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December 16, 2019

Eric Matzner
Golder Associates Inc.
2201 Double Creek Drive
Suite 4004
Round Rock, TX 78664

Work Order: **HS19120483**

Laboratory Results for: **Houston TX-Wood Preserving Works**

Dear Eric,

ALS Environmental received 2 sample(s) on Dec 10, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Work Order: HS19120483

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19120483-01	SO-1620-ROLLOFF-20191210	Solid		10-Dec-2019 13:05	10-Dec-2019 15:04	☐
HS19120483-02	WG-1620-VACBOX-20191210	Liquid		10-Dec-2019 12:15	10-Dec-2019 15:04	☐

Client: Golder Associates Inc. **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works
Work Order: HS19120483

Work Order Comments

• Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method TX1005

Batch ID: 148530

Sample ID: SO-1620-ROLLOFF-20191210 (HS19120483-01MS)

• The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (>nC12 to nC28)

Batch ID: 148630

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Semivolatiles by Method SW8270

Batch ID: 148519

Sample ID: HS19120320-01MS

• MS and MSD are for an unrelated sample

Sample ID: SO-1620-ROLLOFF-20191210 (HS19120483-01)

• The surrogate recoveries could not be determined due to dilution below the calibration range.

Batch ID: 148570

Sample ID: HS19120505-02MS

• MS and MSD are for an unrelated sample

Sample ID: WG-1620-VACBOX-20191210 (HS19120483-02)

• The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R352338

Sample ID: WG-1620-VACBOX-20191210 (HS19120483-02)

• Lowest practical dilution due to sample matrix.

Batch ID: R352253

Sample ID: HS19120360-01MS

• MS and MSD are for an unrelated sample

Metals by Method SW7470

Batch ID: 148662

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Golder Associates Inc. **CASE NARRATIVE**
Project: Houston TX-Wood Preserving Works
Work Order: HS19120483

Metals by Method SW1311/6020

Batch ID: 148597

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9040C

Batch ID: R352482

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW1010

Batch ID: R352440

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F

Batch ID: R352294

Sample ID: WG-1620-VACBOX-20191210 (HS19120483-02)

- Nasty sample

WetChemistry by Method SW9014

Batch ID: 148579

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: SO-1620-ROLLOFF-20191210
Collection Date: 10-Dec-2019 13:05

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-01
Matrix:Solid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		**Method:SW8260**				Analyst: GR
1,1,1-Trichloroethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,1,2,2-Tetrachloroethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,1,2-Trichloroethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,1-Dichloroethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,1-Dichloroethene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,2-Dichlorobenzene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,2-Dichloroethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,2-Dichloropropane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,3-Dichlorobenzene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
1,4-Dichlorobenzene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
2-Butanone	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
2-Hexanone	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
4-Methyl-2-pentanone	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
Acetone	**0.024**		**0.020**	**mg/Kg**	1	11-Dec-2019 19:32
Benzene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Bromochloromethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Bromodichloromethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Bromoform	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Bromomethane	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
Carbon disulfide	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
Carbon tetrachloride	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Chlorobenzene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Chloroethane	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
Chloroform	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Chloromethane	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
cis-1,2-Dichloroethene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
cis-1,3-Dichloropropene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Dibromochloromethane	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Ethylbenzene	**0.032**		**0.0050**	**mg/Kg**	1	11-Dec-2019 19:32
m,p-Xylene	**0.051**		**0.010**	**mg/Kg**	1	11-Dec-2019 19:32
Methylene chloride	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32
o-Xylene	**0.061**		**0.0050**	**mg/Kg**	1	11-Dec-2019 19:32
Styrene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Tetrachloroethene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Toluene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
trans-1,2-Dichloroethene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
trans-1,3-Dichloropropene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Trichloroethene	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Vinyl acetate	< 0.010		0.010	mg/Kg	1	11-Dec-2019 19:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: SO-1620-ROLLOFF-20191210
Collection Date: 10-Dec-2019 13:05

