Summa Canister Shipping Procedures Guide

APPENDIX C. Data Evaluation

C-1. Data Evaluation/Documentation Form

APPENDIX A : Field Documentation

Appendix A-1. : Equipment/Instrument Manuals - MIRAN Infrared Spectrometer Instruction Manual, Drager Tube and Sensidyne Instruction Handbooks

Appendix A-2.: Standard Operating Procedures - OSHA Direct Reading Instruments SOP

Appendix A-3. : Field Data Forms: Table 2: Odor Source Investigating and Reporting

Appendix A-4: Attachment 1 – Draft Screening Protocol for California Hazardous and Non-Hazardous Waste Materials Received At Western Environmental, Inc. facility, Mecca, California, Table 1- Air Screening Protocol

Appendix A-5: Training Sign-In-Sheets

APPENDIX B : Laboratory Documentation

Appendix B-1.: Alpha Analytical QA Manual

Appendix B-2.: Standard Operating Procedures: EPA Air Sampling Methods for EPA Method TO-14A: Summa Canisters, TO-15: Volatile Organic Compounds and TO-17: Tentatively Identified Compounds

Appendix B-3. : Data Report Forms: Alpha Analytical Data Report Format Example

Appendix B-4. : Chain of Custody Instruction and Chain of Custody Form

Appendix B-5. : Summa Canister Shipping Procedures Guide

APPENDIX C: Data Evaluation

Appendix C-1. : No Specific Data Evaluation/Documentation Form Required