

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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TestAmerica Job ID: 660-70487-1

Client Project/Site: City of Hollywood
Revision: 1

For:

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Authorized for release by:

1/12/2016 3:25:23 PM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Sample Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-70487-1	CS2 (0-4)	Solid	11/17/15 09:30	11/18/15 08:40
660-70487-2	LB9 (0-2)	Solid	11/17/15 10:20	11/18/15 08:40
660-70487-3	LB9 (2-4)	Solid	11/17/15 10:30	11/18/15 08:40

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Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Job ID: 660-70487-1

Laboratory: TestAmerica Tampa

Narrative

Job Narrative 660-70487-1

Comments

No additional comments.

Receipt

The samples were received on 11/18/2015 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

Laboratory Comments

Due to system limitations Total Endosulfans are not included in this report. The data for this summary analytes has been calculated by hand and entered into the accompanying EDD.

GC/MS VOA

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 163525 recovered outside acceptance criteria, low biased, for Dichlorodifluoromethane. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8260B: Internal standard (ISTD) response for the following sample was outside control limits: CS2 (0-4) (660-70487-1). The sample was re-analyzed with concurring results, and the second analysis is being reported because only one internal standard was out of control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270D: The continuing calibration verification (CCV) associated with batch 400-285334 recovered above the upper control limit for Sulfotepp. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 8270D LL: The continuing calibration verification (CCV) associated with batch 400-284870 recovered outside acceptance criteria, low biased, for Benzo[g,h,i]perylene, Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8270D LL: The method blank for preparation batch 400-284609 and analytical batch 400-284870 contained 2-Methylnaphthalene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8270D: The continuing calibration verification (CCV) associated with batch 400-285370 recovered above the upper control limit for Guthion, Bolstar, Sulfotepp and Tokuthion. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 8270D: Physical properties (viscosity, color, odor) of the following sample(s) extract preclude concentrated analysis which would jeopardize instrumentation: CS2 (0-4) (660-70487-1). Minimal dilution with elevated RLs is reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 6020A: The method blank (MB) associated with batch 411408 contained Chromium above the method detection limit (MDL). This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-analysis of samples was not performed. Associated sample detections less than ten times the concentration detected in the blank are qualified "V".

Case Narrative

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

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Job ID: 660-70487-1 (Continued)

Laboratory: TestAmerica Tampa (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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PROJECT NARRATIVE H5K190407

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

Custody seals were not present.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

For solid and sediments samples, when percent moisture is included in the report header field, the sample results are reported on a dry weight basis. When percent moisture is not contained in the header field, sample results are reported on an as received or wet weight basis.

All QC criteria were met with the following exceptions:

For sample CS2 (0-4) the recoveries of all internal standards were below the lower acceptance criterion (40%); however, the minimum required signal-to-noise ratio was present, and the target estimated detection limit for associated analytes was met. The results are reported in accordance with the standard operating procedure. As indicated by the referenced method, isotope dilution techniques produce results that are independent of internal standard recovery.

Comments:

Samples CS2 (0-4) and LB9 (0-2) exhibited native OCDD above the upper calibration level. The method does not require further action be taken; therefore, the results were reported as is with an "E" qualifier.

All positive 2378-TCDF results at or above the minimum level were confirmed on a DB-225 column.

The following flags are used to qualify results for chlorinated dioxin and furan results:

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report, the ML is qualitatively defined as described above, and quantitatively defined as follows:

PROJECT NARRATIVE

H5K190407

Minimum Level: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

Example: The lowest calibration level for TCDD in the initial calibration is 0.5 pg/uL. A mass of 10 pg of 2,3,7,8-TCDD in the sample would result in a concentration of 0.5 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the lowest calibration standard, the 10 pg mass in the sample components is the ML. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The ML for 2,3,7,8-TCDD becomes 100 pg rather than the default of 10 pg.

E – The reported result is an estimate. The amount reported is above the Upper Calibration Level (UCL) described below. The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Example: The maximum calibration level for TCDD in the initial calibration is 200 pg/uL. A mass of 4000 pg of 2,3,7,8-TCDD in the sampling components would result in a concentration of 200 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the highest calibration standard, the 4000 pg mass in the sample components is the UCL. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The UCL for 2,3,7,8-TCDD becomes 40,000 pg rather than the default of 4000 pg. In this example, all positive 2,3,7,8-TCDD results above 40,000 pg are flagged with an E.

B – The analyte is present in the associated method blank at a detectable level. For this analysis, there is no method specified reporting level other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of ≥ 2.5 to 1. Therefore, the presence of any reportable amount of the analyte in the blank will result in a B qualifier on all associated samples.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. These may include one or more of the following:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio).
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).

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- Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.
- 2,3,7,8-TCDF result is reported from the non-isomer specific Rtx-5 column.
- Polychlorinated dibenzofuran purity. An interference may be present on the indicated polychlorinated dibenzofuran when a polychlorinated diphenyl ether peak is present and maximizes within +/- 3 seconds of the dibenzofuran candidate.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer.

X – Other. See explanation in narrative.

Laboratory studies supporting risk assessment and Total Maximum Daily Load (TMDL) evaluations, frequently use qualified data reported as low as the Method Detection Limit (MDL), or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL.^{1,2,3} The EDL is based on a direct measurement of the signal-to-noise (S/N) ratio acquired during sample analysis. This S/N measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the S/N obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample than is an MDL run periodically on a reference matrix.

The EDL is typically calculated according to the following equation:

$$\text{Estimated Detection Limit} = \frac{N \times 2.5 \times Q_{is}}{H_{is} \times RRF \times W \times S}$$

Where:

- N = peak to peak noise of quantitation ion signal in the region of the ion chromatogram where the compound of interest is expected to elute
- H_{is} = peak height of quantitation ion for appropriate internal standard
- Q_{is} = ng of internal standard added to sample
- RRF = mean relative response factor of compound obtained during initial calibration
- W = amount of sample extracted (grams or liters)
- S = percent solids (optional, if results are requested to be reported on dry weight basis)

(The area of the internal standard is sometimes used instead of height, along with an area-to-height conversion factor.)

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This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often closer to the true value than an assumption that the target analyte is present at the detection or reporting limits. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

$$\text{Analyte Concentration} = \frac{A_s \times Q_{is}}{A_{is} \times \text{RRF} \times W \times S}$$

Where:

- As = Sum of areas of the target peaks
- Qis = ng of internal standard added to sample
- Ais = Sum of areas of the internal standard peaks
- RRF = mean relative response factor of compound obtained during initial calibration
- W = amount of sample extracted (grams or liters)
- S = percent solids (optional, if results are requested to be reported on dry weight basis)

In sample data, peaks must have an intensity of ≥ 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 times the noise on the calibration. This is the result of normal variability. Because the source methods for the EDL (SW-846 8290 and 8280A) do not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

Footnotes:

1. Code of Federal Regulations, Part 136, Chapter 1, Appendix 1, October 1994: Method 1613 Tetra- Through Octa-Chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography/High Resolution Mass Spectrometry.
2. U.S. EPA. Test Methods for Evaluating Solid Waste, Volume II, SW-846, Update III, December 1996. Method 8280A: The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/Low Resolution Mass Spectrometry.
3. U.S. EPA. Test Methods for Evaluating Solid Waste, SW-846. Third Edition. March 1995 Method 8290: Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/High Resolution Mass Spectrometry.

Definitions/Glossary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.
*	ISTD response or retention time outside acceptable limits
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

GC/MS Semi VOA

Qualifier	Qualifier Description
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
U	Indicates that the compound was analyzed for but not detected.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

DIOXIN

Qualifier	Qualifier Description
J1	Surrogate recovery limits have been exceeded.
J	Estimated value; value may not be accurate.
V	Indicates the analyte was detected in both the sample and method blank.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
C	See case narrative.
E	Estimated result. Result concentration exceeds the calibration range.

Metals

Qualifier	Qualifier Description
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
V	Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value.
U	Indicates that the compound was analyzed for but not detected.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio

Definitions/Glossary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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Detection Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	Dil Fac	D	Method	Prep Type
2,3,7,8-TCDD	8.69	J	1.35	2.19	1	8.7	pg/g	1	☼	8290A	Total
1,2,3,7,8-PeCDD	32.7		6.77	1.65	0.5	16	pg/g	1	☼	8290A	Total
1,2,3,4,7,8-HxCDD	34.0		6.77	1.97	0.1	3.4	pg/g	1	☼	8290A	Total
1,2,3,6,7,8-HxCDD	66.6		6.77	1.75	0.1	6.7	pg/g	1	☼	8290A	Total
1,2,3,7,8,9-HxCDD	156	C	6.77	1.72	0.1	16	pg/g	1	☼	8290A	Total
1,2,3,4,6,7,8-HpCDD	1870		6.77	1.30	0.01	19	pg/g	1	☼	8290A	Total
OCDD	9520	V E	13.5	1.34	0.001	9.5	pg/g	1	☼	8290A	Total
2,3,7,8-TCDF	8.91		1.35	0.450	0.1	0.89	pg/g	1	☼	8290A	Total
1,2,3,7,8-PeCDF	3.54	J I	6.77	0.694	0.05	0.18	pg/g	1	☼	8290A	Total
2,3,4,7,8-PeCDF	5.93	I	6.77	0.642	0.5	3.0	pg/g	1	☼	8290A	Total
Total TCDD	735	J	1.35	2.19			pg/g	1	☼	8290A	Total
1,2,3,4,7,8-HxCDF	5.71	C I	6.77	0.553	0.1	0.57	pg/g	1	☼	8290A	Total
1,2,3,6,7,8-HxCDF	5.93	I	6.77	0.541	0.1	0.59	pg/g	1	☼	8290A	Total
2,3,4,6,7,8-HxCDF	3.75	I	6.77	0.634	0.1	0.38	pg/g	1	☼	8290A	Total
1,2,3,4,6,7,8-HpCDF	39.0	J	6.77	1.18	0.01	0.39	pg/g	1	☼	8290A	Total
1,2,3,4,7,8,9-HpCDF	4.32	I	6.77	1.57	0.01	0.043	pg/g	1	☼	8290A	Total
OCDF	74.9		13.5	1.22	0.001	0.075	pg/g	1	☼	8290A	Total
Total PeCDD	1370	J V	6.77	1.65			pg/g	1	☼	8290A	Total
Total HxCDD	1610		6.77	1.81			pg/g	1	☼	8290A	Total
Total HpCDD	4290		6.77	1.30			pg/g	1	☼	8290A	Total
Total TCDF	213	J	1.35	1.51			pg/g	1	☼	8290A	Total
Total PeCDF	114	J	6.77	0.666			pg/g	1	☼	8290A	Total
Total HxCDF	108	J	6.77	0.636			pg/g	1	☼	8290A	Total
Total HpCDF	116	J	6.77	1.35			pg/g	1	☼	8290A	Total
Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type		
Acetone	370		120	65	ug/Kg	1	☼	8260B	Total/NA		
2-Butanone (MEK)	25	I	60	16	ug/Kg	1	☼	8260B	Total/NA		
Acenaphthene	2.3	I	8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Acenaphthylene	41		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Anthracene	29		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Benzo[a]anthracene	240		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Benzo[a]pyrene	260		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Benzo[b]fluoranthene	440		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Benzo[g,h,i]perylene	130		8.9	2.7	ug/Kg	1	☼	8270D LL	Total/NA		
Benzo[k]fluoranthene	170		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Chrysene	300		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Dibenz(a,h)anthracene	46		8.9	2.7	ug/Kg	1	☼	8270D LL	Total/NA		
Fluoranthene	270		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Indeno[1,2,3-cd]pyrene	130		8.9	2.7	ug/Kg	1	☼	8270D LL	Total/NA		
1-Methylnaphthalene	5.1	I	8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
2-Methylnaphthalene	11		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Naphthalene	31		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Phenanthrene	40		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
Pyrene	270		8.9	1.3	ug/Kg	1	☼	8270D LL	Total/NA		
4,4'-DDE	39		2.3	0.24	ug/Kg	1	☼	8081B/8082A	Total/NA		
gamma-Chlordane	3.2		2.3	0.24	ug/Kg	1	☼	8081B/8082A	Total/NA		
PCB-1248	530		44	11	ug/Kg	1	☼	8081B/8082A	Total/NA		
PCB-1260	99		44	13	ug/Kg	1	☼	8081B/8082A	Total/NA		
Total PCBs	630		44	6.6	ug/Kg	1	☼	8081B/8082A	Total/NA		

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa

Detection Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4) (Continued)

Lab Sample ID: 660-70487-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Petroleum Hydrocarbons (C8-C40)	130		13	2.3	mg/Kg	1	☼	FL-PRO	Total/NA
Arsenic	10		0.35	0.12	mg/Kg	1	☼	6020A	Total/NA
Barium	120		0.59	0.071	mg/Kg	1	☼	6020A	Total/NA
Cadmium	2.3		0.059	0.018	mg/Kg	1	☼	6020A	Total/NA
Chromium	42		1.2	0.13	mg/Kg	1	☼	6020A	Total/NA
Lead	430		0.24	0.059	mg/Kg	1	☼	6020A	Total/NA
Selenium	0.91		0.59	0.12	mg/Kg	1	☼	6020A	Total/NA
Silver	1.9		0.12	0.012	mg/Kg	1	☼	6020A	Total/NA
Mercury	0.20		0.025	0.010	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	5.56	J I	26.8	1.58	0.5	2.8	pg/g	5	☼	8290A	Total
1,2,3,4,7,8-HxCDD	17.4	I	26.8	2.41	0.1	1.7	pg/g	5	☼	8290A	Total
1,2,3,6,7,8-HxCDD	28.9		26.8	2.62	0.1	2.9	pg/g	5	☼	8290A	Total
1,2,3,7,8,9-HxCDD	45.3	C	26.8	2.34	0.1	4.5	pg/g	5	☼	8290A	Total
1,2,3,4,6,7,8-HpCDD	2300		26.8	3.23	0.01	23	pg/g	5	☼	8290A	Total
OCDD	27100	V E	53.6	3.36	0.001	27	pg/g	5	☼	8290A	Total
Total TCDD	3.18	J I	5.36	4.04			pg/g	5	☼	8290A	Total
1,2,3,4,7,8-HxCDF	3.04	C I	26.8	1.04	0.1	0.30	pg/g	5	☼	8290A	Total
1,2,3,4,6,7,8-HpCDF	58.9		26.8	1.61	0.01	0.59	pg/g	5	☼	8290A	Total
1,2,3,4,7,8,9-HpCDF	12.8	I	26.8	1.79	0.01	0.13	pg/g	5	☼	8290A	Total
OCDF	472		53.6	2.61	0.001	0.47	pg/g	5	☼	8290A	Total
Total PeCDD	29.7	V J I	26.8	1.58			pg/g	5	☼	8290A	Total
Total HxCDD	301	J	26.8	2.45			pg/g	5	☼	8290A	Total
Total HpCDD	4670		26.8	3.23			pg/g	5	☼	8290A	Total
Total PeCDF	5.68	J I	26.8	1.23			pg/g	5	☼	8290A	Total
Total HxCDF	68.4	J	26.8	1.08			pg/g	5	☼	8290A	Total
Total HpCDF	293	J	26.8	1.70			pg/g	5	☼	8290A	Total

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	30	I	46	25	ug/Kg	1	☼	8260B	Total/NA
Acenaphthylene	1.2	I	6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Anthracene	2.1	I	6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Benzo[a]anthracene	12		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Benzo[a]pyrene	13		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Benzo[b]fluoranthene	22		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Benzo[g,h,i]perylene	6.4	I	6.8	2.1	ug/Kg	1	☼	8270D LL	Total/NA
Benzo[k]fluoranthene	7.5		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Chrysene	14		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Fluoranthene	21		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Indeno[1,2,3-cd]pyrene	6.2	I	6.8	2.1	ug/Kg	1	☼	8270D LL	Total/NA
Phenanthrene	5.2	I	6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
Pyrene	17		6.8	1.0	ug/Kg	1	☼	8270D LL	Total/NA
alpha-Chlordane	0.23	I	1.8	0.19	ug/Kg	1	☼	8081B/8082A	Total/NA
gamma-Chlordane	0.72	I	1.8	0.19	ug/Kg	1	☼	8081B/8082A	Total/NA
Total Petroleum Hydrocarbons (C8-C40)	2.6	I	10	1.8	mg/Kg	1	☼	FL-PRO	Total/NA
Arsenic	0.13	I	0.27	0.089	mg/Kg	1	☼	6020A	Total/NA
Barium	1.0		0.44	0.053	mg/Kg	1	☼	6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa

Detection Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2) (Continued)

Lab Sample ID: 660-70487-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.029	I	0.044	0.013	mg/Kg	1	☼	6020A	Total/NA
Chromium	0.56	I V	0.89	0.098	mg/Kg	1	☼	6020A	Total/NA
Lead	0.99		0.18	0.044	mg/Kg	1	☼	6020A	Total/NA
Selenium	0.24	I	0.44	0.089	mg/Kg	1	☼	6020A	Total/NA
Silver	0.012	I	0.089	0.0089	mg/Kg	1	☼	6020A	Total/NA

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	35.7		6.07	0.454	0.01	0.36	pg/g	1	☼	8290A	Total
OCDD	562	V	12.1	0.465	0.001	0.56	pg/g	1	☼	8290A	Total
1,2,3,4,6,7,8-HpCDF	0.900	I	6.07	0.254	0.01	0.0090	pg/g	1	☼	8290A	Total
OCDF	9.77	I	12.1	0.396	0.001	0.0098	pg/g	1	☼	8290A	Total
Total PeCDD	0.450	J I	6.07	0.272			pg/g	1	☼	8290A	Total
Total HxCDD	1.03	J I	6.07	0.257			pg/g	1	☼	8290A	Total
Total HpCDD	65.7		6.07	0.454			pg/g	1	☼	8290A	Total
Total HxCDF	0.475	J I	6.07	0.148			pg/g	1	☼	8290A	Total
Total HpCDF	3.95	J I	6.07	0.290			pg/g	1	☼	8290A	Total

