

APPENDIX B

MAJOR EQUIPMENT

UNCONTROLLED COPY

Appendix B
Quality Assurance Manual
Rev. 18.0
June 29, 2007

Equipment Description	Service	Location
Gas Chromatographs		
GC01: Hewlett-Packard 5890 with FID/TCD Detectors <i>Fixed Gas Analyzer/Total Combustion Analyzer (TCA)</i>	LM	VOA-GC
GC02: Hewlett-Packard 5890A with PID/PID Detector	LM	VOA-GC
GC03: Hewlett-Packard 5890 PID/FID Detectors <i>Hewlett-Packard 7673 Autosampler</i>	LM	SVOA
GC05: Hewlett-Packard 5890 Series II with Sievers SCD Detector <i>Tekmar LSC 2000 Purge and Trap Concentrator</i>	LM	VOA-GC
GC06: Hewlett-Packard 6890 with ECD/ECD Detectors <i>Hewlett-Packard 6890 Autosampler</i>	LM	SVOA
GC07: Hewlett-Packard 6890 with FID/NPD Detectors <i>Hewlett-Packard 6890 Autosampler</i>	LM	VOA-GC
GC08: Hewlett-Packard 5890 Series II with TCD Detector	LM	VOA-GC
GC09: Hewlett-Packard 5890 Series II with FID/NPD Detectors	LM	VOA-GC
GC10: Hewlett-Packard 5890A with FID/TCD Detectors	LM	VOA-GC
GC11: Hewlett-Packard 5890 Series II with FID Detector	LM	VOA-GC
GC12: Hewlett-Packard 5890 Series II with FID Detector <i>Hewlett-Packard 7673 Autosampler</i>	LM	SVOA
GC13: Agilent 6890A with Sievers SCD Detector	LM	VOA-GC
GC14: Agilent 6890N with NPD/FID Detectors <i>Agilent 7683B Autosampler</i>	LM	SVOA
GC15: Agilent 6890N with NPD/FID Detectors <i>Agilent 7683 Autosampler</i>	LM	VOA-GC
GC16: Agilent 6890N with PFPD/FID Detectors <i>OI Detector Controller; Sievers Dual Plasma Controller</i>	LM	VOA-GC
GC17: Hewlett-Packard 5890 PID/FID Detectors <i>Precision Sampling PTA-30 Autosampler</i> <i>Tekmar LSC 2000 Purge and Trap Concentrators</i>	LM	VOA GC/MS (S/W)
GC18: Hewlett-Packard 5890 Series II with OI PID/FID Detectors <i>DPM-16 Autosampler</i> <i>OI 4560 Purge and Trap Concentrator</i>	LM	NOT IN SERVICE
GC19: Hewlett-Packard 5890 FID Detector <i>Hewlett-Packard 7673A Autosampler</i>	LM	NOT IN SERVICE
GC/MS Systems		
MS01: Hewlett-Packard 5890 Series II/5971A MSD <i>Hewlett-Packard 7673 Autosampler</i>	LM	SVOA
MS02: Hewlett-Packard 5890 Series II/5972 MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS03: Hewlett-Packard 6890A/5973 MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS04: Hewlett-Packard 5890 Series II/5970 MSD <i>Hewlett-Packard 7673 Autosampler</i>	LM	SVOA
MS05: Agilent 6890+/5973N MSD <i>Perkin Elmer TurboMatrix ATD-50 Thermal Desorber</i>	LM	VOA GC/MS
MS06: Hewlett-Packard 5890 Series II/5970 MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS07: Hewlett-Packard 6890A/ Agilent 5973N MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS