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-01
Matrix:Solid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C	**Method:SW8260**					Analyst: GR
Vinyl chloride	< 0.0020		0.0020	mg/Kg	1	11-Dec-2019 19:32
Xylenes, Total	**0.11**		**0.0050**	**mg/Kg**	1	11-Dec-2019 19:32
1,2-Dichloroethene, Total	< 0.0050		0.0050	mg/Kg	1	11-Dec-2019 19:32
Surr: 1,2-Dichloroethane-d4	*81.3*		*70-126*	*%REC*	*1*	*11-Dec-2019 19:32*
Surr: 4-Bromofluorobenzene	*95.4*		*70-130*	*%REC*	*1*	*11-Dec-2019 19:32*
Surr: Dibromofluoromethane	*88.2*		*70-130*	*%REC*	*1*	*11-Dec-2019 19:32*
Surr: Toluene-d8	*103*		*70-130*	*%REC*	*1*	*11-Dec-2019 19:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: SO-1620-ROLLOFF-20191210
Collection Date: 10-Dec-2019 13:05

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-01
Matrix:Solid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**			Prep:SW3541 / 11-Dec-2019		Analyst: GEY
1,2,4-Trichlorobenzene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,4,5-Trichlorophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,4,6-Trichlorophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,4-Dichlorophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,4-Dimethylphenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,4-Dinitrophenol	< 0.013		0.013	mg/Kg	1	11-Dec-2019 21:35
2,4-Dinitrotoluene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2,6-Dinitrotoluene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2-Chloronaphthalene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2-Chlorophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2-Methylnaphthalene	**5.2**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
2-Methylphenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2-Nitroaniline	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
2-Nitrophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
3&4-Methylphenol	**0.021**		**0.0066**	**mg/Kg**	1	11-Dec-2019 21:35
3,3´-Dichlorobenzidine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
3-Nitroaniline	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4,6-Dinitro-2-methylphenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Bromophenyl phenyl ether	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Chloro-3-methylphenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Chloroaniline	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Chlorophenyl phenyl ether	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Nitroaniline	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
4-Nitrophenol	< 0.013		0.013	mg/Kg	1	11-Dec-2019 21:35
Acenaphthene	**6.5**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Acenaphthylene	**0.19**		**0.0033**	**mg/Kg**	1	11-Dec-2019 21:35
Anthracene	**6.3**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Benz(a)anthracene	**1.7**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Benzidine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Benzo(a)pyrene	**0.57**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Benzo(b)fluoranthene	**0.86**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Benzo(g,h,i)perylene	**0.11**		**0.0033**	**mg/Kg**	1	11-Dec-2019 21:35
Benzo(k)fluoranthene	**0.36**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Benzyl alcohol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Bis(2-chloroethoxy)methane	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Bis(2-chloroethyl)ether	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Bis(2-chloroisopropyl)ether	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Bis(2-ethylhexyl)phthalate	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Butyl benzyl phthalate	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: SO-1620-ROLLOFF-20191210
Collection Date: 10-Dec-2019 13:05