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.18	I	0.30	0.099	mg/Kg	1	☼	6020A	Total/NA
Barium	4.0		0.49	0.059	mg/Kg	1	☼	6020A	Total/NA
Chromium	2.5		0.99	0.11	mg/Kg	1	☼	6020A	Total/NA
Lead	0.24		0.20	0.049	mg/Kg	1	☼	6020A	Total/NA
Selenium	0.24	I	0.49	0.099	mg/Kg	1	☼	6020A	Total/NA
Mercury	0.0094	I	0.021	0.0083	mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Date Collected: 11/17/15 09:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 74

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	8.69	J	1.35	2.19	1	8.7	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,7,8-PeCDD	32.7		6.77	1.65	0.5	16	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,4,7,8-HxCDD	34.0		6.77	1.97	0.1	3.4	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,6,7,8-HxCDD	66.6		6.77	1.75	0.1	6.7	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,7,8,9-HxCDD	156	C	6.77	1.72	0.1	16	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,4,6,7,8-HpCDD	1870		6.77	1.30	0.01	19	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
OCDD	9520	V E	13.5	1.34	0.001	9.5	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
2,3,7,8-TCDF	8.91		1.35	0.450	0.1	0.89	pg/g	☼	11/23/15 10:39	12/02/15 13:54	1
1,2,3,7,8-PeCDF	3.54	J I	6.77	0.694	0.05	0.18	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
2,3,4,7,8-PeCDF	5.93	I	6.77	0.642	0.5	3.0	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total TCDD	735	J	1.35	2.19			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,4,7,8-HxCDF	5.71	C I	6.77	0.553	0.1	0.57	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,6,7,8-HxCDF	5.93	I	6.77	0.541	0.1	0.59	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
2,3,4,6,7,8-HxCDF	3.75	I	6.77	0.634	0.1	0.38	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,7,8,9-HxCDF	ND		6.77	0.950	0.1		pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,4,6,7,8-HpCDF	39.0	J	6.77	1.18	0.01	0.39	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
1,2,3,4,7,8,9-HpCDF	4.32	I	6.77	1.57	0.01	0.043	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
OCDF	74.9		13.5	1.22	0.001	0.075	pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total PeCDD	1370	J V	6.77	1.65			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total HxCDD	1610		6.77	1.81			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total HpCDD	4290		6.77	1.30			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total TCDF	213	J	1.35	1.51			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total PeCDF	114	J	6.77	0.666			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total HxCDF	108	J	6.77	0.636			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total HpCDF	116	J	6.77	1.35			pg/g	☼	11/23/15 10:39	11/30/15 16:06	1
Total TEQ (EPA 1989)						85					

Internal Standard	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	33	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,7,8-PeCDD	30	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,4,7,8-HxCDD	26	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,6,7,8-HxCDD	31	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,4,6,7,8-HpCDD	29	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-OCDD	26	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-2,3,7,8-TCDF	28	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-2,3,7,8-TCDF	33	J1	40 - 135	11/23/15 10:39	12/02/15 13:54	1
13C-1,2,3,7,8-PeCDF	26	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-2,3,4,7,8-PeCDF	25	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,4,7,8-HxCDF	25	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,6,7,8-HxCDF	25	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-2,3,4,6,7,8-HxCDF	25	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,7,8,9-HxCDF	21	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,4,6,7,8-HpCDF	24	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-1,2,3,4,7,8,9-HpCDF	22	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1
13C-OCDF	21	J1	40 - 135	11/23/15 10:39	11/30/15 16:06	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Date Collected: 11/17/15 09:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 74.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	370		120	65	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Benzene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Bromobenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Bromoform	5.0	* U	12	5.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Bromomethane	8.6	U	24	8.6	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
2-Butanone (MEK)	25	I	60	16	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Carbon disulfide	12	U	24	12	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Carbon tetrachloride	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chlorobenzene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chlorobromomethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chlorodibromomethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chloroethane	5.3	U	24	5.3	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chloroform	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Chloromethane	6.0	U	24	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
2-Chlorotoluene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
4-Chlorotoluene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
cis-1,2-Dichloroethene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
cis-1,3-Dichloropropene	4.8	U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2-Dibromo-3-Chloropropane	8.6	* U	24	8.6	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Dibromomethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2-Dichlorobenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,3-Dichlorobenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,4-Dichlorobenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Dichlorobromomethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Dichlorodifluoromethane	5.8	U	24	5.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1-Dichloroethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2-Dichloroethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1-Dichloroethene	5.3	U	12	5.3	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2-Dichloropropane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,3-Dichloropropane	4.8	U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
2,2-Dichloropropane	4.8	U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1-Dichloropropene	4.8	U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Ethylbenzene	4.8	U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Ethylene Dibromide	3.4	U	12	3.4	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Hexachlorobutadiene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
2-Hexanone	55	U	60	55	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Isopropylbenzene	9.1	* U	12	9.1	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
4-Isopropyltoluene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Methylene Chloride	9.6	U	12	9.6	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
4-Methyl-2-pentanone (MIBK)	26	U	60	26	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Methyl tert-butyl ether	12	U	24	12	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
m-Xylene & p-Xylene	7.2	U	24	7.2	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
n-Butylbenzene	5.0	* U	12	5.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
N-Propylbenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
o-Xylene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
sec-Butylbenzene	5.8	* U	12	5.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Styrene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
tert-Butylbenzene	4.8	* U	12	4.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1,1,2-Tetrachloroethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Date Collected: 11/17/15 09:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 74.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	8.1	* U	12	8.1	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Tetrachloroethene	7.2	U	12	7.2	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Toluene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
trans-1,2-Dichloroethene	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
trans-1,3-Dichloropropene	5.0	U	12	5.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2,3-Trichlorobenzene	5.8	* U	12	5.8	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2,4-Trichlorobenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1,1-Trichloroethane	5.0	U	12	5.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,1,2-Trichloroethane	6.0	U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Trichloroethene	5.3	U	12	5.3	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Trichlorofluoromethane	6.7	U	24	6.7	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2,3-Trichloropropane	7.2	* U	12	7.2	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,2,4-Trimethylbenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
1,3,5-Trimethylbenzene	6.0	* U	12	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Vinyl chloride	6.0	U	24	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Xylenes, Total	6.0	U	36	6.0	ug/Kg	☼	11/18/15 15:51	11/27/15 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	128	*	69 - 130				11/18/15 15:51	11/27/15 13:51	1
Dibromofluoromethane	105		63 - 139				11/18/15 15:51	11/27/15 13:51	1
Toluene-d8 (Surr)	90		67 - 138				11/18/15 15:51	11/27/15 13:51	1

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	2.3	I	8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Acenaphthylene	41		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Anthracene	29		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Benzo[a]anthracene	240		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Benzo[a]pyrene	260		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Benzo[b]fluoranthene	440		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Benzo[g,h,i]perylene	130		8.9	2.7	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Benzo[k]fluoranthene	170		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Chrysene	300		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Dibenz(a,h)anthracene	46		8.9	2.7	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Fluoranthene	270		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Fluorene	1.3	U	8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Indeno[1,2,3-cd]pyrene	130		8.9	2.7	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
1-Methylnaphthalene	5.1	I	8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
2-Methylnaphthalene	11		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Naphthalene	31		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Phenanthrene	40		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Pyrene	270		8.9	1.3	ug/Kg	☼	11/23/15 13:45	11/27/15 11:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	68		27 - 127				11/23/15 13:45	11/27/15 11:57	1
Nitrobenzene-d5 (Surr)	58		15 - 136				11/23/15 13:45	11/27/15 11:57	1
Terphenyl-d14 (Surr)	71		24 - 146				11/23/15 13:45	11/27/15 11:57	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Date Collected: 11/17/15 09:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 74.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bolstar	79	U	170	79	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Chlorpyrifos	39	U	170	39	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Coumaphos	68	U	1700	68	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Demeton, Total	130	U	440	130	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Diazinon	79	U	350	79	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Dichlorvos	47	U	350	47	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Dimethoate	43	U	350	43	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Disulfoton	35	U	350	35	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
EPN	43	U	350	43	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Ethyl Parathion	44	U	170	44	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Fensulfothion	58	U	1700	58	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Guthion	46	U	350	46	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Malathion	35	U	170	35	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Methyl parathion	40	U	170	40	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Mevinphos	68	U	350	68	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Mocap	58	U	170	58	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Monochrotophos	51	U	1700	51	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Naled	48	U	1700	48	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Phorate	95	U	170	95	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Ronnel	39	U	170	39	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Sulfotepp	35	U	170	35	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Tokuthion	110	U	170	110	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2
Trichloronate	35	U	1700	35	ug/Kg	☼	11/23/15 13:42	12/01/15 14:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenylphosphate	76		30 - 164	11/23/15 13:42	12/01/15 14:52	2

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.20	U	2.3	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
alpha-BHC	0.19	U	2.3	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
alpha-Chlordane	0.24	U	2.3	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
beta-BHC	0.44	U	2.3	0.44	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Chlordane (technical)	3.8	U	23	3.8	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
4,4'-DDD	0.24	U	2.3	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
4,4'-DDE	39		2.3	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
4,4'-DDT	0.29	U	2.3	0.29	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
delta-BHC	0.25	U	2.3	0.25	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Dieldrin	0.23	U	2.3	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endosulfan I	0.23	U	2.3	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endosulfan II	0.20	U	2.3	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endosulfan sulfate	0.28	U	2.3	0.28	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endrin	0.29	U	2.3	0.29	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endrin aldehyde	0.29	U	2.3	0.29	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Endrin ketone	0.27	U	2.3	0.27	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
gamma-BHC (Lindane)	0.19	U	2.3	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
gamma-Chlordane	3.2		2.3	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Heptachlor	0.25	U	2.3	0.25	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Heptachlor epoxide	0.21	U	2.3	0.21	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Methoxychlor	0.37	U	2.3	0.37	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Lab Sample ID: 660-70487-1

Date Collected: 11/17/15 09:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 74.3

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	15	U	44	15	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1221	20	U	44	20	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1232	6.9	U	44	6.9	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1242	6.6	U	44	6.6	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1248	530		44	11	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1254	13	U	44	13	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
PCB-1260	99		44	13	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Total PCBs	630		44	6.6	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Toxaphene	7.3	U	230	7.3	ug/Kg	☼	11/19/15 10:02	11/19/15 19:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	78		46 - 130				11/19/15 10:02	11/19/15 19:38	1
DCB Decachlorobiphenyl	96		54 - 133				11/19/15 10:02	11/19/15 19:38	1

Method: FL-PRO - Florida - Petroleum Range Organics (GC)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Petroleum Hydrocarbons (C8-C40)	130		13	2.3	mg/Kg	☼	11/20/15 09:29	11/23/15 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-C39	86		60 - 118				11/20/15 09:29	11/23/15 16:29	1
o-Terphenyl	76		62 - 109				11/20/15 09:29	11/23/15 16:29	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		0.35	0.12	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Barium	120		0.59	0.071	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Cadmium	2.3		0.059	0.018	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Chromium	42		1.2	0.13	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Lead	430		0.24	0.059	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Selenium	0.91		0.59	0.12	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1
Silver	1.9		0.12	0.012	mg/Kg	☼	11/19/15 12:34	11/20/15 00:49	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.20		0.025	0.010	mg/Kg	☼	11/20/15 15:10	11/24/15 10:03	1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 93.2

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		5.36	4.04	1		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,7,8-PeCDD	5.56	J I	26.8	1.58	0.5	2.8	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,4,7,8-HxCDD	17.4	I	26.8	2.41	0.1	1.7	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,6,7,8-HxCDD	28.9		26.8	2.62	0.1	2.9	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,7,8,9-HxCDD	45.3	C	26.8	2.34	0.1	4.5	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,4,6,7,8-HpCDD	2300		26.8	3.23	0.01	23	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
OCDD	27100	V E	53.6	3.36	0.001	27	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
2,3,7,8-TCDF	ND		5.36	2.53	0.1		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 93.2

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A) (Continued)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8-PeCDF	ND		26.8	1.29	0.05		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
2,3,4,7,8-PeCDF	ND		26.8	1.19	0.5		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total TCDD	3.18	J I	5.36	4.04			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,4,7,8-HxCDF	3.04	C I	26.8	1.04	0.1	0.30	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,6,7,8-HxCDF	ND		26.8	0.981	0.1		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
2,3,4,6,7,8-HxCDF	ND		26.8	1.02	0.1		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,7,8,9-HxCDF	ND		26.8	1.32	0.1		pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,4,6,7,8-HpCDF	58.9		26.8	1.61	0.01	0.59	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
1,2,3,4,7,8,9-HpCDF	12.8	I	26.8	1.79	0.01	0.13	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
OCDF	472		53.6	2.61	0.001	0.47	pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total PeCDD	29.7	V J I	26.8	1.58			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total HxCDD	301	J	26.8	2.45			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total HpCDD	4670		26.8	3.23			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total TCDF	ND		5.36	2.53			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total PeCDF	5.68	J I	26.8	1.23			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total HxCDF	68.4	J	26.8	1.08			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total HpCDF	293	J	26.8	1.70			pg/g	☼	11/23/15 10:39	12/01/15 07:55	5
Total TEQ (EPA 1989)						64					

Internal Standard	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	75		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,7,8-PeCDD	73		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,4,7,8-HxCDD	68		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,6,7,8-HxCDD	79		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,4,6,7,8-HpCDD	84		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-OCDD	91		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-2,3,7,8-TCDF	68		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,7,8-PeCDF	62		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-2,3,4,7,8-PeCDF	66		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,4,7,8-HxCDF	61		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,6,7,8-HxCDF	69		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-2,3,4,6,7,8-HxCDF	76		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,7,8,9-HxCDF	64		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,4,6,7,8-HpCDF	67		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-1,2,3,4,7,8,9-HpCDF	69		40 - 135	11/23/15 10:39	12/01/15 07:55	5
13C-OCDF	72		40 - 135	11/23/15 10:39	12/01/15 07:55	5

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	30	I	46	25	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Benzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Bromobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Bromoform	1.9	U	4.6	1.9	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Bromomethane	3.3	U	9.2	3.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
2-Butanone (MEK)	6.0	U	23	6.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	4.6	U	9.2	4.6	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Carbon tetrachloride	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chlorobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chlorobromomethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chlorodibromomethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chloroethane	2.0	U	9.2	2.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chloroform	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Chloromethane	2.3	U	9.2	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
2-Chlorotoluene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
4-Chlorotoluene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
cis-1,2-Dichloroethene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
cis-1,3-Dichloropropene	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2-Dibromo-3-Chloropropane	3.3	U	9.2	3.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Dibromomethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2-Dichlorobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,3-Dichlorobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,4-Dichlorobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Dichlorobromomethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Dichlorodifluoromethane	2.2	U	9.2	2.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1-Dichloroethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2-Dichloroethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1-Dichloroethene	2.0	U	4.6	2.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2-Dichloropropane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,3-Dichloropropane	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
2,2-Dichloropropane	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1-Dichloropropene	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Ethylbenzene	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Ethylene Dibromide	1.3	U	4.6	1.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Hexachlorobutadiene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
2-Hexanone	21	U	23	21	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Isopropylbenzene	3.5	U	4.6	3.5	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
4-Isopropyltoluene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Methylene Chloride	3.7	U	4.6	3.7	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
4-Methyl-2-pentanone (MIBK)	10	U	23	10	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Methyl tert-butyl ether	4.6	U	9.2	4.6	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
m-Xylene & p-Xylene	2.7	U	9.2	2.7	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
n-Butylbenzene	1.9	U	4.6	1.9	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
N-Propylbenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
o-Xylene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
sec-Butylbenzene	2.2	U	4.6	2.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Styrene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
tert-Butylbenzene	1.8	U	4.6	1.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1,1,2-Tetrachloroethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1,1,2,2-Tetrachloroethane	3.1	U	4.6	3.1	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Tetrachloroethene	2.7	U	4.6	2.7	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Toluene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
trans-1,2-Dichloroethene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
trans-1,3-Dichloropropene	1.9	U	4.6	1.9	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2,3-Trichlorobenzene	2.2	U	4.6	2.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1,1-Trichloroethane	1.9	U	4.6	1.9	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,1,2-Trichloroethane	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Trichloroethene	2.0	U	4.6	2.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Trichlorofluoromethane	2.6	U	9.2	2.6	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2,3-Trichloropropane	2.7	U	4.6	2.7	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,2,4-Trimethylbenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
1,3,5-Trimethylbenzene	2.3	U	4.6	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Vinyl chloride	2.3	U	9.2	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Xylenes, Total	2.3	U	14	2.3	ug/Kg	☼	11/18/15 15:52	11/20/15 14:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		69 - 130				11/18/15 15:52	11/20/15 14:07	1
Dibromofluoromethane	101		63 - 139				11/18/15 15:52	11/20/15 14:07	1
Toluene-d8 (Surr)	95		67 - 138				11/18/15 15:52	11/20/15 14:07	1