UNCONTROLLED COPY

Equipment Description	Service	Location
GC/MS Systems		
MS08: Agilent 6890N/5973inert MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS09: Agilent 6890N/5973inert MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS10: Hewlett-Packard 6890A/5973 MSD <i>OI 4560 Sample Concentrator</i> <i>OI 4551-A Autosampler</i>	LM	VOA GC/MS (S/W)
MS11: Hewlett-Packard 5890 Series II/5972A MSD <i>Varian Archon Autosampler</i> <i>Tekmar 3100 Concentrator</i>	LM	VOA GC/MS (S/W)
MS12: Hewlett-Packard 5890 Series II/5971 MSD <i>OI DPM-16 Auto Sampler</i> <i>OI 4560 Sample Concentrator</i>	LM	VOA GC/MS (S/W)
MS13: Agilent 6890N/5975Binert MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
MS14: Hewlett-Packard 5890 Series II/5971 MSD <i>OI Analytical 4551-A Auto Sampler</i> <i>OI Analytical Eclipse 4660 Sample Concentrator</i>	LM	VOA GC/MS (S/W)
MS15: Hewlett-Packard 5890 Series II/5972 MSD <i>Hewlett-Packard 7673 Autosampler</i>	LM	SVOA
MS16: Agilent 6890N/5975Cinert MSD <i>Tekmar AUTOCAN Autosampler</i>	LM	VOA GC/MS
LC01: Waters Liquid Chromatograph Module I Plus/UV_Vis 360	LM	SVOA
LC02: Hewlett-Packard 1050	LM	SVOA
Spectrophotometers		
SPM01: Spectronic Instrument 20+ from SC	LM	GENCHEM
Conductivity Meters		
CM01: Thermo Orion Model 162A	LM	GENCHEM
Turbidimeters		
TM01: Hach Turbidimeter 2100	LM	GENCHEM
pH and Specific Ion Meters		
pH01: Thermo Orion 920 Selective Ion Meter	LM	GENCHEM
pH02: Orion 720A	LM	GENCHEM
Ion Chromatograph		
IC01: Dionex DX-100 with Self-regenerating suppressor <i>VI20 Univeral Interface</i> <i>AS40 Autosampler</i>	LM	GENCHEM
IC02: Metrohm with <i>Lambda 1010</i> <i>830 IC Interface, 830 IC Liquid Handling Units</i> <i>818 IC Pump, 820 IC Separator Center</i>	LM	GENCHEM
Miscellaneous Equipment		
US Filter Water Purification System	SC	

LM – Laboratory Maintained

VOA – Volatile Organic Analysis

GENCHEM – General Chemistry

IH – Industrial Hygiene

SC – Service Contract

S/W – Soils and Waters

SVOA – Semi-Volatile Organic Analysis

UNCONTROLLED COPY

SAMPLE MANAGEMENT AND DISPOSAL

Air sampling containers / flow controllers

- ♦ Six-liter Summa passivated stainless steel canisters (1900)
- ♦ Six-liter Silco passivated stainless steel canisters (15)
- ♦ Three-liter Silco passivated stainless steel canisters (70)
- ♦ Meriter 2.4-liter passivated stainless steel canisters (35)
- ♦ One-liter Summa passivated stainless steel canisters (500)
- ♦ 400-milliliter mini passivated stainless steel canisters (21)
- ♦ Low volume flow controllers for time integrated sampling (500)
- ♦ Mini-canister flow controllers for time integrated sampling (12)

Automated Summa canister conditioning units

- ♦ Ten-position, microprocessor controlled conditioners with heater controller, vacuum gauge, humidified nitrogen fill capability and large capacity vacuum pump (2)
- ♦ Fourteen-position, microprocessor controlled conditioners with heater controller, vacuum gauge, humidified nitrogen fill capability and large capacity vacuum pump (1)
- ♦ Twenty-position, microprocessor controlled conditioners with heater controller, vacuum gauge, humidified nitrogen fill capability and large-capacity vacuum pump (1)
- ♦ Sixteen-position, microprocessor controlled conditioner with heater controller, vacuum gauge, humidified nitrogen fill capability and large-capacity vacuum pump (1)