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-01
Matrix:Solid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**			Prep:SW3541 / 11-Dec-2019		Analyst: GEY
Carbazole	**4.5**		**0.66**	**mg/Kg**	100	12-Dec-2019 17:23
Chrysene	**1.5**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Di-n-butyl phthalate	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Di-n-octyl phthalate	**0.018**		**0.0066**	**mg/Kg**	1	11-Dec-2019 21:35
Dibenz(a,h)anthracene	**0.074**		**0.0033**	**mg/Kg**	1	11-Dec-2019 21:35
Dibenzofuran	**6.0**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Diethyl phthalate	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Dimethyl phthalate	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Fluoranthene	**11**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Fluorene	**8.8**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Hexachlorobenzene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Hexachlorobutadiene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Hexachlorocyclopentadiene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Hexachloroethane	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Indeno(1,2,3-cd)pyrene	**0.17**		**0.0033**	**mg/Kg**	1	11-Dec-2019 21:35
Isophorone	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
N-Nitrosodi-n-propylamine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
N-Nitrosodimethylamine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
N-Nitrosodiphenylamine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Naphthalene	**13**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Nitrobenzene	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Pentachlorophenol	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Phenanthrene	**26**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Phenol	**0.022**		**0.0066**	**mg/Kg**	1	11-Dec-2019 21:35
Pyrene	**6.6**		**0.33**	**mg/Kg**	100	12-Dec-2019 17:23
Pyridine	< 0.0066		0.0066	mg/Kg	1	11-Dec-2019 21:35
Surr: 2,4,6-Tribromophenol	*62.0*		*36-126*	*%REC*	*1*	*11-Dec-2019 21:35*
Surr: 2,4,6-Tribromophenol	*0*	*S*	*36-126*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: 2-Fluorobiphenyl	*0*	*S*	*43-125*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: 2-Fluorobiphenyl	*58.6*		*43-125*	*%REC*	*1*	*11-Dec-2019 21:35*
Surr: 2-Fluorophenol	*67.7*		*37-125*	*%REC*	*1*	*11-Dec-2019 21:35*
Surr: 2-Fluorophenol	*0*	*S*	*37-125*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: 4-Terphenyl-d14	*0*	*S*	*32-125*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: 4-Terphenyl-d14	*83.3*		*32-125*	*%REC*	*1*	*11-Dec-2019 21:35*
Surr: Nitrobenzene-d5	*69.4*		*37-125*	*%REC*	*1*	*11-Dec-2019 21:35*
Surr: Nitrobenzene-d5	*0*	*S*	*37-125*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: Phenol-d6	*0*	*S*	*40-125*	*%REC*	*100*	*12-Dec-2019 17:23*
Surr: Phenol-d6	*75.8*		*40-125*	*%REC*	*1*	*11-Dec-2019 21:35*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: SO-1620-ROLLOFF-20191210
Collection Date: 10-Dec-2019 13:05