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	1.0	U	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Acenaphthylene	1.2	I	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Anthracene	2.1	I	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Benzo[a]anthracene	12		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Benzo[a]pyrene	13		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Benzo[b]fluoranthene	22		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Benzo[g,h,i]perylene	6.4	I	6.8	2.1	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Benzo[k]fluoranthene	7.5		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Chrysene	14		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Dibenz(a,h)anthracene	2.1	U	6.8	2.1	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Fluoranthene	21		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Fluorene	1.0	U	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Indeno[1,2,3-cd]pyrene	6.2	I	6.8	2.1	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
1-Methylnaphthalene	1.0	U	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
2-Methylnaphthalene	1.0	U	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Naphthalene	1.0	U	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Phenanthrene	5.2	I	6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Pyrene	17		6.8	1.0	ug/Kg	☼	11/23/15 13:45	11/27/15 12:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	75		27 - 127				11/23/15 13:45	11/27/15 12:32	1
Nitrobenzene-d5 (Surr)	64		15 - 136				11/23/15 13:45	11/27/15 12:32	1
Terphenyl-d14 (Surr)	80		24 - 146				11/23/15 13:45	11/27/15 12:32	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bolstar	31	U	67	31	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Chlorpyrifos	15	U	67	15	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Coumaphos	27	U	670	27	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Demeton, Total	51	U	170	51	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Diazinon	31	U	130	31	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Dichlorvos	18	U	130	18	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	17	U	130	17	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Disulfoton	14	U	130	14	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
EPN	17	U	130	17	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Ethyl Parathion	17	U	67	17	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Fensulfothion	22	U	670	22	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Guthion	18	U	130	18	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Malathion	14	U	67	14	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Methyl parathion	16	U	67	16	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Mevinphos	27	U	130	27	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Mocap	22	U	67	22	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Monochrotophos	20	U	670	20	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Naled	19	J3 U	670	19	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Phorate	37	U	67	37	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Ronnel	15	U	67	15	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Sulfotepp	13	U	67	13	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Tokuthion	43	J3 U	67	43	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Trichloronate	14	U	670	14	ug/Kg	☼	11/23/15 13:42	11/30/15 19:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Triphenylphosphate	92		30 - 164				11/23/15 13:42	11/30/15 19:50	1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.16	U	1.8	0.16	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
alpha-BHC	0.15	U	1.8	0.15	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
alpha-Chlordane	0.23	I	1.8	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
beta-BHC	0.34	U	1.8	0.34	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Chlordane (technical)	3.0	U	18	3.0	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
4,4'-DDD	0.19	U	1.8	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
4,4'-DDE	0.19	U	1.8	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
4,4'-DDT	0.23	U	1.8	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
delta-BHC	0.20	U	1.8	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Dieldrin	0.18	U	1.8	0.18	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endosulfan I	0.18	U	1.8	0.18	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endosulfan II	0.16	U	1.8	0.16	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endosulfan sulfate	0.22	U	1.8	0.22	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endrin	0.23	U	1.8	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endrin aldehyde	0.23	U	1.8	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Endrin ketone	0.21	U	1.8	0.21	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
gamma-BHC (Lindane)	0.15	U	1.8	0.15	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
gamma-Chlordane	0.72	I	1.8	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Heptachlor	0.20	U	1.8	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Heptachlor epoxide	0.17	U	1.8	0.17	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Methoxychlor	0.29	U	1.8	0.29	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1016	11	U	34	11	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1221	16	U	34	16	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1232	5.4	U	34	5.4	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1242	5.2	U	34	5.2	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1248	8.6	U	34	8.6	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
PCB-1254	10	U	34	10	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1260	10	U	34	10	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Total PCBs	5.2	U	34	5.2	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Toxaphene	5.7	U	180	5.7	ug/Kg	☼	11/19/15 10:02	11/19/15 18:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	67		46 - 130				11/19/15 10:02	11/19/15 18:37	1
DCB Decachlorobiphenyl	91		54 - 133				11/19/15 10:02	11/19/15 18:37	1

Method: FL-PRO - Florida - Petroleum Range Organics (GC)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Petroleum Hydrocarbons (C8-C40)	2.6	I	10	1.8	mg/Kg	☼	11/20/15 09:29	11/23/15 16:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-C39	87		60 - 118				11/20/15 09:29	11/23/15 16:50	1
o-Terphenyl	78		62 - 109				11/20/15 09:29	11/23/15 16:50	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.13	I	0.27	0.089	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Barium	1.0		0.44	0.053	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Cadmium	0.029	I	0.044	0.013	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Chromium	0.56	I V	0.89	0.098	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Lead	0.99		0.18	0.044	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Selenium	0.24	I	0.44	0.089	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1
Silver	0.012	I	0.089	0.0089	mg/Kg	☼	11/19/15 12:34	11/20/15 01:04	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0082	U	0.021	0.0082	mg/Kg	☼	11/20/15 15:10	11/24/15 10:06	1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 81

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.21	0.536	1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,7,8-PeCDD	ND		6.07	0.272	0.5		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,4,7,8-HxCDD	ND		6.07	0.256	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,6,7,8-HxCDD	ND		6.07	0.271	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,7,8,9-HxCDD	ND		6.07	0.245	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,4,6,7,8-HpCDD	35.7		6.07	0.454	0.01	0.36	pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
OCDD	562	V	12.1	0.465	0.001	0.56	pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
2,3,7,8-TCDF	ND		1.21	0.434	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,7,8-PeCDF	ND		6.07	0.198	0.05		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
2,3,4,7,8-PeCDF	ND		6.07	0.176	0.5		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total TCDD	ND		1.21	0.536			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,4,7,8-HxCDF	ND		6.07	0.134	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,6,7,8-HxCDF	ND		6.07	0.141	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
2,3,4,6,7,8-HxCDF	ND		6.07	0.142	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 81

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A) (Continued)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,7,8,9-HxCDF	ND		6.07	0.182	0.1		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,4,6,7,8-HpCDF	0.900	I	6.07	0.254	0.01	0.0090	pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
1,2,3,4,7,8,9-HpCDF	ND		6.07	0.335	0.01		pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
OCDF	9.77	I	12.1	0.396	0.001	0.0098	pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total PeCDD	0.450	J I	6.07	0.272			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total HxCDD	1.03	J I	6.07	0.257			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total HpCDD	65.7		6.07	0.454			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total TCDF	ND		1.21	0.434			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total PeCDF	ND		6.07	0.186			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total HxCDF	0.475	J I	6.07	0.148			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total HpCDF	3.95	J I	6.07	0.290			pg/g	☼	11/23/15 10:39	11/30/15 18:07	1
Total TEQ (EPA 1989)						0.94					

Internal Standard	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,7,8-PeCDD	72		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,4,7,8-HxCDD	76		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,6,7,8-HxCDD	71		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,4,6,7,8-HpCDD	73		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-OCDD	74		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-2,3,7,8-TCDF	58		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,7,8-PeCDF	55		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-2,3,4,7,8-PeCDF	59		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,4,7,8-HxCDF	57		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,6,7,8-HxCDF	58		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-2,3,4,6,7,8-HxCDF	60		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,7,8,9-HxCDF	59		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,4,6,7,8-HpCDF	60		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-1,2,3,4,7,8,9-HpCDF	59		40 - 135	11/23/15 10:39	11/30/15 18:07	1
13C-OCDF	65		40 - 135	11/23/15 10:39	11/30/15 18:07	1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	54	U	100	54	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Benzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Bromobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Bromoform	4.2	U	10	4.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Bromomethane	7.2	U	20	7.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
2-Butanone (MEK)	13	U	50	13	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Carbon disulfide	10	U	20	10	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Carbon tetrachloride	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Chlorobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Chlorobromomethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Chlorodibromomethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Chloroethane	4.4	U	20	4.4	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Chloromethane	5.0	U	20	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
2-Chlorotoluene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
4-Chlorotoluene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
cis-1,2-Dichloroethene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
cis-1,3-Dichloropropene	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2-Dibromo-3-Chloropropane	7.2	U	20	7.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Dibromomethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2-Dichlorobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,3-Dichlorobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,4-Dichlorobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Dichlorobromomethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Dichlorodifluoromethane	4.8	U	20	4.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1-Dichloroethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2-Dichloroethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1-Dichloroethene	4.4	U	10	4.4	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2-Dichloropropane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,3-Dichloropropane	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
2,2-Dichloropropane	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1-Dichloropropene	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Ethylbenzene	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Ethylene Dibromide	2.8	U	10	2.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Hexachlorobutadiene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
2-Hexanone	46	U	50	46	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Isopropylbenzene	7.6	U	10	7.6	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
4-Isopropyltoluene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Methylene Chloride	8.0	U	10	8.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
4-Methyl-2-pentanone (MIBK)	22	U	50	22	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Methyl tert-butyl ether	10	U	20	10	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
m-Xylene & p-Xylene	6.0	U	20	6.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
n-Butylbenzene	4.2	U	10	4.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
N-Propylbenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
o-Xylene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
sec-Butylbenzene	4.8	U	10	4.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Styrene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
tert-Butylbenzene	4.0	U	10	4.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1,1,2-Tetrachloroethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1,2,2-Tetrachloroethane	6.8	U	10	6.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Tetrachloroethene	6.0	U	10	6.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Toluene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
trans-1,2-Dichloroethene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
trans-1,3-Dichloropropene	4.2	U	10	4.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2,3-Trichlorobenzene	4.8	U	10	4.8	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2,4-Trichlorobenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1,1-Trichloroethane	4.2	U	10	4.2	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,1,2-Trichloroethane	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Trichloroethene	4.4	U	10	4.4	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Trichlorofluoromethane	5.6	U	20	5.6	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,2,3-Trichloropropane	6.0	U	10	6.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
1,3,5-Trimethylbenzene	5.0	U	10	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Vinyl chloride	5.0	U	20	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Xylenes, Total	5.0	U	30	5.0	ug/Kg	☼	11/18/15 15:52	11/20/15 14:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		69 - 130				11/18/15 15:52	11/20/15 14:25	1
Dibromofluoromethane	100		63 - 139				11/18/15 15:52	11/20/15 14:25	1
Toluene-d8 (Surr)	95		67 - 138				11/18/15 15:52	11/20/15 14:25	1

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Acenaphthylene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Anthracene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Benzo[a]anthracene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Benzo[a]pyrene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Benzo[b]fluoranthene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Benzo[g,h,i]perylene	2.3	U	7.5	2.3	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Benzo[k]fluoranthene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Chrysene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Dibenz(a,h)anthracene	2.3	U	7.5	2.3	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Fluoranthene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Fluorene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Indeno[1,2,3-cd]pyrene	2.3	U	7.5	2.3	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
1-Methylnaphthalene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
2-Methylnaphthalene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Naphthalene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Phenanthrene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Pyrene	1.1	U	7.5	1.1	ug/Kg	☼	11/23/15 13:45	11/27/15 13:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	65		27 - 127				11/23/15 13:45	11/27/15 13:07	1
Nitrobenzene-d5 (Surr)	54		15 - 136				11/23/15 13:45	11/27/15 13:07	1
Terphenyl-d14 (Surr)	80		24 - 146				11/23/15 13:45	11/27/15 13:07	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bolstar	34	U	74	34	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Chlorpyrifos	17	U	74	17	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Coumaphos	29	U	740	29	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Demeton, Total	56	U	190	56	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Diazinon	34	U	150	34	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Dichlorvos	20	U	150	20	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Dimethoate	18	U	150	18	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Disulfoton	15	U	150	15	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
EPN	18	U	150	18	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Ethyl Parathion	19	U	74	19	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Fensulfotion	25	U	740	25	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Guthion	19	U	150	19	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Malathion	15	U	74	15	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Methyl parathion	17	U	74	17	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Mevinphos	29	U	150	29	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Mocap	25	U	74	25	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Monochrotophos	22	U	740	22	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Naled	21	U	740	21	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Phorate	40	U	74	40	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Ronnel	17	U	74	17	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Sulfotepp	15	U	74	15	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Tokuthion	47	U	74	47	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Trichloronate	15	U	740	15	ug/Kg	☼	11/23/15 13:42	11/30/15 21:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Triphenylphosphate	98		30 - 164				11/23/15 13:42	11/30/15 21:50	1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.17	U	1.9	0.17	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
alpha-BHC	0.16	U	1.9	0.16	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
alpha-Chlordane	0.20	U	1.9	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
beta-BHC	0.37	U	1.9	0.37	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Chlordane (technical)	3.2	U	19	3.2	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
4,4'-DDD	0.20	U	1.9	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
4,4'-DDE	0.20	U	1.9	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
4,4'-DDT	0.24	U	1.9	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
delta-BHC	0.21	U	1.9	0.21	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Dieldrin	0.19	U	1.9	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endosulfan I	0.19	U	1.9	0.19	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endosulfan II	0.17	U	1.9	0.17	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endosulfan sulfate	0.23	U	1.9	0.23	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endrin	0.24	U	1.9	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endrin aldehyde	0.24	U	1.9	0.24	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Endrin ketone	0.22	U	1.9	0.22	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
gamma-BHC (Lindane)	0.16	U	1.9	0.16	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
gamma-Chlordane	0.20	U	1.9	0.20	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Heptachlor	0.21	U	1.9	0.21	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Heptachlor epoxide	0.18	U	1.9	0.18	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Methoxychlor	0.31	U	1.9	0.31	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1016	12	U	37	12	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1221	17	U	37	17	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1232	5.8	U	37	5.8	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1242	5.6	U	37	5.6	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1248	9.1	U	37	9.1	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1254	11	U	37	11	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
PCB-1260	11	U	37	11	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Total PCBs	5.6	U	37	5.6	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Toxaphene	6.1	U	190	6.1	ug/Kg	☼	11/19/15 10:02	11/19/15 18:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	64		46 - 130				11/19/15 10:02	11/19/15 18:52	1

TestAmerica Tampa

Client Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	93		54 - 133	11/19/15 10:02	11/19/15 18:52	1

Method: FL-PRO - Florida - Petroleum Range Organics (GC)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Petroleum Hydrocarbons (C8-C40)	1.9	U	11	1.9	mg/Kg	☼	11/20/15 09:29	11/23/15 17:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-C39	91		60 - 118	11/20/15 09:29	11/23/15 17:00	1
o-Terphenyl	86		62 - 109	11/20/15 09:29	11/23/15 17:00	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.18	I	0.30	0.099	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Barium	4.0		0.49	0.059	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Cadmium	0.015	U	0.049	0.015	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Chromium	2.5		0.99	0.11	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Lead	0.24		0.20	0.049	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Selenium	0.24	I	0.49	0.099	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1
Silver	0.0099	U	0.099	0.0099	mg/Kg	☼	11/19/15 12:34	11/20/15 01:09	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0094	I	0.021	0.0083	mg/Kg	☼	11/20/15 15:10	11/24/15 10:09	1

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: 660-70475-H-2-B MS

Matrix: Solid

Analysis Batch: 163525

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 163456

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Acetone	41	U	1330	1530		ug/Kg	☼	115	67 - 133
Benzene	3.8	U	133	154		ug/Kg	☼	116	61 - 131
Bromobenzene	3.8	U	133	152		ug/Kg	☼	115	58 - 130
Bromoform	3.2	U	133	145		ug/Kg	☼	109	62 - 130
Bromomethane	5.5	U	133	120		ug/Kg	☼	91	48 - 136
2-Butanone (MEK)	9.9	U	1330	1500		ug/Kg	☼	113	70 - 130
Carbon disulfide	7.7	U	133	128		ug/Kg	☼	97	34 - 143
Carbon tetrachloride	3.8	U	133	148		ug/Kg	☼	111	57 - 130
Chlorobenzene	3.8	U	133	149		ug/Kg	☼	112	62 - 130
Chlorobromomethane	3.8	U	133	144		ug/Kg	☼	108	50 - 130
Chlorodibromomethane	3.8	U	133	155		ug/Kg	☼	117	57 - 130
Chloroethane	3.4	U	133	130		ug/Kg	☼	98	49 - 140
Chloroform	3.8	U	133	143		ug/Kg	☼	108	62 - 130
Chloromethane	3.8	U	133	118		ug/Kg	☼	88	35 - 139
2-Chlorotoluene	3.8	U	133	152		ug/Kg	☼	114	60 - 130
4-Chlorotoluene	3.8	U	133	149		ug/Kg	☼	112	63 - 130
cis-1,2-Dichloroethene	3.8	U	133	149		ug/Kg	☼	112	62 - 130
cis-1,3-Dichloropropene	3.1	U	133	132		ug/Kg	☼	99	60 - 130
1,2-Dibromo-3-Chloropropane	5.5	U	133	141		ug/Kg	☼	106	54 - 130
Dibromomethane	3.8	U	133	148		ug/Kg	☼	111	68 - 130
1,2-Dichlorobenzene	3.8	U	133	153		ug/Kg	☼	115	60 - 130
1,3-Dichlorobenzene	3.8	U	133	151		ug/Kg	☼	114	55 - 130
1,4-Dichlorobenzene	3.8	U	133	153		ug/Kg	☼	115	64 - 130
Dichlorobromomethane	3.8	U	133	147		ug/Kg	☼	111	66 - 130
Dichlorodifluoromethane	3.7	U	133	84.3		ug/Kg	☼	63	10 - 140
1,1-Dichloroethane	3.8	U	133	153		ug/Kg	☼	115	47 - 130
1,2-Dichloroethane	3.8	U	133	142		ug/Kg	☼	107	63 - 130
1,1-Dichloroethene	3.4	U	133	146		ug/Kg	☼	110	54 - 144
1,2-Dichloropropane	3.8	U	133	153		ug/Kg	☼	115	55 - 130
1,3-Dichloropropane	3.1	U	133	153		ug/Kg	☼	115	63 - 130
2,2-Dichloropropane	3.1	U	133	123		ug/Kg	☼	93	55 - 130
1,1-Dichloropropene	3.1	U	133	132		ug/Kg	☼	99	55 - 130
Ethylbenzene	3.1	U	133	150		ug/Kg	☼	113	68 - 130
Ethylene Dibromide	2.1	U	133	151		ug/Kg	☼	114	64 - 130
Hexachlorobutadiene	3.8	U	133	157		ug/Kg	☼	118	57 - 130
2-Hexanone	35	U	1330	1400		ug/Kg	☼	105	69 - 136
Isopropylbenzene	5.8	U	133	159		ug/Kg	☼	120	60 - 130
4-Isopropyltoluene	3.8	U	133	152		ug/Kg	☼	114	64 - 130
Methylene Chloride	6.1	U	133	151		ug/Kg	☼	114	50 - 135
4-Methyl-2-pentanone (MIBK)	17	U	1330	1470		ug/Kg	☼	110	69 - 134
Methyl tert-butyl ether	7.7	U	133	152		ug/Kg	☼	115	55 - 134
n-Butylbenzene	3.2	U	133	154		ug/Kg	☼	116	63 - 130
N-Propylbenzene	3.8	U	133	154		ug/Kg	☼	116	63 - 130
o-Xylene	3.8	U	133	152		ug/Kg	☼	115	64 - 130
sec-Butylbenzene	3.7	U	133	155		ug/Kg	☼	117	63 - 130
Styrene	3.8	U	133	152		ug/Kg	☼	114	58 - 131
tert-Butylbenzene	3.1	U	133	154		ug/Kg	☼	116	62 - 130
1,1,1,2-Tetrachloroethane	3.8	U	133	150		ug/Kg	☼	113	56 - 130