APPENDIX C

METHOD REFERENCES AND STANDARD OPERATING PROCEDURES

UNCONTROLLED COPY

Appendix C
Quality Assurance Manual
Rev. 18.0
June 29, 2007

Method References¹

ASTM D 1946, "Standard Practice for Analysis of Reformed Gas by Gas Chromatography."
ASTM D 3588, "Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels."
ASTM D 5075, "Nicotine and 3-Ethenylpyridine in Indoor Air."
ASTM D 5504, "Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence." ; SCAQMD Method 307, "Determination of Sulfur in a Gaseous Matrix."
CARB Method 410A, "Determination of Benzene from Stationary Sources at Low Concentrations."
CARB Method 410B, "Determination of Benzene from Stationary Sources at High Concentrations."
CARB Method 422, "Determination of Volatile Organic Compounds in Emissions from Stationary Sources."
EPA 110.2, "Colorimetric-Platinum-Cobalt."
EPA 120.1, "Conductance (Specific Conductance, umhos at 25°C)"
EPA 150.1, "pH (Electrometric)"
EPA 160.2, "Residue, Non-filterable (Gravimetric, Dried at 103-105°C)"
EPA 160.3, "Solids, Total"
EPA 160.5, "Settleable Matter (Volumetric, Imhoff Cone)"
EPA 180.1, "Turbidity (Nephelometric)"
EPA 218.6, "Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography"
EPA 300.0, "Determination of Inorganic Anions by Ion Chromatography"
EPA 354.1, "Nitrogen, Nitrite (Spectrophotometric)"
EPA 624, "Purgeables"
EPA Compendium Method TO-3, "Method for the Determination of Volatile Organic Compounds in Ambient Air Using Preconcentration Techniques and Gas Chromatography with Flame Ionization and Electron Capture Detection."
EPA Compendium Method TO-4A, "Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)."
EPA Compendium Method TO-5, "Method for the Determination of Aldehydes and Ketones in Ambient Air Using High Performance Liquid Chromatography (HPLC)."
EPA Compendium Method TO-8, "Method for the Determination of Phenol and Methylphenols (Cresols) in Ambient Air Using High Performance Liquid Chromatography (HPLC)."
EPA Compendium Method TO-10A, "Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)."
EPA Compendium Method TO-11A, "Determination of Formaldehyde in Ambient Air Using Adsorbent Cartridge Followed by High Performance Liquid Chromatography (HPLC) [Active Sampling Methodology]."
EPA Compendium Method TO-13A, "Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)."

Method References – Continued¹

EPA Compendium Method TO-14A, “Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography.”
EPA 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).”
EPA Compendium Method TO-17, “Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes.”
EPA Method 25C, “Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gases.”
EPA Method 3C, “Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen from Stationary Sources.”
Massachusetts Department of Environmental Protection (MADEP), “Method for the Determination of Air-Phase Petroleum Hydrocarbons (APH)”, Public Comment Draft 1.0
NCASI Method DI/HAPS-99.01, “Selected HAPS in Condensates by GC/FID.”
NCASI Method DI/MEOH-94.03, “Methanol in Process Liquids by GC-FID.”
NCASI Method IM/CAN/WP-99.02, “Impinger/Canister Source Sampling Method for Selected HAPS and Other Compounds at Wood Products Facilities.”
NIOSH 1005, “Methylene Chloride.”
NIOSH 1300, “Ketones I.”
NIOSH 1301, “Ketones II.”
NIOSH 1400, “Alcohols I.”
NIOSH 1401, “Alcohols II.”
NIOSH 1402, “Alcohols III.”
NIOSH 1403, “Alcohols IV.”
NIOSH 1450, “Esters I”.
NIOSH 1457, “Ethyl Acetate”.
NIOSH 1500, “Hydrocarbons, 36-126C BP.”
NIOSH 1501, “Aromatic Hydrocarbons.”
NIOSH 1550, “Hydrocarbons.”
NIOSH 2000, “Methanol.”
NIOSH 2538, “Acetaldehyde by GC.”
NIOSH 2549, “Volatile Organic Compounds (Screening).”
NIOSH 5515, “Polynuclear Aromatic Hydrocarbons by GC.”
OSHA 07, “Organic Vapors.”
² SM 2120B, “Color by Visual Comparison Method”
² SM 2510B, “Conductivity”
² SM 2520B, “Salinity”
² SM 2540B, “Total Solids”
² SM 2540D, “Total Suspended Solids Dried at 103-105°C”
² SM 2540F, “Settleable Solids”
² SM 2540G, “Total, Fixed, and Volatile Solids in Solid and Semi-Solid Samples”