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-01
Matrix:Solid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TEXAS TPH BY TX1005	**Method:TX1005**		Prep:TX1005PR / 11-Dec-2019			Analyst: MBG
nC6 to nC12	**52**		**48**	**mg/Kg**	1	12-Dec-2019 19:17
>nC12 to nC28	**840**		**48**	**mg/Kg**	1	12-Dec-2019 19:17
>nC28 to nC35	**49**		**48**	**mg/Kg**	1	12-Dec-2019 19:17
Total Petroleum Hydrocarbon	**941**		**48**	**mg/Kg**	1	12-Dec-2019 19:17
Surr: 2-Fluorobiphenyl	*81.3*		*70-130*	*%REC*	*1*	*12-Dec-2019 19:17*
Surr: Trifluoromethyl benzene	*92.2*		*70-130*	*%REC*	*1*	*12-Dec-2019 19:17*
TCLP METALS BY SW6020A	**Method:SW1311/6020**		Leache:SW1311 / 12-Dec-2019	Prep:SW3010A / 12-Dec-2019		Analyst: JC
Arsenic	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
Barium	**1.87**		**0.200**	**mg/L**	1	12-Dec-2019 21:58
Cadmium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
Chromium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
Lead	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
Selenium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
Silver	< 0.0500		0.0500	mg/L	1	12-Dec-2019 21:58
TCLP MERCURY BY SW7470A	**Method:SW7470**		Leache:SW1311 / 12-Dec-2019	Prep:SW7470 / 13-Dec-2019		Analyst: FO
Mercury	< 0.000200		0.000200	mg/L	1	13-Dec-2019 14:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: WG-1620-VACBOX-20191210
Collection Date: 10-Dec-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-02
Matrix:Liquid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		**Method:SW8260**				Analyst: AKP
1,1,1-Trichloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,1,2,2-Tetrachloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,1,2-Trichloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,1-Dichloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,1-Dichloroethene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,2-Dichlorobenzene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,2-Dichloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,2-Dichloropropane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,3-Dichlorobenzene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
1,4-Dichlorobenzene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
2-Butanone	< 0.010		0.010	mg/L	5	11-Dec-2019 16:17
2-Hexanone	< 0.010		0.010	mg/L	5	11-Dec-2019 16:17
4-Methyl-2-pentanone	< 0.010		0.010	mg/L	5	11-Dec-2019 16:17
Acetone	**0.015**		**0.010**	**mg/L**	5	11-Dec-2019 16:17
Benzene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Bromochloromethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Bromodichloromethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Bromoform	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Bromomethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Carbon disulfide	< 0.010		0.010	mg/L	5	11-Dec-2019 16:17
Carbon tetrachloride	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Chlorobenzene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Chloroethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Chloroform	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Chloromethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
cis-1,2-Dichloroethene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
cis-1,3-Dichloropropene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Dibromochloromethane	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Ethylbenzene	**0.040**		**0.0050**	**mg/L**	5	11-Dec-2019 16:17
m,p-Xylene	**0.070**		**0.010**	**mg/L**	5	11-Dec-2019 16:17
Methylene chloride	< 0.010		0.010	mg/L	5	11-Dec-2019 16:17
o-Xylene	**0.066**		**0.0050**	**mg/L**	5	11-Dec-2019 16:17
Styrene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Tetrachloroethene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Toluene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
trans-1,2-Dichloroethene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
trans-1,3-Dichloropropene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Trichloroethene	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Vinyl acetate	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: WG-1620-VACBOX-20191210
Collection Date: 10-Dec-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-02
Matrix:Liquid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C	**Method:SW8260**					Analyst: AKP
Vinyl chloride	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Xylenes, Total	**0.14**		**0.0050**	**mg/L**	5	11-Dec-2019 16:17
1,2-Dichloroethene, Total	< 0.0050		0.0050	mg/L	5	11-Dec-2019 16:17
Surr: 1,2-Dichloroethane-d4	*103*		*70-126*	*%REC*	*5*	*11-Dec-2019 16:17*
Surr: 4-Bromofluorobenzene	*100*		*81-113*	*%REC*	*5*	*11-Dec-2019 16:17*
Surr: Dibromofluoromethane	*104*		*77-123*	*%REC*	*5*	*11-Dec-2019 16:17*
Surr: Toluene-d8	*103*		*82-127*	*%REC*	*5*	*11-Dec-2019 16:17*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: WG-1620-VACBOX-20191210
Collection Date: 10-Dec-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-02
Matrix:Liquid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D	**Method:SW8270**			Prep:SW3541 / 12-Dec-2019		Analyst: GEY
1,2,4-Trichlorobenzene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,4,5-Trichlorophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,4,6-Trichlorophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,4-Dichlorophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,4-Dimethylphenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,4-Dinitrophenol	< 0.79		0.79	mg/Kg	10	12-Dec-2019 16:51
2,4-Dinitrotoluene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2,6-Dinitrotoluene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2-Chloronaphthalene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2-Chlorophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2-Methylnaphthalene	**1.2**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
2-Methylphenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2-Nitroaniline	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
2-Nitrophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
3&4-Methylphenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
3,3´-Dichlorobenzidine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
3-Nitroaniline	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4,6-Dinitro-2-methylphenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Bromophenyl phenyl ether	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Chloro-3-methylphenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Chloroaniline	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Chlorophenyl phenyl ether	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Nitroaniline	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
4-Nitrophenol	< 0.79		0.79	mg/Kg	10	12-Dec-2019 16:51
Acenaphthene	**2.1**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Acenaphthylene	< 0.20		0.20	mg/Kg	10	12-Dec-2019 16:51
Anthracene	**6.2**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Benz(a)anthracene	**0.92**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Benzidine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Benzo(a)pyrene	**0.35**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Benzo(b)fluoranthene	**0.64**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Benzo(g,h,i)perylene	< 0.20		0.20	mg/Kg	10	12-Dec-2019 16:51
Benzo(k)fluoranthene	**0.33**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Benzyl alcohol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Bis(2-chloroethoxy)methane	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Bis(2-chloroethyl)ether	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Bis(2-chloroisopropyl)ether	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Bis(2-ethylhexyl)phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Butyl benzyl phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: WG-1620-VACBOX-20191210
Collection Date: 10-Dec-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-02
Matrix:Liquid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		**Method:SW8270**		Prep:SW3541 / 12-Dec-2019		Analyst: GEY
Carbazole	**4.2**		**0.39**	**mg/Kg**	10	12-Dec-2019 16:51
Chrysene	**1.0**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Di-n-butyl phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Di-n-octyl phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Dibenz(a,h)anthracene	< 0.20		0.20	mg/Kg	10	12-Dec-2019 16:51
Dibenzofuran	**1.9**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Diethyl phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Dimethyl phthalate	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Fluoranthene	**4.6**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Fluorene	**3.3**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Hexachlorobenzene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Hexachlorobutadiene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Hexachlorocyclopentadiene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Hexachloroethane	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Indeno(1,2,3-cd)pyrene	< 0.20		0.20	mg/Kg	10	12-Dec-2019 16:51
Isophorone	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
N-Nitrosodi-n-propylamine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
N-Nitrosodimethylamine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
N-Nitrosodiphenylamine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Naphthalene	**1.5**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Nitrobenzene	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Pentachlorophenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Phenanthrene	**9.1**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Phenol	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Pyrene	**3.2**		**0.20**	**mg/Kg**	10	12-Dec-2019 16:51
Pyridine	< 0.39		0.39	mg/Kg	10	12-Dec-2019 16:51
Surr: 2,4,6-Tribromophenol	*88.5*		*36-126*	*%REC*	*10*	*12-Dec-2019 16:51*
Surr: 2-Fluorobiphenyl	*86.9*		*43-125*	*%REC*	*10*	*12-Dec-2019 16:51*
Surr: 2-Fluorophenol	*91.5*		*37-125*	*%REC*	*10*	*12-Dec-2019 16:51*
Surr: 4-Terphenyl-d14	*97.7*		*32-125*	*%REC*	*10*	*12-Dec-2019 16:51*
Surr: Nitrobenzene-d5	*85.6*		*37-125*	*%REC*	*10*	*12-Dec-2019 16:51*
Surr: Phenol-d6	*88.7*		*40-125*	*%REC*	*10*	*12-Dec-2019 16:51*
TEXAS TPH BY TX1005		**Method:TX1005**		Prep:TX1005PR / 13-Dec-2019		Analyst: MBG
nC6 to nC12	< 46		46	mg/Kg	1	14-Dec-2019 15:56
>nC12 to nC28	< 46		46	mg/Kg	1	14-Dec-2019 15:56
>nC28 to nC35	< 46		46	mg/Kg	1	14-Dec-2019 15:56
Total Petroleum Hydrocarbon	< 46		46	mg/Kg	1	14-Dec-2019 15:56
Surr: 2-Fluorobiphenyl	*81.7*		*70-130*	*%REC*	*1*	*14-Dec-2019 15:56*
Surr: Trifluoromethyl benzene	*86.2*		*70-130*	*%REC*	*1*	*14-Dec-2019 15:56*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
Sample ID: WG-1620-VACBOX-20191210
Collection Date: 10-Dec-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19120483
Lab ID:HS19120483-02
Matrix:Liquid