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 660-70475-H-2-B MS
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 163456

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1,2,2-Tetrachloroethane	5.2	U	133	165		ug/Kg	☼	124	64 - 130
Tetrachloroethene	4.6	U	133	151		ug/Kg	☼	114	56 - 130
Toluene	3.8	U	133	152		ug/Kg	☼	114	61 - 130
trans-1,2-Dichloroethene	3.8	U	133	149		ug/Kg	☼	112	46 - 135
trans-1,3-Dichloropropene	3.2	U	133	133		ug/Kg	☼	100	65 - 130
1,2,3-Trichlorobenzene	3.7	U	133	154		ug/Kg	☼	116	57 - 130
1,2,4-Trichlorobenzene	3.8	U	133	159		ug/Kg	☼	119	59 - 130
1,1,1-Trichloroethane	3.2	U	133	145		ug/Kg	☼	109	57 - 130
1,1,2-Trichloroethane	3.8	U	133	152		ug/Kg	☼	115	62 - 130
Trichloroethene	3.4	U	133	146		ug/Kg	☼	110	54 - 131
Trichlorofluoromethane	4.3	U	133	119		ug/Kg	☼	90	53 - 130
1,2,3-Trichloropropane	4.6	U	133	168		ug/Kg	☼	126	60 - 130
1,2,4-Trimethylbenzene	3.8	U	133	154		ug/Kg	☼	116	59 - 130
1,3,5-Trimethylbenzene	3.8	U	133	155		ug/Kg	☼	116	58 - 130
Vinyl chloride	3.8	U	133	100		ug/Kg	☼	76	46 - 136
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene	101		69 - 130						
Dibromofluoromethane	98		63 - 139						
Toluene-d8 (Surr)	100		67 - 138						

Lab Sample ID: 660-70475-G-1-B DU
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 163456

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Acetone	35	I	22	U	ug/Kg	☼	NC	40
Benzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Bromobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Bromoform	1.8	U	1.7	U	ug/Kg	☼	NC	40
Bromomethane	3.1	U	3.0	U	ug/Kg	☼	NC	40
2-Butanone (MEK)	5.7	U	5.4	U	ug/Kg	☼	NC	40
Carbon disulfide	4.4	U	4.2	U	ug/Kg	☼	NC	40
Carbon tetrachloride	2.2	U	2.1	U	ug/Kg	☼	NC	40
Chlorobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Chlorobromomethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
Chlorodibromomethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
Chloroethane	1.9	U	1.8	U	ug/Kg	☼	NC	40
Chloroform	2.2	U	2.1	U	ug/Kg	☼	NC	40
Chloromethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
2-Chlorotoluene	2.2	U	2.1	U	ug/Kg	☼	NC	40
4-Chlorotoluene	2.2	U	2.1	U	ug/Kg	☼	NC	40
cis-1,2-Dichloroethene	2.2	U	2.1	U	ug/Kg	☼	NC	40
cis-1,3-Dichloropropene	1.7	U	1.7	U	ug/Kg	☼	NC	40
1,2-Dibromo-3-Chloropropane	3.1	U	3.0	U	ug/Kg	☼	NC	40
Dibromomethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,2-Dichlorobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,3-Dichlorobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 660-70475-G-1-B DU
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 163456

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
1,4-Dichlorobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Dichlorobromomethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
Dichlorodifluoromethane	2.1	U	2.0	U	ug/Kg	☼	NC	40
1,1-Dichloroethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,2-Dichloroethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,1-Dichloroethene	1.9	U	1.8	U	ug/Kg	☼	NC	40
1,2-Dichloropropane	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,3-Dichloropropane	1.7	U	1.7	U	ug/Kg	☼	NC	40
2,2-Dichloropropane	1.7	U	1.7	U	ug/Kg	☼	NC	40
1,1-Dichloropropene	1.7	U	1.7	U	ug/Kg	☼	NC	40
Ethylbenzene	1.7	U	1.7	U	ug/Kg	☼	NC	40
Ethylene Dibromide	1.2	U	1.2	U	ug/Kg	☼	NC	40
Hexachlorobutadiene	2.2	U	2.1	U	ug/Kg	☼	NC	40
2-Hexanone	20	U	19	U	ug/Kg	☼	NC	40
Isopropylbenzene	3.3	U	3.2	U	ug/Kg	☼	NC	40
4-Isopropyltoluene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Methylene Chloride	3.5	U	3.3	U	ug/Kg	☼	NC	40
4-Methyl-2-pentanone (MIBK)	9.6	U	9.2	U	ug/Kg	☼	NC	40
Methyl tert-butyl ether	4.4	U	4.2	U	ug/Kg	☼	NC	40
m-Xylene & p-Xylene	2.6	U	2.5	U	ug/Kg	☼	NC	40
n-Butylbenzene	1.8	U	1.7	U	ug/Kg	☼	NC	40
N-Propylbenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
o-Xylene	2.2	U	2.1	U	ug/Kg	☼	NC	40
sec-Butylbenzene	2.1	U	2.0	U	ug/Kg	☼	NC	40
Styrene	2.2	U	2.1	U	ug/Kg	☼	NC	40
tert-Butylbenzene	1.7	U	1.7	U	ug/Kg	☼	NC	40
1,1,1,2-Tetrachloroethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,1,1,2,2-Tetrachloroethane	3.0	U	2.8	U	ug/Kg	☼	NC	40
Tetrachloroethene	2.6	U	2.5	U	ug/Kg	☼	NC	40
Toluene	2.2	U	2.1	U	ug/Kg	☼	NC	40
trans-1,2-Dichloroethene	2.2	U	2.1	U	ug/Kg	☼	NC	40
trans-1,3-Dichloropropene	1.8	U	1.7	U	ug/Kg	☼	NC	40
1,2,3-Trichlorobenzene	2.1	U	2.0	U	ug/Kg	☼	NC	40
1,2,4-Trichlorobenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,1,1-Trichloroethane	1.8	U	1.7	U	ug/Kg	☼	NC	40
1,1,2-Trichloroethane	2.2	U	2.1	U	ug/Kg	☼	NC	40
Trichloroethene	1.9	U	1.8	U	ug/Kg	☼	NC	40
Trichlorofluoromethane	2.4	U	2.3	U	ug/Kg	☼	NC	40
1,2,3-Trichloropropane	2.6	U	2.5	U	ug/Kg	☼	NC	40
1,2,4-Trimethylbenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
1,3,5-Trimethylbenzene	2.2	U	2.1	U	ug/Kg	☼	NC	40
Vinyl chloride	2.2	U	2.1	U	ug/Kg	☼	NC	40
Xylenes, Total	2.2	U	2.1	U	ug/Kg	☼	NC	40

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	97		69 - 130
Dibromofluoromethane	98		63 - 139
Toluene-d8 (Surr)	96		67 - 138

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Lab Sample ID: MB 660-163525/7
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	27	U	50	27	ug/Kg			11/20/15 09:40	1
Benzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Bromobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Bromoform	2.1	U	5.0	2.1	ug/Kg			11/20/15 09:40	1
Bromomethane	3.6	U	10	3.6	ug/Kg			11/20/15 09:40	1
2-Butanone (MEK)	6.5	U	25	6.5	ug/Kg			11/20/15 09:40	1
Carbon disulfide	5.0	U	10	5.0	ug/Kg			11/20/15 09:40	1
Carbon tetrachloride	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Chlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Chlorobromomethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Chlorodibromomethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Chloroethane	2.2	U	10	2.2	ug/Kg			11/20/15 09:40	1
Chloroform	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Chloromethane	2.5	U	10	2.5	ug/Kg			11/20/15 09:40	1
2-Chlorotoluene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
4-Chlorotoluene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
cis-1,2-Dichloroethene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
cis-1,3-Dichloropropene	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
1,2-Dibromo-3-Chloropropane	3.6	U	10	3.6	ug/Kg			11/20/15 09:40	1
Dibromomethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,2-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,3-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,4-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Dichlorobromomethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Dichlorodifluoromethane	2.4	U	10	2.4	ug/Kg			11/20/15 09:40	1
1,1-Dichloroethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,2-Dichloroethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,1-Dichloroethene	2.2	U	5.0	2.2	ug/Kg			11/20/15 09:40	1
1,2-Dichloropropane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,3-Dichloropropane	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
2,2-Dichloropropane	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
1,1-Dichloropropene	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
Ethylbenzene	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
Ethylene Dibromide	1.4	U	5.0	1.4	ug/Kg			11/20/15 09:40	1
Hexachlorobutadiene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
2-Hexanone	23	U	25	23	ug/Kg			11/20/15 09:40	1
Isopropylbenzene	3.8	U	5.0	3.8	ug/Kg			11/20/15 09:40	1
4-Isopropyltoluene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Methylene Chloride	4.0	U	5.0	4.0	ug/Kg			11/20/15 09:40	1
4-Methyl-2-pentanone (MIBK)	11	U	25	11	ug/Kg			11/20/15 09:40	1
Methyl tert-butyl ether	5.0	U	10	5.0	ug/Kg			11/20/15 09:40	1
m-Xylene & p-Xylene	3.0	U	10	3.0	ug/Kg			11/20/15 09:40	1
n-Butylbenzene	2.1	U	5.0	2.1	ug/Kg			11/20/15 09:40	1
N-Propylbenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
o-Xylene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
sec-Butylbenzene	2.4	U	5.0	2.4	ug/Kg			11/20/15 09:40	1
Styrene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
tert-Butylbenzene	2.0	U	5.0	2.0	ug/Kg			11/20/15 09:40	1
1,1,1,2-Tetrachloroethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,1,2,2-Tetrachloroethane	3.4	U	5.0	3.4	ug/Kg			11/20/15 09:40	1

TestAmerica Tampa



QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 660-163525/7
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	3.0	U	5.0	3.0	ug/Kg			11/20/15 09:40	1
Toluene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
trans-1,2-Dichloroethene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
trans-1,3-Dichloropropene	2.1	U	5.0	2.1	ug/Kg			11/20/15 09:40	1
1,2,3-Trichlorobenzene	2.4	U	5.0	2.4	ug/Kg			11/20/15 09:40	1
1,2,4-Trichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,1,1-Trichloroethane	2.1	U	5.0	2.1	ug/Kg			11/20/15 09:40	1
1,1,2-Trichloroethane	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Trichloroethene	2.2	U	5.0	2.2	ug/Kg			11/20/15 09:40	1
Trichlorofluoromethane	2.8	U	10	2.8	ug/Kg			11/20/15 09:40	1
1,2,3-Trichloropropane	3.0	U	5.0	3.0	ug/Kg			11/20/15 09:40	1
1,2,4-Trimethylbenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
1,3,5-Trimethylbenzene	2.5	U	5.0	2.5	ug/Kg			11/20/15 09:40	1
Vinyl chloride	2.5	U	10	2.5	ug/Kg			11/20/15 09:40	1
Xylenes, Total	2.5	U	15	2.5	ug/Kg			11/20/15 09:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		69 - 130		11/20/15 09:40	1
Dibromofluoromethane	94		63 - 139		11/20/15 09:40	1
Toluene-d8 (Surr)	95		67 - 138		11/20/15 09:40	1

Lab Sample ID: LCS 660-163525/5
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	500	530		ug/Kg		106	67 - 133
Benzene	50.0	49.8		ug/Kg		100	61 - 131
Bromobenzene	50.0	51.5		ug/Kg		103	58 - 130
Bromoform	50.0	49.0		ug/Kg		98	62 - 130
Bromomethane	50.0	45.4		ug/Kg		91	48 - 136
2-Butanone (MEK)	500	541		ug/Kg		108	70 - 130
Carbon disulfide	50.0	41.0		ug/Kg		82	34 - 143
Carbon tetrachloride	50.0	48.6		ug/Kg		97	57 - 130
Chlorobenzene	50.0	49.6		ug/Kg		99	62 - 130
Chlorobromomethane	50.0	46.7		ug/Kg		93	50 - 130
Chlorodibromomethane	50.0	50.8		ug/Kg		102	57 - 130
Chloroethane	50.0	47.2		ug/Kg		94	49 - 140
Chloroform	50.0	47.3		ug/Kg		95	62 - 130
Chloromethane	50.0	41.9		ug/Kg		84	35 - 139
2-Chlorotoluene	50.0	50.9		ug/Kg		102	60 - 130
4-Chlorotoluene	50.0	50.5		ug/Kg		101	63 - 130
cis-1,2-Dichloroethene	50.0	48.9		ug/Kg		98	62 - 130
cis-1,3-Dichloropropene	50.0	44.0		ug/Kg		88	60 - 130
1,2-Dibromo-3-Chloropropane	50.0	47.1		ug/Kg		94	54 - 130
Dibromomethane	50.0	48.7		ug/Kg		97	68 - 130
1,2-Dichlorobenzene	50.0	51.5		ug/Kg		103	60 - 130
1,3-Dichlorobenzene	50.0	51.3		ug/Kg		103	55 - 130

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 660-163525/5
Matrix: Solid
Analysis Batch: 163525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	50.0	51.9		ug/Kg		104	64 - 130
Dichlorobromomethane	50.0	49.2		ug/Kg		98	66 - 130
Dichlorodifluoromethane	50.0	36.4		ug/Kg		73	10 - 140
1,1-Dichloroethane	50.0	50.2		ug/Kg		100	47 - 130
1,2-Dichloroethane	50.0	44.1		ug/Kg		88	63 - 130
1,1-Dichloroethene	50.0	46.2		ug/Kg		92	54 - 144
1,2-Dichloropropane	50.0	50.6		ug/Kg		101	55 - 130
1,3-Dichloropropane	50.0	49.8		ug/Kg		100	63 - 130
2,2-Dichloropropane	50.0	41.2		ug/Kg		82	55 - 130
1,1-Dichloropropene	50.0	43.5		ug/Kg		87	55 - 130
Ethylbenzene	50.0	49.4		ug/Kg		99	68 - 130
Ethylene Dibromide	50.0	48.5		ug/Kg		97	64 - 130
Hexachlorobutadiene	50.0	53.9		ug/Kg		108	57 - 130
2-Hexanone	500	550		ug/Kg		110	69 - 136
Isopropylbenzene	50.0	52.8		ug/Kg		106	60 - 130
4-Isopropyltoluene	50.0	50.7		ug/Kg		101	64 - 130
Methylene Chloride	50.0	48.9		ug/Kg		98	50 - 135
4-Methyl-2-pentanone (MIBK)	500	559		ug/Kg		112	69 - 134
Methyl tert-butyl ether	50.0	50.2		ug/Kg		100	55 - 134
n-Butylbenzene	50.0	51.0		ug/Kg		102	63 - 130
N-Propylbenzene	50.0	51.4		ug/Kg		103	63 - 130
o-Xylene	50.0	49.3		ug/Kg		99	64 - 130
sec-Butylbenzene	50.0	51.6		ug/Kg		103	63 - 130
Styrene	50.0	50.1		ug/Kg		100	58 - 131
tert-Butylbenzene	50.0	51.4		ug/Kg		103	62 - 130
1,1,1,2-Tetrachloroethane	50.0	50.5		ug/Kg		101	56 - 130
1,1,1,2,2-Tetrachloroethane	50.0	56.8		ug/Kg		114	64 - 130
Tetrachloroethene	50.0	49.9		ug/Kg		100	56 - 130
Toluene	50.0	49.4		ug/Kg		99	61 - 130
trans-1,2-Dichloroethene	50.0	50.6		ug/Kg		101	46 - 135
trans-1,3-Dichloropropene	50.0	44.4		ug/Kg		89	65 - 130
1,2,3-Trichlorobenzene	50.0	52.5		ug/Kg		105	57 - 130
1,2,4-Trichlorobenzene	50.0	52.1		ug/Kg		104	59 - 130
1,1,1-Trichloroethane	50.0	47.0		ug/Kg		94	57 - 130
1,1,2-Trichloroethane	50.0	50.8		ug/Kg		102	62 - 130
Trichloroethene	50.0	47.6		ug/Kg		95	54 - 131
Trichlorofluoromethane	50.0	42.9		ug/Kg		86	53 - 130
1,2,3-Trichloropropane	50.0	54.8		ug/Kg		110	60 - 130
1,2,4-Trimethylbenzene	50.0	51.2		ug/Kg		102	59 - 130
1,3,5-Trimethylbenzene	50.0	51.6		ug/Kg		103	58 - 130
Vinyl chloride	50.0	42.0		ug/Kg		84	46 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	103		69 - 130
Dibromofluoromethane	98		63 - 139
Toluene-d8 (Surr)	102		67 - 138