UNCONTROLLED COPY

Method References – Continued¹

² SM3500-Cr D, “Colorimetric Method”
² SM 4500-H B, “pH, Electrometric”
SW-846 METHOD 8015B, “Nonhalogenated Organics Using GC/FID”
SW-846 METHOD 8015D, “Nonhalogenated Organics Using GC/FID”
SW-846 METHOD 3060A, “Alkaline Digestion for Hexavalent Chromium”
SW-846 METHOD 5030B, “Purge and Trap for Aqueous Samples”
SW-846 METHOD 5030C, “Purge and Trap for Aqueous Samples”
SW-846 METHOD 5035A, “Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soils and Waste Samples”
SW-846 METHOD 5035, “Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soils and Waste Samples”
SW-846 METHOD 7196A, “Chromium, Hexavalent (Colorimetric)”
SW-846 METHOD 7199, “Determination of Hexavalent Chromium in Drinking Water, Groundwater and Industrial Wastewater Effluents by Ion Chromatography”
SW-846 METHOD 8021B, “Aromatic and Halogenated Volatiles by Gas Chromatography using Photoionization and/or Electrolytic Conductivity Detectors”
SW-846 Method 8260B, “Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).”
SW-846 Method 8315A, “Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC).”
SW-846 METHOD 9040, “pH”
SW-846 METHOD 9040B, “pH Electrometric Measurement”
SW-846 METHOD 9040C, “pH Electrometric Measurement”
SW-846 METHOD 9045, “Corrosivity, pH”
SW-846 METHOD 9045C, “Soil and Waste pH”
SW-846 METHOD 9045D, “Soil and Waste pH”
SW-846 METHOD 9050A, “Specific Conductance”
SW-846 METHOD 9056, “Determination of Inorganic Anions by Ion Chromatography”
In-House Methods
“Dissolved Gas Analysis in Aqueous Samples Using a GC Headspace Equilibration Technique.”
“Determination of Volatile Amines in Ambient Air.”
“Determination of Carboxylic Acids in Air.”
“Analysis of Sulfur Compounds in Liquid Samples by Gas Chromatography with Sulfur Chemiluminescence Detection.”

¹ The list of referenced methods consists of both routine and non-routine performed methods. In addition, a number of the methods are performed with modification and are reported accordingly. Additionally, other methods may be performed, referenced and reported as long as the minimum requirements of the method and the Quality Assurance Manual are followed.

² The Standard Methods are in accordance with and as specified in the 19th or 20th editions; the correct version performed is in accordance with applicable accreditations and as stated in the corresponding standard operating procedures.

UNCONTROLLED COPY

LABORATORY STANDARD OPERATING PROCEDURES & MANUALS	
SOP CODE	TITLE
ADM-AUDIT	Conducting Internal Laboratory Audits
ADM-BATCH	Sample Batches
ADM-CMPLT	Dealing With Complaints
ADM-COC	Chain Of Custody For Sample Transfer Between Laboratories
ADM-CONFIRM	Confirmation Of Organic Analytes Id And Quantitation
ADM-CTMN	Checking New Lots Of Chemical For Contamination
ADM-CTRL_LIM	Control Limits
ADM-DATA_INT	Ensuring Data Integrity
ADM-DATA_REV	Data Review and Reporting
ADM-DATANTRY	Making Entries Into Logbooks And Onto Benchsheets
ADM-DOC_CTRL	Document Control
ADM-E_DATA	Preparation Of Electronic Data For Organic Analyses For Electronic-Data Auditing
ADM-SupEQ	Calibration and Use of Laboratory Support Equipment
SMO-FSHT	Foreign Soils Handling and Treatment
ADM-CONSUM	Handling Consumable Materials
ADM-E_DATAAUDIT	Electronic-Data Auditing
ADM-INT	Manual Integration Of Chromatographic Peaks
ADM-MDL	Determination Of Method Detection Limits And Limits Of Detection
MED-Media_Req	Media Request Fullfilment
ADM-MGMTRVW	Managerial Review Of The Laboratory's Quality System
ADM-NCAR	Nonconformity And Corrective Action Documentation
ADM-PMgmt	Project Management And Business Development
ADM-PTS	Proficiency Testing Sample Analysis
ADM-PUR	Purchasing Through CAS Purchasing Agent In Kelso
ADM-SftwreQA	Software And Data Quality Assurance
ADM-SIGFIG	Significant Figures
ADM-LabSAT	Laboratory Storage, Analysis And Tracking
ADM-SOP	Preparation Of Standard Operating Procedures
ADM-DTAPES	Electronic Data Tape Backup, Archiving & Restoration
ADM-SUBLAB	Qualification Of Subcontract Laboratories Outside Of CAS Network