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TCLP METALS BY SW6020A		**Method:SW1311/6020**	Leache:SW1311 / 12-Dec-2019	Prep:SW3010A / 12-Dec-2019		Analyst: JC
Arsenic	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
Barium	**0.271**		**0.200**	**mg/L**	1	12-Dec-2019 22:01
Cadmium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
Chromium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
Lead	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
Selenium	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
Silver	< 0.0500		0.0500	mg/L	1	12-Dec-2019 22:01
TCLP MERCURY BY SW7470A		**Method:SW7470**	Leache:SW1311 / 12-Dec-2019	Prep:SW7470 / 13-Dec-2019		Analyst: FO
Mercury	< 0.000200		0.000200	mg/L	1	13-Dec-2019 14:50
SULFIDE BY SM4500 S2-F		**Method:SM4500 S2-F**				Analyst: KVL
Sulfide	< 1.00		1.00	mg/L	1	11-Dec-2019 14:00
FLASH POINT BY PENSKY-MARTENS SW1010A		**Method:SW1010**				Analyst: TH
Ignitability	> 212		70.0	°F	1	13-Dec-2019 08:00
CYANIDE - SW9014		**Method:SW9014**		Prep:SW9010C / 11-Dec-2019		Analyst: KVL
Cyanide	**0.0350**		**0.00500**	**mg/L**	1	11-Dec-2019 15:30
PH BY SW9040C		**Method:SW9040C**				Analyst: MZD
pH	**8.82**	H	**0.100**	**pH Units**	1	13-Dec-2019 11:30
Temp Deg C @pH	**20.3**	H	**0**	**DEG C**	1	13-Dec-2019 11:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