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 660-163716/6

Matrix: Solid

Analysis Batch: 163716

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	27	U	50	27	ug/Kg			11/27/15 10:19	1
Benzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Bromobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Bromoform	2.1	U	5.0	2.1	ug/Kg			11/27/15 10:19	1
Bromomethane	3.6	U	10	3.6	ug/Kg			11/27/15 10:19	1
2-Butanone (MEK)	6.5	U	25	6.5	ug/Kg			11/27/15 10:19	1
Carbon disulfide	5.0	U	10	5.0	ug/Kg			11/27/15 10:19	1
Carbon tetrachloride	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Chlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Chlorobromomethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Chlorodibromomethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Chloroethane	2.2	U	10	2.2	ug/Kg			11/27/15 10:19	1
Chloroform	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Chloromethane	2.5	U	10	2.5	ug/Kg			11/27/15 10:19	1
2-Chlorotoluene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
4-Chlorotoluene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
cis-1,2-Dichloroethene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
cis-1,3-Dichloropropene	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1
1,2-Dibromo-3-Chloropropane	3.6	U	10	3.6	ug/Kg			11/27/15 10:19	1
Dibromomethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,2-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,3-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,4-Dichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Dichlorobromomethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Dichlorodifluoromethane	2.4	U	10	2.4	ug/Kg			11/27/15 10:19	1
1,1-Dichloroethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,2-Dichloroethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,1-Dichloroethene	2.2	U	5.0	2.2	ug/Kg			11/27/15 10:19	1
1,2-Dichloropropane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,3-Dichloropropane	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1
2,2-Dichloropropane	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1
1,1-Dichloropropene	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1
Ethylbenzene	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1
Ethylene Dibromide	1.4	U	5.0	1.4	ug/Kg			11/27/15 10:19	1
Hexachlorobutadiene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
2-Hexanone	23	U	25	23	ug/Kg			11/27/15 10:19	1
Isopropylbenzene	3.8	U	5.0	3.8	ug/Kg			11/27/15 10:19	1
4-Isopropyltoluene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Methylene Chloride	4.0	U	5.0	4.0	ug/Kg			11/27/15 10:19	1
4-Methyl-2-pentanone (MIBK)	11	U	25	11	ug/Kg			11/27/15 10:19	1
Methyl tert-butyl ether	5.0	U	10	5.0	ug/Kg			11/27/15 10:19	1
m-Xylene & p-Xylene	3.0	U	10	3.0	ug/Kg			11/27/15 10:19	1
n-Butylbenzene	2.1	U	5.0	2.1	ug/Kg			11/27/15 10:19	1
N-Propylbenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
o-Xylene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
sec-Butylbenzene	2.4	U	5.0	2.4	ug/Kg			11/27/15 10:19	1
Styrene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
tert-Butylbenzene	2.0	U	5.0	2.0	ug/Kg			11/27/15 10:19	1

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 660-163716/6
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,1,1,2,2-Tetrachloroethane	3.4	U	5.0	3.4	ug/Kg			11/27/15 10:19	1
Tetrachloroethene	3.0	U	5.0	3.0	ug/Kg			11/27/15 10:19	1
Toluene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
trans-1,2-Dichloroethene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
trans-1,3-Dichloropropene	2.1	U	5.0	2.1	ug/Kg			11/27/15 10:19	1
1,2,3-Trichlorobenzene	2.4	U	5.0	2.4	ug/Kg			11/27/15 10:19	1
1,2,4-Trichlorobenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,1,1-Trichloroethane	2.1	U	5.0	2.1	ug/Kg			11/27/15 10:19	1
1,1,2-Trichloroethane	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Trichloroethene	2.2	U	5.0	2.2	ug/Kg			11/27/15 10:19	1
Trichlorofluoromethane	2.8	U	10	2.8	ug/Kg			11/27/15 10:19	1
1,2,3-Trichloropropane	3.0	U	5.0	3.0	ug/Kg			11/27/15 10:19	1
1,2,4-Trimethylbenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
1,3,5-Trimethylbenzene	2.5	U	5.0	2.5	ug/Kg			11/27/15 10:19	1
Vinyl chloride	2.5	U	10	2.5	ug/Kg			11/27/15 10:19	1
Xylenes, Total	2.5	U	15	2.5	ug/Kg			11/27/15 10:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		69 - 130		11/27/15 10:19	1
Dibromofluoromethane	93		63 - 139		11/27/15 10:19	1
Toluene-d8 (Surr)	96		67 - 138		11/27/15 10:19	1

Lab Sample ID: LCS 660-163716/4
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	500	457		ug/Kg		91	67 - 133
Benzene	50.0	49.6		ug/Kg		99	61 - 131
Bromobenzene	50.0	51.6		ug/Kg		103	58 - 130
Bromoform	50.0	58.5		ug/Kg		117	62 - 130
Bromomethane	50.0	43.1		ug/Kg		86	48 - 136
2-Butanone (MEK)	500	458		ug/Kg		92	70 - 130
Carbon disulfide	50.0	48.2		ug/Kg		96	34 - 143
Carbon tetrachloride	50.0	53.3		ug/Kg		107	57 - 130
Chlorobenzene	50.0	51.1		ug/Kg		102	62 - 130
Chlorobromomethane	50.0	49.1		ug/Kg		98	50 - 130
Chlorodibromomethane	50.0	55.1		ug/Kg		110	57 - 130
Chloroethane	50.0	46.3		ug/Kg		93	49 - 140
Chloroform	50.0	50.0		ug/Kg		100	62 - 130
Chloromethane	50.0	44.3		ug/Kg		89	35 - 139
2-Chlorotoluene	50.0	52.5		ug/Kg		105	60 - 130
4-Chlorotoluene	50.0	52.3		ug/Kg		105	63 - 130
cis-1,2-Dichloroethene	50.0	50.7		ug/Kg		101	62 - 130
cis-1,3-Dichloropropene	50.0	53.6		ug/Kg		107	60 - 130
1,2-Dibromo-3-Chloropropane	50.0	55.3		ug/Kg		111	54 - 130
Dibromomethane	50.0	49.6		ug/Kg		99	68 - 130

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 660-163716/4
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	50.0	51.7		ug/Kg		103	60 - 130
1,3-Dichlorobenzene	50.0	51.9		ug/Kg		104	55 - 130
1,4-Dichlorobenzene	50.0	51.9		ug/Kg		104	64 - 130
Dichlorobromomethane	50.0	53.8		ug/Kg		108	66 - 130
Dichlorodifluoromethane	50.0	40.3		ug/Kg		81	10 - 140
1,1-Dichloroethane	50.0	51.4		ug/Kg		103	47 - 130
1,2-Dichloroethane	50.0	51.0		ug/Kg		102	63 - 130
1,1-Dichloroethene	50.0	49.0		ug/Kg		98	54 - 144
1,2-Dichloropropane	50.0	52.9		ug/Kg		106	55 - 130
1,3-Dichloropropane	50.0	50.0		ug/Kg		100	63 - 130
2,2-Dichloropropane	50.0	52.6		ug/Kg		105	55 - 130
1,1-Dichloropropene	50.0	49.3		ug/Kg		99	55 - 130
Ethylbenzene	50.0	51.2		ug/Kg		102	68 - 130
Ethylene Dibromide	50.0	50.6		ug/Kg		101	64 - 130
Hexachlorobutadiene	50.0	53.5		ug/Kg		107	57 - 130
2-Hexanone	500	468		ug/Kg		94	69 - 136
Isopropylbenzene	50.0	52.8		ug/Kg		106	60 - 130
4-Isopropyltoluene	50.0	51.3		ug/Kg		103	64 - 130
Methylene Chloride	50.0	49.0		ug/Kg		98	50 - 135
4-Methyl-2-pentanone (MIBK)	500	463		ug/Kg		93	69 - 134
Methyl tert-butyl ether	50.0	49.9		ug/Kg		100	55 - 134
n-Butylbenzene	50.0	52.1		ug/Kg		104	63 - 130
N-Propylbenzene	50.0	52.6		ug/Kg		105	63 - 130
o-Xylene	50.0	50.7		ug/Kg		101	64 - 130
sec-Butylbenzene	50.0	52.9		ug/Kg		106	63 - 130
Styrene	50.0	51.5		ug/Kg		103	58 - 131
tert-Butylbenzene	50.0	52.4		ug/Kg		105	62 - 130
1,1,1,2-Tetrachloroethane	50.0	53.9		ug/Kg		108	56 - 130
1,1,1,2,2-Tetrachloroethane	50.0	51.9		ug/Kg		104	64 - 130
Tetrachloroethene	50.0	51.9		ug/Kg		104	56 - 130
Toluene	50.0	50.3		ug/Kg		101	61 - 130
trans-1,2-Dichloroethene	50.0	51.1		ug/Kg		102	46 - 135
trans-1,3-Dichloropropene	50.0	56.7		ug/Kg		113	65 - 130
1,2,3-Trichlorobenzene	50.0	51.9		ug/Kg		104	57 - 130
1,2,4-Trichlorobenzene	50.0	52.7		ug/Kg		105	59 - 130
1,1,1-Trichloroethane	50.0	52.2		ug/Kg		104	57 - 130
1,1,2-Trichloroethane	50.0	51.7		ug/Kg		103	62 - 130
Trichloroethene	50.0	52.0		ug/Kg		104	54 - 131
Trichlorofluoromethane	50.0	48.3		ug/Kg		97	53 - 130
1,2,3-Trichloropropane	50.0	49.7		ug/Kg		99	60 - 130
1,2,4-Trimethylbenzene	50.0	51.9		ug/Kg		104	59 - 130
1,3,5-Trimethylbenzene	50.0	51.8		ug/Kg		104	58 - 130
Vinyl chloride	50.0	44.0		ug/Kg		88	46 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	100		69 - 130
Dibromofluoromethane	99		63 - 139
Toluene-d8 (Surr)	102		67 - 138

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Lab Sample ID: 660-70536-D-7-C MS
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 163740
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Acetone	48	U	903	859		ug/Kg	☼	95	67 - 133
Benzene	4.4	U	90.3	85.4		ug/Kg	☼	95	61 - 131
Bromobenzene	4.4	U	90.3	94.6		ug/Kg	☼	105	58 - 130
Bromoform	3.7	U	90.3	108		ug/Kg	☼	119	62 - 130
Bromomethane	6.3	U	90.3	79.7		ug/Kg	☼	88	48 - 136
2-Butanone (MEK)	11	U	903	869		ug/Kg	☼	96	70 - 130
Carbon disulfide	8.8	U	90.3	80.4		ug/Kg	☼	89	34 - 143
Carbon tetrachloride	4.4	U	90.3	87.2		ug/Kg	☼	97	57 - 130
Chlorobenzene	4.4	U	90.3	91.4		ug/Kg	☼	101	62 - 130
Chlorobromomethane	4.4	U	90.3	87.1		ug/Kg	☼	96	50 - 130
Chlorodibromomethane	4.4	U	90.3	100		ug/Kg	☼	111	57 - 130
Chloroethane	3.9	U	90.3	93.6		ug/Kg	☼	104	49 - 140
Chloroform	4.4	U	90.3	83.2		ug/Kg	☼	92	62 - 130
Chloromethane	4.4	U	90.3	78.4		ug/Kg	☼	87	35 - 139
2-Chlorotoluene	4.4	U	90.3	92.7		ug/Kg	☼	103	60 - 130
4-Chlorotoluene	4.4	U	90.3	93.1		ug/Kg	☼	103	63 - 130
cis-1,2-Dichloroethene	4.4	U	90.3	85.6		ug/Kg	☼	95	62 - 130
cis-1,3-Dichloropropene	3.5	U	90.3	95.4		ug/Kg	☼	106	60 - 130
1,2-Dibromo-3-Chloropropane	6.3	U	90.3	111		ug/Kg	☼	123	54 - 130
Dibromomethane	4.4	U	90.3	92.5		ug/Kg	☼	102	68 - 130
1,2-Dichlorobenzene	4.4	U	90.3	95.0		ug/Kg	☼	105	60 - 130
1,3-Dichlorobenzene	4.4	U	90.3	92.5		ug/Kg	☼	102	55 - 130
1,4-Dichlorobenzene	4.4	U	90.3	93.3		ug/Kg	☼	103	64 - 130
Dichlorobromomethane	4.4	U	90.3	95.3		ug/Kg	☼	106	66 - 130
Dichlorodifluoromethane	4.2	U	90.3	70.6		ug/Kg	☼	78	10 - 140
1,1-Dichloroethane	4.4	U	90.3	86.3		ug/Kg	☼	96	47 - 130
1,2-Dichloroethane	4.4	U	90.3	86.9		ug/Kg	☼	96	63 - 130
1,1-Dichloroethene	3.9	U	90.3	84.4		ug/Kg	☼	93	54 - 144
1,2-Dichloropropane	4.4	U	90.3	94.2		ug/Kg	☼	104	55 - 130
1,3-Dichloropropane	3.5	U	90.3	94.1		ug/Kg	☼	104	63 - 130
2,2-Dichloropropane	3.5	U	90.3	84.4		ug/Kg	☼	93	55 - 130
1,1-Dichloropropene	3.5	U	90.3	82.1		ug/Kg	☼	91	55 - 130
Ethylbenzene	3.5	U	90.3	91.1		ug/Kg	☼	101	68 - 130
Ethylene Dibromide	2.5	U	90.3	97.4		ug/Kg	☼	108	64 - 130
Hexachlorobutadiene	4.4	U	90.3	78.2		ug/Kg	☼	87	57 - 130
2-Hexanone	40	U	903	905		ug/Kg	☼	100	69 - 136
Isopropylbenzene	6.7	U	90.3	93.4		ug/Kg	☼	103	60 - 130
4-Isopropyltoluene	4.4	U	90.3	88.4		ug/Kg	☼	98	64 - 130
Methylene Chloride	7.0	U	90.3	86.9		ug/Kg	☼	96	50 - 135
4-Methyl-2-pentanone (MIBK)	19	U	903	898		ug/Kg	☼	99	69 - 134
Methyl tert-butyl ether	8.8	U	90.3	87.7		ug/Kg	☼	97	55 - 134
n-Butylbenzene	3.7	U	90.3	90.1		ug/Kg	☼	100	63 - 130
N-Propylbenzene	4.4	U	90.3	92.7		ug/Kg	☼	103	63 - 130
o-Xylene	4.4	U	90.3	89.1		ug/Kg	☼	99	64 - 130
sec-Butylbenzene	4.2	U	90.3	90.5		ug/Kg	☼	100	63 - 130
Styrene	4.4	U	90.3	91.8		ug/Kg	☼	102	58 - 131
tert-Butylbenzene	3.5	U	90.3	92.9		ug/Kg	☼	103	62 - 130
1,1,1,2-Tetrachloroethane	4.4	U	90.3	94.6		ug/Kg	☼	105	56 - 130
1,1,2,2-Tetrachloroethane	6.0	U	90.3	101		ug/Kg	☼	112	64 - 130
Tetrachloroethene	5.3	U	90.3	96.4		ug/Kg	☼	107	56 - 130

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 660-70536-D-7-C MS
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 163740
%Rec.