UNCONTROLLED COPY

LABORATORY STANDARD OPERATING PROCEDURES & MANUALS	
SOP CODE	TITLE
ADM-TRANDOC	Documentation Of Training
ADM-UNCERT	Estimation Of Uncertainty Of Measurements
DSP-WASTE	Waste Disposal
GEN-GLAS	Glassware Cleaning
NA	Software Quality Assurance Plan
SMO_CanCert	Cleaning And Certification Of Summa Canisters & Other Specially Prepared Canisters
SMO-Can-Press	Evaluation And Pressurization Of Specially Prepared Stainless Steel Canisters
SMO-Flow_Cntrl	Flow Controllers And Critical Orifices
SMO-SMPL_REC	Sample Receiving, Acceptance And Log-In
GCP-TO4A	Sample Extraction and Preparation of Pesticide and PCB Samples According to EPA Compendium Methods TO-4A and TO-10A
MSP-13A	Sample and Media Preparation per EPA Compendium Method TO-13A
SVG-Amines	Determination of Volatile Amines in Ambient Air Using GC/NPD
SVG-TO4A	Determination of Pesticides and Polychlorinated Biphenyls (PCBs) in Ambient Air by GC/ECD per EPA Compendium Methods TO-4 and TO-10A
SVM-11A	Determination of Formaldehyde and Other Carbonyl Compounds in Ambient Air Using Adsorbent Cartridge Followed by High Performance Liquid Chromatography (HPLC) EPA Compendium Method T0-11A
SVM-13A	Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)
SVM-M8315A	Determination of Carbonyl Compounds in Solid and Liquid Samples by High Performance Liquid Chromatography (HPLC) per Modified EPA Method 8315A
SVM-NCASI_MeOH	Determination of Methanol, Acetaldehyde, MEK and Propionaldehyde in Pulp and Paper Process Liquids by GC/FID
SVM-CACIDS	Determination of Carboxylic Acids in Ambient Air Using GC/MS
SVM-OSHA_07	Determination of Organic Vapors Using GC/FID in Accordance with OSHA Method 07
VOA-BTU	Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels in Accordance with ASTM D 3588
VOA-CARB410M	Analysis of Benzene and Other Aromatic Hydrocarbons by Gas Chromatography with Photoionization Detection by Modified CARB 410

UNCONTROLLED COPY

LABORATORY STANDARD OPERATING PROCEDURES & MANUALS	
SOP CODE	TITLE
VOA-CARB422	Analysis of Halogenated Volatile Organic Compounds in Emissions from Stationary Sources using GC/ECD in Accordance with a Modification of CARB Method 422
VOA-DISGAS	Dissolved Gas Analysis in Aqueous Samples Using a GC Headspace Equilibration Technique
VOA-EPA25C	Determination of Total Gaseous Nonmethane Organic (TGNMO) Emissions as Carbon in Landfill Gases in Accordance with EPA Method 25C
VOA-EPA25CM	Determination of Methane, Carbon Monoxide, Carbon Dioxide, and Total Gaseous Nonmethane Organic (TGNMO) Emissions as Carbon in Landfill Gases According to Modified EPA Method 25C
VOA-EPA3C	Determination of Hydrogen, Carbon Monoxide, Carbon Dioxide, Nitrogen, Methane, and Oxygen using Gas Chromatography with Thermal Conductivity Detection (TCD) in Accordance with EPA Method 3C or ASTM D 1946
VOA-HE	Analysis of Helium using Gas Chromatography with Thermal Conductivity Detection (TCD)
VOA-MAPH	Determination of Air-Phase Petroleum HC by GC/MS
VOA-NCASI	Impinger/Canister Source Sampling Method for Selected HAPS and Other Compounds at Wood Product Facilities
VOA-S307M_SCD	Analysis of Sulfur Compounds in a Gaseous Matrix by Gas Chromatography with Sulfur Chemiluminescence Detection per ASTM D 5504 and Modified SCAQMD Method 307
VOA-SH20_SCD	Analysis of Sulfur Compounds in Liquid Samples by Gas Chromatography with Sulfur Chemiluminescence Detection
VOA-TO15	Determination of Volatile Organic Compounds in Air Samples Collected in Specially Prepared Canisters and Gas Collection Bags and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)
VOA-TO17	Determination of VOCs in Ambient Air Using Active or Passive Sampling Onto Sorbent Tubes
VOA-TO3C1C6	Analysis of C1-C6+ using Gas Chromatography with Flame Ionization Detection (FID) in Accordance with a Modification of EPA Compendium Method TO-3
VOA-TPHG_TO3	Analysis of Total Petroleum Hydrocarbons as Gasoline in Air by Gas Chromatography with Flame Ionization Detection
VOA-TO3MeOH	Analysis of Various Compounds using Gas Chromatography with Flame Ionization Detection (FID) in Accordance with a Modification of EPA Compendium Method TO-3