Batch ID: 3496 **Start Date:** 11 Dec 2019 17:07 **End Date:** 11 Dec 2019 17:07
Method: VOLATILES BY SW8260C

Sample ID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS19120483-01	1	4.98 (g)	5 (mL)	1	Bulk (5030B)

Batch ID: 148519 **Start Date:** 11 Dec 2019 09:28 **End Date:** 11 Dec 2019 15:30
Method: SV SOXHLET EXTRACT-LOWLEVEL-SW3541 **Prep Code:** 3541_B_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01		30.11 (g)	1 (mL)	0.03321

Batch ID: 148530 **Start Date:** 11 Dec 2019 10:00 **End Date:** 11 Dec 2019 15:00
Method: TX 1005 PREP **Prep Code:** TX 1005_S PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01	1	10.41 (g)	10 (mL)	0.9606
HS19120483-02	1	10.47 (g)	10 (mL)	0.9551

Batch ID: 148548 **Start Date:** 11 Dec 2019 16:30 **End Date:** 12 Dec 2019 09:30
Method: TCLP MERCURY EXTRACTION BY SW1311 **Prep Code:** 1311LHG EXT

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01		100 (grams)	2000 (mL)	20

Batch ID: 148549 **Start Date:** 11 Dec 2019 16:30 **End Date:** 12 Dec 2019 09:30
Method: TCLP METALS EXTRACTION BY SW1311 **Prep Code:** 1311LM EXT

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01		100 (grams)	2000 (mL)	20

Batch ID: 148570 **Start Date:** 12 Dec 2019 08:45 **End Date:** 12 Dec 2019 12:00
Method: SV SOXHLET EXTRACT-LOWLEVEL-SW3541 **Prep Code:** 3541_B_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-02		5.02 (g)	1 (mL)	0.1992

Batch ID: 148579 **Start Date:** 11 Dec 2019 14:00 **End Date:** 11 Dec 2019 15:15
Method: CYANIDE PREP - SW9010C **Prep Code:** CN_TW_PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-02		50 (mL)	50 (mL)	1

Batch ID: 148582 **Start Date:** 12 Dec 2019 12:00 **End Date:** 12 Dec 2019 13:00
Method: TCLP MERCURY EXTRACTION BY SW1311 **Prep Code:** 1311LHG EXT

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-02		100 (grams)	2000 (mL)	20

Weight / Prep Log

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

Batch ID: 148584 **Start Date:** 12 Dec 2019 12:00 **End Date:** 12 Dec 2019 13:00
Method: TCLP METALS EXTRACTION BY SW1311 **Prep Code:** 1311LM EXT

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-02		100 (grams)	2000 (mL)	20

Batch ID: 148597 **Start Date:** 12 Dec 2019 13:15 **End Date:** 12 Dec 2019 17:00
Method: TCLP LEACHATE DIGESTION BY SW3010A **Prep Code:** 3010A_TCLP

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01		1 (mL)	10 (mL)	10
HS19120483-02		1 (mL)	10 (mL)	10