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Toluene	4.4	U	90.3	90.6		ug/Kg	☼	100	61 - 130
trans-1,2-Dichloroethene	4.4	U	90.3	85.6		ug/Kg	☼	95	46 - 135
trans-1,3-Dichloropropene	3.7	U	90.3	99.8		ug/Kg	☼	110	65 - 130
1,2,3-Trichlorobenzene	4.2	U	90.3	89.3		ug/Kg	☼	99	57 - 130
1,2,4-Trichlorobenzene	4.4	U	90.3	91.6		ug/Kg	☼	101	59 - 130
1,1,1-Trichloroethane	3.7	U	90.3	86.1		ug/Kg	☼	95	57 - 130
1,1,2-Trichloroethane	4.4	U	90.3	95.4		ug/Kg	☼	106	62 - 130
Trichloroethene	3.9	U	90.3	92.8		ug/Kg	☼	103	54 - 131
Trichlorofluoromethane	4.9	U	90.3	86.1		ug/Kg	☼	95	53 - 130
1,2,3-Trichloropropane	5.3	U	90.3	100		ug/Kg	☼	111	60 - 130
1,2,4-Trimethylbenzene	4.4	U	90.3	92.9		ug/Kg	☼	103	59 - 130
1,3,5-Trimethylbenzene	4.4	U	90.3	93.2		ug/Kg	☼	103	58 - 130
Vinyl chloride	4.4	U	90.3	81.8		ug/Kg	☼	91	46 - 136
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene	102		69 - 130						
Dibromofluoromethane	102		63 - 139						
Toluene-d8 (Surr)	100		67 - 138						

Lab Sample ID: 660-70536-D-7-B DU
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 163740

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Acetone	48	U	48	U	ug/Kg	☼	NC	40
Benzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Bromobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Bromoform	3.7	U	3.7	U	ug/Kg	☼	NC	40
Bromomethane	6.3	U	6.4	U	ug/Kg	☼	NC	40
2-Butanone (MEK)	11	U	12	U	ug/Kg	☼	NC	40
Carbon disulfide	8.8	U	8.9	U	ug/Kg	☼	NC	40
Carbon tetrachloride	4.4	U	4.5	U	ug/Kg	☼	NC	40
Chlorobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Chlorobromomethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
Chlorodibromomethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
Chloroethane	3.9	U	3.9	U	ug/Kg	☼	NC	40
Chloroform	4.4	U	4.5	U	ug/Kg	☼	NC	40
Chloromethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
2-Chlorotoluene	4.4	U	4.5	U	ug/Kg	☼	NC	40
4-Chlorotoluene	4.4	U	4.5	U	ug/Kg	☼	NC	40
cis-1,2-Dichloroethene	4.4	U	4.5	U	ug/Kg	☼	NC	40
cis-1,3-Dichloropropene	3.5	U	3.6	U	ug/Kg	☼	NC	40
1,2-Dibromo-3-Chloropropane	6.3	U	6.4	U	ug/Kg	☼	NC	40
Dibromomethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,2-Dichlorobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,3-Dichlorobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,4-Dichlorobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Dichlorobromomethane	4.4	U	4.5	U	ug/Kg	☼	NC	40

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 660-70536-D-7-B DU
Matrix: Solid
Analysis Batch: 163716

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 163740

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Dichlorodifluoromethane	4.2	U	4.3	U	ug/Kg	☼	NC	40
1,1-Dichloroethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,2-Dichloroethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,1-Dichloroethene	3.9	U	3.9	U	ug/Kg	☼	NC	40
1,2-Dichloropropane	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,3-Dichloropropane	3.5	U	3.6	U	ug/Kg	☼	NC	40
2,2-Dichloropropane	3.5	U	3.6	U	ug/Kg	☼	NC	40
1,1-Dichloropropene	3.5	U	3.6	U	ug/Kg	☼	NC	40
Ethylbenzene	3.5	U	3.6	U	ug/Kg	☼	NC	40
Ethylene Dibromide	2.5	U	2.5	U	ug/Kg	☼	NC	40
Hexachlorobutadiene	4.4	U	4.5	U	ug/Kg	☼	NC	40
2-Hexanone	40	U	41	U	ug/Kg	☼	NC	40
Isopropylbenzene	6.7	U	6.8	U	ug/Kg	☼	NC	40
4-Isopropyltoluene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Methylene Chloride	7.0	U	7.1	U	ug/Kg	☼	NC	40
4-Methyl-2-pentanone (MIBK)	19	U	20	U	ug/Kg	☼	NC	40
Methyl tert-butyl ether	8.8	U	8.9	U	ug/Kg	☼	NC	40
m-Xylene & p-Xylene	5.3	U	5.3	U	ug/Kg	☼	NC	40
n-Butylbenzene	3.7	U	3.7	U	ug/Kg	☼	NC	40
N-Propylbenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
o-Xylene	4.4	U	4.5	U	ug/Kg	☼	NC	40
sec-Butylbenzene	4.2	U	4.3	U	ug/Kg	☼	NC	40
Styrene	4.4	U	4.5	U	ug/Kg	☼	NC	40
tert-Butylbenzene	3.5	U	3.6	U	ug/Kg	☼	NC	40
1,1,1,2-Tetrachloroethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,1,1,2,2-Tetrachloroethane	6.0	U	6.1	U	ug/Kg	☼	NC	40
Tetrachloroethene	5.3	U	5.3	U	ug/Kg	☼	NC	40
Toluene	4.4	U	4.5	U	ug/Kg	☼	NC	40
trans-1,2-Dichloroethene	4.4	U	4.5	U	ug/Kg	☼	NC	40
trans-1,3-Dichloropropene	3.7	U	3.7	U	ug/Kg	☼	NC	40
1,2,3-Trichlorobenzene	4.2	U	4.3	U	ug/Kg	☼	NC	40
1,2,4-Trichlorobenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,1,1-Trichloroethane	3.7	U	3.7	U	ug/Kg	☼	NC	40
1,1,2-Trichloroethane	4.4	U	4.5	U	ug/Kg	☼	NC	40
Trichloroethene	3.9	U	3.9	U	ug/Kg	☼	NC	40
Trichlorofluoromethane	4.9	U	5.0	U	ug/Kg	☼	NC	40
1,2,3-Trichloropropane	5.3	U	5.3	U	ug/Kg	☼	NC	40
1,2,4-Trimethylbenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
1,3,5-Trimethylbenzene	4.4	U	4.5	U	ug/Kg	☼	NC	40
Vinyl chloride	4.4	U	4.5	U	ug/Kg	☼	NC	40
Xylenes, Total	4.4	U	4.5	U	ug/Kg	☼	NC	40

Surrogate	%Recovery	DU Qualifier	Limits
4-Bromofluorobenzene	97		69 - 130
Dibromofluoromethane	98		63 - 139
Toluene-d8 (Surr)	96		67 - 138

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-284608/7-A
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284608

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bolstar	30	U	66	30	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Chlorpyrifos	15	U	66	15	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Coumaphos	26	U	660	26	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Demeton, Total	50	U	170	50	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Diazinon	30	U	130	30	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Dichlorvos	18	U	130	18	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Dimethoate	16	U	130	16	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Disulfoton	13	U	130	13	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
EPN	16	U	130	16	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Ethyl Parathion	17	U	66	17	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Fensulfothion	22	U	660	22	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Guthion	17	U	130	17	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Malathion	13	U	66	13	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Methyl parathion	15	U	66	15	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Mevinphos	26	U	130	26	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Mocap	22	U	66	22	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Monochrotophos	19	U	660	19	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Naled	18	U	660	18	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Phorate	36	U	66	36	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Ronnel	15	U	66	15	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Sulfotepp	13	U	66	13	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Tokuthion	42	U	66	42	ug/Kg		11/23/15 13:42	11/30/15 18:30	1
Trichloronate	13	U	660	13	ug/Kg		11/23/15 13:42	11/30/15 18:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenylphosphate	94		30 - 164	11/23/15 13:42	11/30/15 18:30	1

Lab Sample ID: LCS 400-284608/6-A
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284608

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Bolstar	667	705		ug/Kg		106	40 - 156
Chlorpyrifos	667	674		ug/Kg		101	22 - 130
Coumaphos	667	680		ug/Kg		102	51 - 147
Diazinon	667	657		ug/Kg		98	41 - 130
Dichlorvos	667	685		ug/Kg		103	10 - 130
Dimethoate	667	623		ug/Kg		93	38 - 130
Disulfoton	667	617		ug/Kg		93	10 - 134
EPN	667	656		ug/Kg		98	48 - 124
Ethyl Parathion	667	634		ug/Kg		95	24 - 151
Fensulfothion	667	755		ug/Kg		113	43 - 145
Guthion	667	756		ug/Kg		113	16 - 130
Malathion	667	617		ug/Kg		93	10 - 141
Methyl parathion	667	651		ug/Kg		98	36 - 149
Mevinphos	667	680		ug/Kg		102	40 - 140
Mocap	667	640		ug/Kg		96	40 - 140
Monochrotophos	667	639	I	ug/Kg		96	40 - 140

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-284608/6-A
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284608

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naled	667	600	I	ug/Kg		90	54 - 130
Phorate	667	590		ug/Kg		89	36 - 130
Ronnel	667	617		ug/Kg		93	40 - 140
Sulfotepp	667	695		ug/Kg		104	13 - 171
Tokuthion	667	743		ug/Kg		111	14 - 130
Trichloronate	667	627	I	ug/Kg		94	49 - 161

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Triphenylphosphate	98		30 - 164

Lab Sample ID: 660-70487-2 MS
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: LB9 (0-2)
Prep Type: Total/NA
Prep Batch: 284608

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Bolstar	31	U	698	692		ug/Kg	☼	99	40 - 156
Chlorpyrifos	15	U	698	571		ug/Kg	☼	82	22 - 130
Coumaphos	27	U	698	534	I	ug/Kg	☼	77	51 - 147
Diazinon	31	U	698	579		ug/Kg	☼	83	41 - 130
Dichlorvos	18	U	698	634		ug/Kg	☼	91	10 - 130
Dimethoate	17	U	698	458		ug/Kg	☼	66	38 - 130
Disulfoton	14	U	698	516		ug/Kg	☼	74	10 - 134
EPN	17	U	698	625		ug/Kg	☼	90	48 - 124
Ethyl Parathion	17	U	698	569		ug/Kg	☼	82	24 - 151
Fensulfothion	22	U	698	756		ug/Kg	☼	108	43 - 145
Guthion	18	U	698	639		ug/Kg	☼	92	16 - 130
Malathion	14	U	698	531		ug/Kg	☼	76	10 - 141
Methyl parathion	16	U	698	552		ug/Kg	☼	79	36 - 149
Mevinphos	27	U	698	569		ug/Kg	☼	82	30 - 130
Mocap	22	U	698	530		ug/Kg	☼	76	30 - 130
Monochrotophos	20	U	698	488	I	ug/Kg	☼	70	40 - 140
Naled	19	U J3	698	319	I J3	ug/Kg	☼	46	54 - 130
Phorate	37	U	698	458		ug/Kg	☼	66	36 - 130
Ronnel	15	U	698	506		ug/Kg	☼	73	30 - 130
Sulfotepp	13	U	698	754		ug/Kg	☼	108	13 - 171
Tokuthion	43	U J3	698	921	J3	ug/Kg	☼	132	14 - 130
Trichloronate	14	U	698	546	I	ug/Kg	☼	78	50 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
Triphenylphosphate	97		30 - 164

Lab Sample ID: 660-70487-2 MSD
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: LB9 (0-2)
Prep Type: Total/NA
Prep Batch: 284608

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Bolstar	31	U	687	720		ug/Kg	☼	105	40 - 156	4	40
Chlorpyrifos	15	U	687	667		ug/Kg	☼	97	22 - 130	15	40

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 660-70487-2 MSD
Matrix: Solid
Analysis Batch: 285334

Client Sample ID: LB9 (0-2)
Prep Type: Total/NA
Prep Batch: 284608

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Coumaphos	27	U	687	772		ug/Kg	☼	112	51 - 147	36	40
Diazinon	31	U	687	656		ug/Kg	☼	96	41 - 130	12	30
Dichlorvos	18	U	687	689		ug/Kg	☼	100	10 - 130	8	40
Dimethoate	17	U	687	600		ug/Kg	☼	87	38 - 130	27	40
Disulfoton	14	U	687	587		ug/Kg	☼	86	10 - 134	13	93
EPN	17	U	687	683		ug/Kg	☼	100	48 - 124	9	30
Ethyl Parathion	17	U	687	638		ug/Kg	☼	93	24 - 151	11	79
Fensulfothion	22	U	687	767		ug/Kg	☼	112	43 - 145	1	40
Guthion	18	U	687	767		ug/Kg	☼	112	16 - 130	18	50
Malathion	14	U	687	621		ug/Kg	☼	90	10 - 141	16	40
Methyl parathion	16	U	687	672		ug/Kg	☼	98	36 - 149	19	40
Mevinphos	27	U	687	757		ug/Kg	☼	110	30 - 130	28	40
Mocap	22	U	687	626		ug/Kg	☼	91	30 - 130	17	40
Monochrotophos	20	U	687	600	I	ug/Kg	☼	87	40 - 140	21	50
Naled	19	U J3	687	445	I	ug/Kg	☼	65	54 - 130	33	40
Phorate	37	U	687	548		ug/Kg	☼	80	36 - 130	18	40
Ronnel	15	U	687	606		ug/Kg	☼	88	30 - 130	18	40
Sulfotepp	13	U	687	722		ug/Kg	☼	105	13 - 171	4	65
Tokuthion	43	U J3	687	739		ug/Kg	☼	108	14 - 130	22	40
Trichloronate	14	U	687	611	I	ug/Kg	☼	89	50 - 150	11	40
Surrogate		MSD	MSD	Qualifier	Limits						
Triphenylphosphate		99			30 - 164						

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

Lab Sample ID: MB 400-284609/13-A
Matrix: Solid
Analysis Batch: 284870

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284609

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Acenaphthylene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Anthracene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Benzo[a]anthracene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Benzo[a]pyrene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Benzo[b]fluoranthene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Benzo[g,h,i]perylene	2.0	U	6.6	2.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Benzo[k]fluoranthene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Chrysene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Dibenz(a,h)anthracene	2.0	U	6.6	2.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Fluoranthene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Fluorene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Indeno[1,2,3-cd]pyrene	2.0	U	6.6	2.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
1-Methylnaphthalene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
2-Methylnaphthalene	1.04	I	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Naphthalene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Phenanthrene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: MB 400-284609/13-A
Matrix: Solid
Analysis Batch: 284870

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284609

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	1.0	U	6.6	1.0	ug/Kg		11/23/15 13:45	11/24/15 21:13	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	65		27 - 127				11/23/15 13:45	11/24/15 21:13	1
Nitrobenzene-d5 (Surr)	64		15 - 136				11/23/15 13:45	11/24/15 21:13	1
Terphenyl-d14 (Surr)	78		24 - 146				11/23/15 13:45	11/24/15 21:13	1

Lab Sample ID: LCS 400-284609/12-A
Matrix: Solid
Analysis Batch: 284870

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	333	242		ug/Kg		73	59 - 130
Acenaphthylene	333	241		ug/Kg		72	60 - 130
Anthracene	333	247		ug/Kg		74	64 - 130
Benzo[a]anthracene	333	256		ug/Kg		77	64 - 130
Benzo[a]pyrene	333	267		ug/Kg		80	56 - 130
Benzo[b]fluoranthene	333	268		ug/Kg		80	62 - 130
Benzo[g,h,i]perylene	333	185		ug/Kg		56	39 - 132
Benzo[k]fluoranthene	333	283		ug/Kg		85	60 - 130
Chrysene	333	260		ug/Kg		78	65 - 130
Dibenz(a,h)anthracene	333	221		ug/Kg		66	43 - 133
Fluoranthene	333	269		ug/Kg		81	61 - 130
Fluorene	333	257		ug/Kg		77	59 - 130
Indeno[1,2,3-cd]pyrene	333	212		ug/Kg		64	43 - 131
1-Methylnaphthalene	333	239		ug/Kg		72	56 - 130
2-Methylnaphthalene	333	242		ug/Kg		73	56 - 130
Naphthalene	333	261		ug/Kg		78	45 - 130
Phenanthrene	333	239		ug/Kg		72	63 - 130
Pyrene	333	239		ug/Kg		72	47 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2-Fluorobiphenyl	72		27 - 127				
Nitrobenzene-d5 (Surr)	66		15 - 136				
Terphenyl-d14 (Surr)	77		24 - 146				

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography

Lab Sample ID: MB 680-411116/5-A
Matrix: Solid
Analysis Batch: 411233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411116

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.15	U	1.7	0.15	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
alpha-BHC	0.14	U	1.7	0.14	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
alpha-Chlordane	0.18	U	1.7	0.18	ug/Kg		11/19/15 09:20	11/19/15 17:50	1

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Lab Sample ID: MB 680-411116/5-A
Matrix: Solid
Analysis Batch: 411233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411116

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
beta-BHC	0.33	U	1.7	0.33	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Chlordane (technical)	2.9	U	17	2.9	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
4,4'-DDD	0.18	U	1.7	0.18	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
4,4'-DDE	0.18	U	1.7	0.18	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
4,4'-DDT	0.22	U	1.7	0.22	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
delta-BHC	0.19	U	1.7	0.19	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Dieldrin	0.17	U	1.7	0.17	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endosulfan I	0.17	U	1.7	0.17	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endosulfan II	0.15	U	1.7	0.15	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endosulfan sulfate	0.21	U	1.7	0.21	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endrin	0.22	U	1.7	0.22	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endrin aldehyde	0.22	U	1.7	0.22	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Endrin ketone	0.20	U	1.7	0.20	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
gamma-BHC (Lindane)	0.14	U	1.7	0.14	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
gamma-Chlordane	0.18	U	1.7	0.18	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Heptachlor	0.19	U	1.7	0.19	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Heptachlor epoxide	0.16	U	1.7	0.16	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Methoxychlor	0.28	U	1.7	0.28	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1016	11	U	33	11	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1221	15	U	33	15	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1232	5.3	U	33	5.3	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1242	5.1	U	33	5.1	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1248	8.3	U	33	8.3	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1254	10	U	33	10	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
PCB-1260	9.7	U	33	9.7	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Total PCBs	5.1	U	33	5.1	ug/Kg		11/19/15 09:20	11/19/15 17:50	1
Toxaphene	5.6	U	170	5.6	ug/Kg		11/19/15 09:20	11/19/15 17:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	87		46 - 130	11/19/15 09:20	11/19/15 17:50	1
DCB Decachlorobiphenyl	108		54 - 133	11/19/15 09:20	11/19/15 17:50	1

Lab Sample ID: LCS 680-411116/12-A
Matrix: Solid
Analysis Batch: 411233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 411116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	406	347		ug/Kg		86	43 - 130
PCB-1260	406	473		ug/Kg		116	45 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	71		46 - 130
DCB Decachlorobiphenyl	107		54 - 133

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8081B/8082A - Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography (Continued)

Lab Sample ID: 660-70487-3 MS

Matrix: Solid

Analysis Batch: 411233

Client Sample ID: LB9 (2-4)

Prep Type: Total/NA

Prep Batch: 411116

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
PCB-1016	12	U	449	405		ug/Kg	☼	90		43 - 130
PCB-1260	11	U	449	493		ug/Kg	☼	110		45 - 130
		MS	MS							
Surrogate	%Recovery	Qualifier	Limits							
Tetrachloro-m-xylene	78		46 - 130							
DCB Decachlorobiphenyl	97		54 - 133							

Lab Sample ID: 660-70487-3 MSD

Matrix: Solid

Analysis Batch: 411233

Client Sample ID: LB9 (2-4)

Prep Type: Total/NA

Prep Batch: 411116

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
PCB-1016	12	U	458	419		ug/Kg	☼	91		43 - 130	3	50
PCB-1260	11	U	458	514		ug/Kg	☼	112		45 - 130	4	50
		MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits									
Tetrachloro-m-xylene	80		46 - 130									
DCB Decachlorobiphenyl	99		54 - 133									