UNCONTROLLED COPY

LABORATORY STANDARD OPERATING PROCEDURES & MANUALS	
SOP CODE	TITLE
VOC-8260B	Volatile Organic Compounds (VOCs) by Gas Chromatography/Mass Spectrometry (GC/MS)
Appendix (VOC-8260B)	VOC-8260B, APPENDIX - The Analysis of Gasoline Range Organics (GRO)
VOC-EPA624	Analysis of Volatile Organic Compounds (VOCs) by Gas Chromatography/Mass Spectrometry (GC/MS)
VOH-8015B	Total Petroleum Hydrocarbons (TPH) as Gasoline
WET-COLOR	Color (Colorimetric, Platinum-Cobalt)
WET-COND	Conductivity, Resistivity and Salinity
WET-SOLIDS	Total Solids and Total Suspended Solids
WET-pHL	pH Electrometric Measurement for Liquids by Ion Selective Electrodes
WET-pHS	pH Electrometric Measurement for Solids by Ion Selective Electrodes
WET-NO2	Nitrite: Colorimetric
WET-TURB	Determination of Turbidity
WET-Anions_IC	Determination of Inorganic Anions by Ion Chromatography
WET-HexCr_IC	Hexavalent Chromium by Ion Chromatography
WET-Cr6L	Hexavalent Chromium: Colorimetric, Liquids
WET-Cr6S	Hexavalent Chromium: Colorimetric, Solids
WET-SS	Settleable Solids

UNCONTROLLED COPY

APPENDIX D

DATA QUALIFIERS

UNCONTROLLED COPY

Appendix D
Quality Assurance Manual
Rev. 18.0
June 29, 2007

Flag ¹	Data Qualifiers - Definition	Uncertain: Identity / Concentration
#	Analyte was detected above the method reporting limit prior to normalization.	No/no
B	Analyte found in the method blank	No/yes
BC	Results reported are not blank corrected. <i>(AIHA analyses only)</i>	No/yes
BH	The back portion of the sampling tube yielded higher results than the front.	No/yes
BT	Indicates possible breakthrough – result for back section $\geq 10\%$ of result from front section of tube.	No/yes
C	Possible/Probable contamination	No/yes
C1	Confirmed by GC/MS.	No/no
D	Duplicate precision not within the specified limits.	No action taken by data user on the data alone.
DE	Results reported are corrected for desorption efficiency.	No/yes
E	Estimated; result based on response which exceeded the instrument calibration range.	No/yes
EH	Sample extracted outside of extraction hold time.	No/no
F	Analyte was found in the field blank.	No/yes
G	Quantitated using fuel calibration, but pattern does not match current gasoline standard.	Yes/yes
H	Sample analyzed outside of holding time.	No/yes
I	Internal standard not within the specified limits.	No/yes
J or F	¹ The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated. ² The analyte was positively identified below the method reporting limit prior to utilizing the dilution factor; the associated numerical value is considered estimated.	No/yes
L	Laboratory control sample recovery outside the specified limits; results may be biased (high/low).	No/yes
M	Matrix interference; results may be biased (high/low).	No/yes (possible)
M	Matrix interference due to coelution with a non-target compound (TO-15 only);	No/yes (possible)
NA	Not applicable.	No/no
ND or U	¹ Compound was analyzed for, but not detected above the laboratory detection limit . <i>(if “J” flagging)</i> ² Compound was analyzed for, but not detected above the laboratory reporting limit .	No/no
NF	Compound was searched for, but not found. <i>(for specified TICs)</i>	No/no
NQ	Result qualitatively confirmed but not able to quantify.	No/yes
P	Possible/Probable interference and/or analyte whose concentration has a greater than 25% difference for detected concentrations between the GC primary and confirmation columns.	No/yes
W	Result quantified but corresponding peak was detected outside of generated retention time window.	Yes/no
RH	Sample received outside of holding time.	No/yes
S	Surrogate recovery not within specified limits.	No/yes
T	Analyte is a tentatively identified compound, result is estimated.	No/yes
V	The continuing calibration verification standard was outside (biased high/low) the specified limits for this compound.	No/yes

Note: Where specified by project requirements or laboratory circumstances dictate, these may be altered or additional ones utilized. All qualifiers must be completely and unambiguously defined.