Method: FL-PRO - Florida - Petroleum Range Organics (GC)

Lab Sample ID: MB 400-284281/11-A

Matrix: Solid

Analysis Batch: 284544

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 284281

Analyte	MB	MB	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Total Petroleum Hydrocarbons (C8-C40)	1.7	U	10	1.7	mg/Kg		11/20/15 09:29	11/23/15 14:56	1	
		MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
n-C39	103		60 - 118	11/20/15 09:29	11/23/15 14:56	1				
o-Terphenyl	93		62 - 109	11/20/15 09:29	11/23/15 14:56	1				

Lab Sample ID: LCS 400-284281/10-A

Matrix: Solid

Analysis Batch: 284544

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 284281

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Total Petroleum Hydrocarbons (C8-C40)	113	98.5		mg/Kg		87		63 - 153
		LCS	LCS					
Surrogate	%Recovery	Qualifier	Limits					
n-C39	86		60 - 118					
o-Terphenyl	103		62 - 109					

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: FL-PRO - Florida - Petroleum Range Organics (GC) (Continued)

Lab Sample ID: 400-114016-A-1-B MS

Matrix: Solid
Analysis Batch: 284544

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 284281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Total Petroleum Hydrocarbons (C8-C40)	280		123	376		mg/Kg	☼	76	62 - 204
Surrogate	%Recovery	MS Qualifier	Limits						
n-C39	66		60 - 118						
o-Terphenyl	71		62 - 109						

Lab Sample ID: 400-114016-A-1-C MSD

Matrix: Solid
Analysis Batch: 284544

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 284281

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Total Petroleum Hydrocarbons (C8-C40)	280		125	404		mg/Kg	☼	97	62 - 204	7	25
Surrogate	%Recovery	MSD Qualifier	Limits								
n-C39	73		60 - 118								
o-Terphenyl	78		62 - 109								

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A)

Lab Sample ID: H5K23000021B

Matrix: Solid
Analysis Batch: 5327021

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 5327021_P

Analyte	MB Result	MB Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.00	0.528	1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,7,8-PeCDD	ND		5.00	0.222	0.5		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,4,7,8-HxCDD	ND		5.00	0.205	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,6,7,8-HxCDD	ND		5.00	0.208	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,7,8,9-HxCDD	ND		5.00	0.192	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,4,6,7,8-HpCDD	ND		5.00	0.226	0.01		pg/g		11/23/15 10:39	11/30/15 13:05	1
OCDD	0.833	I	10.0	0.214	0.001	0.00083	pg/g		11/23/15 10:39	11/30/15 13:05	1
2,3,7,8-TCDF	ND		1.00	0.418	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,7,8-PeCDF	ND		5.00	0.168	0.05		pg/g		11/23/15 10:39	11/30/15 13:05	1
2,3,4,7,8-PeCDF	ND		5.00	0.155	0.5		pg/g		11/23/15 10:39	11/30/15 13:05	1
Total TCDD	0.735	J I	1.00	0.528			pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,4,7,8-HxCDF	ND		5.00	0.119	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,6,7,8-HxCDF	ND		5.00	0.115	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
2,3,4,6,7,8-HxCDF	ND		5.00	0.114	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,7,8,9-HxCDF	ND		5.00	0.149	0.1		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,4,6,7,8-HpCDF	ND		5.00	0.222	0.01		pg/g		11/23/15 10:39	11/30/15 13:05	1
1,2,3,4,7,8,9-HpCDF	ND		5.00	0.258	0.01		pg/g		11/23/15 10:39	11/30/15 13:05	1
OCDF	ND		10.0	0.374	0.001		pg/g		11/23/15 10:39	11/30/15 13:05	1
Total PeCDD	0.411	J I	5.00	0.222			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total HxCDD	ND		5.00	0.201			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total HpCDD	ND		5.00	0.226			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total TCDF	ND		1.00	0.418			pg/g		11/23/15 10:39	11/30/15 13:05	1

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A) (Continued)

Lab Sample ID: H5K23000021B

Matrix: Solid

Analysis Batch: 5327021

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 5327021_P

Analyte	MB MB		ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Total PeCDF	ND		5.00	0.161			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total HxCDF	ND		5.00	0.122			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total HpCDF	ND		5.00	0.239			pg/g		11/23/15 10:39	11/30/15 13:05	1
Total TEQ						0.00083					

Internal Standard	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,7,8-TCDD	67		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,7,8-PeCDD	67		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,4,7,8-HxCDD	73		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,6,7,8-HxCDD	71		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,4,6,7,8-HpCDD	75		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-OCDD	72		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-2,3,7,8-TCDF	58		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,7,8-PeCDF	59		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-2,3,4,7,8-PeCDF	58		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,4,7,8-HxCDF	58		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,6,7,8-HxCDF	63		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-2,3,4,6,7,8-HxCDF	62		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,7,8,9-HxCDF	61		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,4,6,7,8-HpCDF	62		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-1,2,3,4,7,8,9-HpCDF	61		40 - 135	11/23/15 10:39	11/30/15 13:05	1
13C-OCDF	65		40 - 135	11/23/15 10:39	11/30/15 13:05	1

Lab Sample ID: H5K23000021C

Matrix: Solid

Analysis Batch: 5327021

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 5327021_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
2,3,7,8-TCDD	40.0	37.3		pg/g		93	79 - 129
1,2,3,7,8-PeCDD	200	178		pg/g		89	79 - 129
1,2,3,4,7,8-HxCDD	200	179		pg/g		90	73 - 123
1,2,3,6,7,8-HxCDD	200	188		pg/g		94	74 - 124
1,2,3,7,8,9-HxCDD	200	183		pg/g		91	70 - 124
1,2,3,4,6,7,8-HpCDD	200	180		pg/g		90	73 - 123
OCDD	400	346	V	pg/g		87	75 - 125
2,3,7,8-TCDF	40.0	39.5		pg/g		99	75 - 125
1,2,3,7,8-PeCDF	200	176		pg/g		88	74 - 124
2,3,4,7,8-PeCDF	200	181		pg/g		90	75 - 125
1,2,3,4,7,8-HxCDF	200	181		pg/g		91	75 - 125
1,2,3,6,7,8-HxCDF	200	194		pg/g		97	76 - 126
2,3,4,6,7,8-HxCDF	200	186		pg/g		93	76 - 126
1,2,3,7,8,9-HxCDF	200	189		pg/g		95	77 - 127
1,2,3,4,6,7,8-HpCDF	200	174		pg/g		87	77 - 127
1,2,3,4,7,8,9-HpCDF	200	176		pg/g		88	73 - 123
OCDF	400	353		pg/g		88	49 - 128

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A) (Continued)

Lab Sample ID: H5K23000021C
Matrix: Solid
Analysis Batch: 5327021

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 5327021_P

<i>Internal Standard</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	73		40 - 135
13C-1,2,3,7,8-PeCDD	72		40 - 135
13C-1,2,3,4,7,8-HxCDD	80		40 - 135
13C-1,2,3,6,7,8-HxCDD	80		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	75		40 - 135
13C-OCDD	73		40 - 135
13C-2,3,7,8-TCDF	61		40 - 135
13C-1,2,3,7,8-PeCDF	59		40 - 135
13C-2,3,4,7,8-PeCDF	62		40 - 135
13C-1,2,3,4,7,8-HxCDF	71		40 - 135
13C-1,2,3,6,7,8-HxCDF	71		40 - 135
13C-2,3,4,6,7,8-HxCDF	72		40 - 135
13C-1,2,3,7,8,9-HxCDF	63		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	68		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	65		40 - 135
13C-OCDF	69		40 - 135

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 680-411181/1-A
Matrix: Solid
Analysis Batch: 411408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411181

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>PQL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Arsenic	0.085	U	0.26	0.085	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Barium	0.051	U	0.43	0.051	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Cadmium	0.013	U	0.043	0.013	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Chromium	0.169	I	0.85	0.094	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Lead	0.043	U	0.17	0.043	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Selenium	0.085	U	0.43	0.085	mg/Kg		11/19/15 12:33	11/20/15 00:04	1
Silver	0.0085	U	0.085	0.0085	mg/Kg		11/19/15 12:33	11/20/15 00:04	1

Lab Sample ID: LCS 680-411181/2-A
Matrix: Solid
Analysis Batch: 411408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 411181

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Arsenic	9.43	9.45		mg/Kg		100	75 - 125
Barium	9.43	10.0		mg/Kg		106	75 - 125
Cadmium	4.72	4.78		mg/Kg		101	75 - 125
Chromium	9.43	9.77		mg/Kg		104	75 - 125
Lead	47.2	49.3		mg/Kg		104	75 - 125
Selenium	9.43	9.26		mg/Kg		98	75 - 125
Silver	4.72	4.84		mg/Kg		103	75 - 125

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 680-119176-A-6-E MS
Matrix: Solid
Analysis Batch: 411408

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 411181
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	2.8		11.7	13.9		mg/Kg	☼	94	75 - 125
Barium	190	J3	11.7	211	J3	mg/Kg	☼	165	75 - 125
Cadmium	0.073		5.86	5.81		mg/Kg	☼	98	75 - 125
Chromium	4.7		11.7	16.1		mg/Kg	☼	97	75 - 125
Lead	6.8		58.6	66.0		mg/Kg	☼	101	75 - 125
Selenium	5.8		11.7	15.6		mg/Kg	☼	83	75 - 125
Silver	0.037	I	5.86	5.94		mg/Kg	☼	101	75 - 125

Lab Sample ID: 680-119176-A-6-F MSD
Matrix: Solid
Analysis Batch: 411408

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 411181
%Rec.
RPD

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	2.8		10.5	12.4		mg/Kg	☼	91	75 - 125	11	20
Barium	190	J3	10.5	202		mg/Kg	☼	100	75 - 125	4	20
Cadmium	0.073		5.25	5.33		mg/Kg	☼	100	75 - 125	9	20
Chromium	4.7		10.5	14.4		mg/Kg	☼	92	75 - 125	11	20
Lead	6.8		52.5	59.4		mg/Kg	☼	100	75 - 125	11	20
Selenium	5.8		10.5	14.3		mg/Kg	☼	81	75 - 125	8	20
Silver	0.037	I	5.25	5.26		mg/Kg	☼	100	75 - 125	12	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 680-411435/13-A
Matrix: Solid
Analysis Batch: 411816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411435

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0069	U	0.017	0.0069	mg/Kg		11/20/15 15:10	11/24/15 09:41	1

Lab Sample ID: LCS 680-411435/14-A
Matrix: Solid
Analysis Batch: 411816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 411435
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.219	0.229		mg/Kg		104	80 - 120

Lab Sample ID: 680-119176-A-6-K MS
Matrix: Solid
Analysis Batch: 411816

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 411435
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.011	U	0.124	0.138		mg/Kg	☼	111	80 - 120

TestAmerica Tampa

QC Sample Results

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 680-119176-A-6-L MSD
 Matrix: Solid
 Analysis Batch: 411816

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 411435

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.011	U	0.105	0.119		mg/Kg	☼	113	80 - 120	15	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Internal Standards Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method: 8290A - Dioxins/Furans, HRGC/HRMS (8290A)

Matrix: Solid

Prep Type: Total

Lab Sample ID	Client Sample ID	Percent Internal Standard Recovery (Acceptance Limits)							
		TCDD (40-135)	,2,3,7,8-P (40-135)	2,3,4,7,8-F (40-135)	2,3,6,7,8-F (40-135)	,3,4,6,7,8- (40-135)	13C-OCDD (40-135)	TCDF (40-135)	,2,3,7,8-P (40-135)
660-70487-1	CS2 (0-4)	33 J1	30 J1	26 J1	31 J1	29 J1	26 J1	28 J1	26 J1
660-70487-1	CS2 (0-4)							33 J1	
660-70487-2	LB9 (0-2)	75	73	68	79	84	91	68	62
660-70487-3	LB9 (2-4)	71	72	76	71	73	74	58	55
H5K230000021B	Method Blank	67	67	73	71	75	72	58	59
H5K230000021C	Lab Control Sample	73	72	80	80	75	73	61	59

Lab Sample ID	Client Sample ID	Percent Internal Standard Recovery (Acceptance Limits)							
		PeCDF2 (40-135)	2,3,4,7,8-F (40-135)	HxCDF2 (40-135)	HxCDF3 (40-135)	HxCDF4 (40-135)	,3,4,6,7,8- (40-135)	,3,4,7,8,9- (40-135)	13C-OCDF (40-135)
660-70487-1	CS2 (0-4)	25 J1	25 J1	25 J1	25 J1	21 J1	24 J1	22 J1	21 J1
660-70487-1	CS2 (0-4)								
660-70487-2	LB9 (0-2)	66	61	69	76	64	67	69	72
660-70487-3	LB9 (2-4)	59	57	58	60	59	60	59	65
H5K230000021B	Method Blank	58	58	63	62	61	62	61	65
H5K230000021C	Lab Control Sample	62	71	71	72	63	68	65	69

Internal Standard Legend

- TCDD = 13C-2,3,7,8-TCDD
- 13C-1,2,3,7,8-PeCDD = 13C-1,2,3,7,8-PeCDD
- 13C-1,2,3,4,7,8-HxCDD = 13C-1,2,3,4,7,8-HxCDD
- 13C-1,2,3,6,7,8-HxCDD = 13C-1,2,3,6,7,8-HxCDD
- 13C-1,2,3,4,6,7,8-HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- 13C-OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- 13C-1,2,3,7,8-PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDF2 = 13C-2,3,4,7,8-PeCDF
- 13C-1,2,3,4,7,8-HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
- HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
- HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
- 13C-1,2,3,4,6,7,8-HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- 13C-1,2,3,4,7,8,9-HpCDF = 13C-1,2,3,4,7,8,9-HpCDF
- 13C-OCDF = 13C-OCDF

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

GC/MS VOA

Prep Batch: 163456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70475-G-1-B DU	Duplicate	Total/NA	Solid	5035	
660-70475-H-2-B MS	Matrix Spike	Total/NA	Solid	5035	

Prep Batch: 163483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	5035	
660-70487-2	LB9 (0-2)	Total/NA	Solid	5035	
660-70487-3	LB9 (2-4)	Total/NA	Solid	5035	

Analysis Batch: 163525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70475-G-1-B DU	Duplicate	Total/NA	Solid	8260B	163456
660-70475-H-2-B MS	Matrix Spike	Total/NA	Solid	8260B	163456
660-70487-2	LB9 (0-2)	Total/NA	Solid	8260B	163483
660-70487-3	LB9 (2-4)	Total/NA	Solid	8260B	163483
LCS 660-163525/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 660-163525/7	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 163716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	8260B	163483
660-70536-D-7-B DU	Duplicate	Total/NA	Solid	8260B	163740
660-70536-D-7-C MS	Matrix Spike	Total/NA	Solid	8260B	163740
LCS 660-163716/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 660-163716/6	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 163740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70536-D-7-B DU	Duplicate	Total/NA	Solid	5030A	
660-70536-D-7-C MS	Matrix Spike	Total/NA	Solid	5030A	

GC/MS Semi VOA

Prep Batch: 284608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	3546	
660-70487-2	LB9 (0-2)	Total/NA	Solid	3546	
660-70487-2 MS	LB9 (0-2)	Total/NA	Solid	3546	
660-70487-2 MSD	LB9 (0-2)	Total/NA	Solid	3546	
660-70487-3	LB9 (2-4)	Total/NA	Solid	3546	
LCS 400-284608/6-A	Lab Control Sample	Total/NA	Solid	3546	
MB 400-284608/7-A	Method Blank	Total/NA	Solid	3546	

Prep Batch: 284609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	3546	
660-70487-2	LB9 (0-2)	Total/NA	Solid	3546	
660-70487-3	LB9 (2-4)	Total/NA	Solid	3546	
LCS 400-284609/12-A	Lab Control Sample	Total/NA	Solid	3546	
MB 400-284609/13-A	Method Blank	Total/NA	Solid	3546	

TestAmerica Tampa

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

GC/MS Semi VOA (Continued)

Analysis Batch: 284870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-284609/12-A	Lab Control Sample	Total/NA	Solid	8270D LL	284609
MB 400-284609/13-A	Method Blank	Total/NA	Solid	8270D LL	284609

Analysis Batch: 285098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	8270D LL	284609
660-70487-2	LB9 (0-2)	Total/NA	Solid	8270D LL	284609
660-70487-3	LB9 (2-4)	Total/NA	Solid	8270D LL	284609

Analysis Batch: 285334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-2	LB9 (0-2)	Total/NA	Solid	8270D	284608
660-70487-2 MS	LB9 (0-2)	Total/NA	Solid	8270D	284608
660-70487-2 MSD	LB9 (0-2)	Total/NA	Solid	8270D	284608
660-70487-3	LB9 (2-4)	Total/NA	Solid	8270D	284608
LCS 400-284608/6-A	Lab Control Sample	Total/NA	Solid	8270D	284608
MB 400-284608/7-A	Method Blank	Total/NA	Solid	8270D	284608

Analysis Batch: 285370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	8270D	284608

GC Semi VOA

Prep Batch: 284281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-114016-A-1-B MS	Matrix Spike	Total/NA	Solid	3550B	
400-114016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3550B	
660-70487-1	CS2 (0-4)	Total/NA	Solid	3550B	
660-70487-2	LB9 (0-2)	Total/NA	Solid	3550B	
660-70487-3	LB9 (2-4)	Total/NA	Solid	3550B	
LCS 400-284281/10-A	Lab Control Sample	Total/NA	Solid	3550B	
MB 400-284281/11-A	Method Blank	Total/NA	Solid	3550B	

Analysis Batch: 284544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-114016-A-1-B MS	Matrix Spike	Total/NA	Solid	FL-PRO	284281
400-114016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	FL-PRO	284281
660-70487-1	CS2 (0-4)	Total/NA	Solid	FL-PRO	284281
660-70487-2	LB9 (0-2)	Total/NA	Solid	FL-PRO	284281
660-70487-3	LB9 (2-4)	Total/NA	Solid	FL-PRO	284281
LCS 400-284281/10-A	Lab Control Sample	Total/NA	Solid	FL-PRO	284281
MB 400-284281/11-A	Method Blank	Total/NA	Solid	FL-PRO	284281

Prep Batch: 411116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	3546	
660-70487-2	LB9 (0-2)	Total/NA	Solid	3546	
660-70487-3	LB9 (2-4)	Total/NA	Solid	3546	
660-70487-3 MS	LB9 (2-4)	Total/NA	Solid	3546	

TestAmerica Tampa

QC Association Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

GC Semi VOA (Continued)

Prep Batch: 411116 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-3 MSD	LB9 (2-4)	Total/NA	Solid	3546	
LCS 680-411116/12-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-411116/5-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 411233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	8081B/8082A	411116
660-70487-2	LB9 (0-2)	Total/NA	Solid	8081B/8082A	411116
660-70487-3	LB9 (2-4)	Total/NA	Solid	8081B/8082A	411116
660-70487-3 MS	LB9 (2-4)	Total/NA	Solid	8081B/8082A	411116
660-70487-3 MSD	LB9 (2-4)	Total/NA	Solid	8081B/8082A	411116
LCS 680-411116/12-A	Lab Control Sample	Total/NA	Solid	8081B/8082A	411116
MB 680-411116/5-A	Method Blank	Total/NA	Solid	8081B/8082A	411116

Specialty Organics

Analysis Batch: 5327021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total	Solid	8290A	
660-70487-2	LB9 (0-2)	Total	Solid	8290A	
660-70487-3	LB9 (2-4)	Total	Solid	8290A	
H5K230000021B	Method Blank	Total	Solid	8290A	
H5K230000021C	Lab Control Sample	Total	Solid	8290A	

Prep Batch: 5327021_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total	Solid	Microwave Extraction	
660-70487-2	LB9 (0-2)	Total	Solid	Microwave Extraction	
660-70487-3	LB9 (2-4)	Total	Solid	Microwave Extraction	
H5K230000021B	Method Blank	Total	Solid	Microwave Extraction	
H5K230000021C	Lab Control Sample	Total	Solid	Microwave Extraction	

Metals

Prep Batch: 411181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	3050B	
660-70487-2	LB9 (0-2)	Total/NA	Solid	3050B	
660-70487-3	LB9 (2-4)	Total/NA	Solid	3050B	
680-119176-A-6-E MS	Matrix Spike	Total/NA	Solid	3050B	
680-119176-A-6-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
LCS 680-411181/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 680-411181/1-A	Method Blank	Total/NA	Solid	3050B	

TestAmerica Tampa

QC Association Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Metals (Continued)

Analysis Batch: 411408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	6020A	411181
660-70487-2	LB9 (0-2)	Total/NA	Solid	6020A	411181
660-70487-3	LB9 (2-4)	Total/NA	Solid	6020A	411181
680-119176-A-6-E MS	Matrix Spike	Total/NA	Solid	6020A	411181
680-119176-A-6-F MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	411181
LCS 680-411181/2-A	Lab Control Sample	Total/NA	Solid	6020A	411181
MB 680-411181/1-A	Method Blank	Total/NA	Solid	6020A	411181

Prep Batch: 411435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	7471B	
660-70487-2	LB9 (0-2)	Total/NA	Solid	7471B	
660-70487-3	LB9 (2-4)	Total/NA	Solid	7471B	
680-119176-A-6-K MS	Matrix Spike	Total/NA	Solid	7471B	
680-119176-A-6-L MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	
LCS 680-411435/14-A	Lab Control Sample	Total/NA	Solid	7471B	
MB 680-411435/13-A	Method Blank	Total/NA	Solid	7471B	

Analysis Batch: 411816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	7471B	411435
660-70487-2	LB9 (0-2)	Total/NA	Solid	7471B	411435
660-70487-3	LB9 (2-4)	Total/NA	Solid	7471B	411435
680-119176-A-6-K MS	Matrix Spike	Total/NA	Solid	7471B	411435
680-119176-A-6-L MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	411435
LCS 680-411435/14-A	Lab Control Sample	Total/NA	Solid	7471B	411435
MB 680-411435/13-A	Method Blank	Total/NA	Solid	7471B	411435

General Chemistry

Analysis Batch: 163531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total/NA	Solid	Moisture	
660-70487-2	LB9 (0-2)	Total/NA	Solid	Moisture	
660-70487-3	LB9 (2-4)	Total/NA	Solid	Moisture	
660-70499-A-33 DU	Duplicate	Total/NA	Solid	Moisture	

Analysis Batch: 5324015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-70487-1	CS2 (0-4)	Total	Solid	160.3 MOD	
660-70487-2	LB9 (0-2)	Total	Solid	160.3 MOD	
660-70487-3	LB9 (2-4)	Total	Solid	160.3 MOD	

Lab Chronicle

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: CS2 (0-4)

Date Collected: 11/17/15 09:30

Date Received: 11/18/15 08:40

Lab Sample ID: 660-70487-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	163531	11/20/15 07:44	AJG	TAL TAM

Client Sample ID: CS2 (0-4)

Date Collected: 11/17/15 09:30

Date Received: 11/18/15 08:40

Lab Sample ID: 660-70487-1

Matrix: Solid

Percent Solids: 74

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	Microwave Extraction			5327021_P	11/23/15 10:39		TAL KNX
Total	Analysis	8290A		1	5327021	12/02/15 13:54	KLR	TAL KNX
Total	Prep	Microwave Extraction			5327021_P	11/23/15 10:39		TAL KNX
Total	Analysis	8290A		1	5327021	11/30/15 16:06	KBL	TAL KNX
Total	Analysis	160.3 MOD		1	5324015	11/20/15 11:09		TAL KNX

Client Sample ID: CS2 (0-4)

Date Collected: 11/17/15 09:30

Date Received: 11/18/15 08:40

Lab Sample ID: 660-70487-1

Matrix: Solid

Percent Solids: 74.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			163483	11/18/15 15:51	ECC	TAL TAM
Total/NA	Analysis	8260B		1	163716	11/27/15 13:51	ECC	TAL TAM
Total/NA	Prep	3546			284608	11/23/15 13:42	RDT	TAL PEN
Total/NA	Analysis	8270D		2	285370	12/01/15 14:52	AJR	TAL PEN
Total/NA	Prep	3546			284609	11/23/15 13:45	RDT	TAL PEN
Total/NA	Analysis	8270D LL		1	285098	11/27/15 11:57	CEP	TAL PEN
Total/NA	Prep	3546			411116	11/19/15 10:02	JMV	TAL SAV
Total/NA	Analysis	8081B/8082A		1	411233	11/19/15 19:38	JCK	TAL SAV
Total/NA	Prep	3550B			284281	11/20/15 09:29	RDT	TAL PEN
Total/NA	Analysis	FL-PRO		1	284544	11/23/15 16:29	C1M	TAL PEN
Total/NA	Prep	3050B			411181	11/19/15 12:34	CDD	TAL SAV
Total/NA	Analysis	6020A		1	411408	11/20/15 00:49	BWR	TAL SAV
Total/NA	Prep	7471B			411435	11/20/15 15:10	JKL	TAL SAV
Total/NA	Analysis	7471B		1	411816	11/24/15 10:03	JKL	TAL SAV

Client Sample ID: LB9 (0-2)

Date Collected: 11/17/15 10:20

Date Received: 11/18/15 08:40

Lab Sample ID: 660-70487-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	163531	11/20/15 07:35	AJG	TAL TAM

TestAmerica Tampa

Lab Chronicle

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	Microwave			5327021_P	11/23/15 10:39		TAL KNX
Total	Analysis	Extraction 8290A		5	5327021	12/01/15 07:55	PMP	TAL KNX

Client Sample ID: LB9 (0-2)

Lab Sample ID: 660-70487-2

Date Collected: 11/17/15 10:20

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			163483	11/18/15 15:52	ECC	TAL TAM
Total/NA	Analysis	8260B		1	163525	11/20/15 14:07	ECC	TAL TAM
Total/NA	Prep	3546			284608	11/23/15 13:42	RDT	TAL PEN
Total/NA	Analysis	8270D		1	285334	11/30/15 19:50	AJR	TAL PEN
Total/NA	Prep	3546			284609	11/23/15 13:45	RDT	TAL PEN
Total/NA	Analysis	8270D LL		1	285098	11/27/15 12:32	CEP	TAL PEN
Total/NA	Prep	3546			411116	11/19/15 10:02	JMV	TAL SAV
Total/NA	Analysis	8081B/8082A		1	411233	11/19/15 18:37	JCK	TAL SAV
Total/NA	Prep	3550B			284281	11/20/15 09:29	RDT	TAL PEN
Total/NA	Analysis	FL-PRO		1	284544	11/23/15 16:50	C1M	TAL PEN
Total/NA	Prep	3050B			411181	11/19/15 12:34	CDD	TAL SAV
Total/NA	Analysis	6020A		1	411408	11/20/15 01:04	BWR	TAL SAV
Total/NA	Prep	7471B			411435	11/20/15 15:10	JKL	TAL SAV
Total/NA	Analysis	7471B		1	411816	11/24/15 10:06	JKL	TAL SAV

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	163531	11/20/15 07:51	AJG	TAL TAM

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 81

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	Microwave			5327021_P	11/23/15 10:39		TAL KNX
Total	Analysis	Extraction 8290A		1	5327021	11/30/15 18:07	KBL	TAL KNX

TestAmerica Tampa

Lab Chronicle

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Client Sample ID: LB9 (2-4)

Lab Sample ID: 660-70487-3

Date Collected: 11/17/15 10:30

Matrix: Solid

Date Received: 11/18/15 08:40

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			163483	11/18/15 15:52	ECC	TAL TAM
Total/NA	Analysis	8260B		1	163525	11/20/15 14:25	ECC	TAL TAM
Total/NA	Prep	3546			284608	11/23/15 13:42	RDT	TAL PEN
Total/NA	Analysis	8270D		1	285334	11/30/15 21:50	AJR	TAL PEN
Total/NA	Prep	3546			284609	11/23/15 13:45	RDT	TAL PEN
Total/NA	Analysis	8270D LL		1	285098	11/27/15 13:07	CEP	TAL PEN
Total/NA	Prep	3546			411116	11/19/15 10:02	JMV	TAL SAV
Total/NA	Analysis	8081B/8082A		1	411233	11/19/15 18:52	JCK	TAL SAV
Total/NA	Prep	3550B			284281	11/20/15 09:29	RDT	TAL PEN
Total/NA	Analysis	FL-PRO		1	284544	11/23/15 17:00	C1M	TAL PEN
Total/NA	Prep	3050B			411181	11/19/15 12:34	CDD	TAL SAV
Total/NA	Analysis	6020A		1	411408	11/20/15 01:09	BWR	TAL SAV
Total/NA	Prep	7471B			411435	11/20/15 15:10	JKL	TAL SAV
Total/NA	Analysis	7471B		1	411816	11/24/15 10:09	JKL	TAL SAV

Laboratory References:

- TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
- TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
- TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858
- TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427



Method Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL TAM
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PEN
8270D LL	Semivolatile Organic Compounds by GC/MS - Low Level	SW846	TAL PEN
8081B/8082A	Organochlorine Pesticides and Polychlorinated Biphenyls by Gas Chromatography	SW846	TAL SAV
FL-PRO	Florida - Petroleum Range Organics (GC)	FL-DEP	TAL PEN
8290A	Dioxins/Furans, HRGC/HRMS (8290A)	SW846	TAL KNX
6020A	Metals (ICP/MS)	SW846	TAL SAV
7471B	Mercury (CVAA)	SW846	TAL SAV
160.3 MOD	Moisture, Percent (160.3)	MCAWW	TAL KNX
Moisture	Percent Moisture	EPA	TAL TAM

Protocol References:

EPA = US Environmental Protection Agency

FL-DEP = State Of Florida Department Of Environmental Protection, Florida Administrative Code.

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Certification Summary

Client: Langan Engineering & Environmental Svcs
 Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Laboratory: TestAmerica Tampa

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E84282	06-30-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: TestAmerica Knoxville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0688	06-16-16
California	State Program	9	2423	06-30-16
Colorado	State Program	8	N/A	02-28-16
Connecticut	State Program	1	PH-0223	09-30-17
Florida	NELAP	4	E87177	06-30-16
Georgia	State Program	4	906	04-13-17
Hawaii	State Program	9	N/A	04-13-16
Kansas	NELAP	7	E-10349	01-31-16
Kentucky (DW)	State Program	4	90101	12-31-15
L-A-B	DoD ELAP		L2311	02-13-16
Louisiana	NELAP	6	83979	06-30-16
Louisiana (DW)	NELAP	6	LA110001	12-31-15
Maryland	State Program	3	277	03-31-16
Michigan	State Program	5	9933	04-13-17
Nevada	State Program	9	TN00009	07-31-16
New Jersey	NELAP	2	TN001	11-30-15
New York	NELAP	2	10781	03-31-16
North Carolina (DW)	State Program	4	21705	07-31-16
North Carolina (WW/SW)	State Program	4	64	12-31-15
Ohio VAP	State Program	5	CL0059	01-16-17
Oklahoma	State Program	6	9415	08-31-16
Pennsylvania	NELAP	3	68-00576	12-31-15
South Carolina	State Program	4	84001	06-30-16
Tennessee	State Program	4	2014	04-13-17
Texas	NELAP	6	T104704380-15-8	08-31-16
USDA	Federal		P330-13-00260	08-29-16
Utah	NELAP	8	QUAN3	07-31-16
Virginia	NELAP	3	460176	09-14-16
Washington	State Program	10	C593	01-19-16
West Virginia (DW)	State Program	3	9955C	12-31-15
West Virginia DEP	State Program	3	345	04-30-16
Wisconsin	State Program	5	998044300	08-31-16

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81010	06-30-16

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
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Certification Summary

Client: Langan Engineering & Environmental Svcs
Project/Site: City of Hollywood

TestAmerica Job ID: 660-70487-1

Laboratory: TestAmerica Pensacola (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81010	06-30-16

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
8270D	3546	Solid	Demeton, Total
8270D	3546	Solid	Diazinon
8270D	3546	Solid	Guthion
8270D	3546	Solid	Methyl parathion

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E87052	06-30-16

The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
8081B/8082A	3546	Solid	Total PCBs

660325
Ft Lauderdale

Chain of Custody Record

ESTATIMILIC
THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Dan Spector Company: Langan Engineering & Environmental Svcs Address: 15150 NW 79th Court Suite 200 City: Miami Lakes State, Zip: FL, 33016 Phone: 786-264-7218 (Tel) Email: dspector@langan.com Project Name: City of Hollywood City of Hollywood State, Zip: FL, 33016 Project #: 66008534 SSOV#:		Sampler: Hubert Ponaard Phone: (651)3212854 Lab P/N: Hayes, Ken E-Mail: ken.hayes@estatic.com		Carrier Tracking No.:		COG No.: 660-65808-2147.1 Page: Page 1 of 1 Job #:	
Due Date Requested: City: Miami Lakes State, Zip: FL, 33016 Phone: 786-264-7218 (Tel) Email: dspector@langan.com Project Name: City of Hollywood City of Hollywood State, Zip: FL, 33016 Project #: 66008534 SSOV#:		Analysis Requested <input checked="" type="checkbox"/> Field Filtered Samples (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) 8260B - Standard 8260 List (OV) 6020A, 7471B FL_PRO - C8-C40 FLPRO SUBCONTRACT - 17 Isomers & Totals 8270D_LL - Low Level PAHs by 8270 8081B_8082A - Routine Pesticides and PCBs 8141B - Standard 8141B list		Total Number of Containers		Special Instructions/Note: See Properly Analyzed See Properly Analyzed See Properly Analyzed	
Sample Identification Sample Date: 11/11/15 Sample Time: 11/11/15 Sample Type (C=Comp, G=Grab): G Matrix (Mineral, Synthetic, Unknown): S Preservation Code: G Matrix (Mineral, Synthetic, Unknown): S Preservation Code: G Matrix (Mineral, Synthetic, Unknown): S Preservation Code: G		Barcode: 660-70487 Chain of Custody Loc: 660 70487 660325		Sample Disposal / A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Method of Shipment: Date/Time: 11/11/15 Date/Time: 11/11/15 Date/Time: 11/11/15 Date/Time: 11/11/15	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit/Retained by:		Requisitioned by:	
Requisitioned by:		Date/Time: 11/11/15		Company:		Requisitioned by:	
Requisitioned by:		Date/Time: 11/11/15		Company:		Requisitioned by:	
Custody Seals Intact: A Yes A No		Custody Seal No.:		Requisitioned by:		Date/Time: 11/11/15	

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Svcs

Job Number: 660-70487-1

Login Number: 70487

List Source: TestAmerica Tampa

List Number: 1

Creator: Southers, Kristin B

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample time on COC, logged in per container labels.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Svcs

Job Number: 660-70487-1

Login Number: 70487

List Number: 3

Creator: Crawford, Lauren E

List Source: TestAmerica Pensacola

List Creation: 11/19/15 11:00 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0°C, 0.2°C IR-5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Svcs

Job Number: 660-70487-1

Login Number: 70487

List Number: 2

Creator: Kirkland, Keyon A

List Source: TestAmerica Savannah

List Creation: 11/19/15 09:17 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	