Batch ID: 148630 **Start Date:** 13 Dec 2019 10:30 **End Date:** 13 Dec 2019 15:00
Method: TX 1005 PREP **Prep Code:** TX 1005_S PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-02	3	10.85 (g)	10 (mL)	0.9217

Batch ID: 148662 **Start Date:** 13 Dec 2019 10:00 **End Date:** 13 Dec 2019 12:00
Method: MERCURY TCLP PREP BY SW7470A **Prep Code:** 1311_HGPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19120483-01		10 (mL)	10 (mL)	1
HS19120483-02		10 (mL)	10 (mL)	1

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 148519 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Solid	
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05		11 Dec 2019 09:28	12 Dec 2019 17:23	100
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05		11 Dec 2019 09:28	11 Dec 2019 21:35	1
Batch ID: 148530 (0)	**Test Name :** TEXAS TPH BY TX1005				**Matrix:** Solid	
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05		11 Dec 2019 10:00	12 Dec 2019 19:17	1
Batch ID: 148570 (0)	**Test Name :** LOW-LEVEL SEMIVOLATILES BY 8270D				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15		12 Dec 2019 08:45	12 Dec 2019 16:51	10
Batch ID: 148579 (0)	**Test Name :** CYANIDE - SW9014				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15		11 Dec 2019 14:00	11 Dec 2019 15:30	1
Batch ID: 148597 (0)	**Test Name :** TCLP METALS BY SW6020A				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15	12 Dec 2019 13:00	12 Dec 2019 13:15	12 Dec 2019 22:01	1
Batch ID: 148597 (0)	**Test Name :** TCLP METALS BY SW6020A				**Matrix:** Solid	
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05	12 Dec 2019 09:30	12 Dec 2019 13:15	12 Dec 2019 21:58	1
Batch ID: 148630 (0)	**Test Name :** TEXAS TPH BY TX1005				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15		13 Dec 2019 10:30	14 Dec 2019 15:56	1
Batch ID: 148662 (0)	**Test Name :** TCLP MERCURY BY SW7470A				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15	12 Dec 2019 13:00	13 Dec 2019 10:00	13 Dec 2019 14:50	1
Batch ID: 148662 (0)	**Test Name :** TCLP MERCURY BY SW7470A				**Matrix:** Solid	
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05	12 Dec 2019 09:30	13 Dec 2019 10:00	13 Dec 2019 14:48	1
Batch ID: R352253 (0)	**Test Name :** VOLATILES BY SW8260C				**Matrix:** Solid	
HS19120483-01	SO-1620-ROLLOFF-20191210	10 Dec 2019 13:05			11 Dec 2019 19:32	1
Batch ID: R352294 (0)	**Test Name :** SULFIDE BY SM4500 S2-F				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15			11 Dec 2019 14:00	1
Batch ID: R352338 (0)	**Test Name :** LOW LEVEL VOLATILES BY SW8260C				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15			11 Dec 2019 16:17	5
Batch ID: R352440 (0)	**Test Name :** FLASH POINT BY PENSKY-MARTENS SW1010A				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15			13 Dec 2019 08:00	1
Batch ID: R352482 (0)	**Test Name :** PH BY SW9040C				**Matrix:** Liquid	
HS19120483-02	WG-1620-VACBOX-20191210	10 Dec 2019 12:15			13 Dec 2019 11:30	1

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148530 (0) **Instrument: FID-13** **Method: TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-148530** Units: **mg/Kg** Analysis Date: **12-Dec-2019 17:51**
Client ID: Run ID: **FID-13_352439** SeqNo: **5388642** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	< 50	50								
>nC12 to nC28	< 50	50								
>nC28 to nC35	< 50	50								
Total Petroleum Hydrocarbon	< 50	50								
Surr: 2-Fluorobiphenyl	*19.65*	*0*	*25*	*0*	*78.6*	*70 - 130*				
Surr: Trifluoromethyl benzene	*22.3*	*0*	*25*	*0*	*89.2*	*70 - 130*				

LCS Sample ID: **LCS-148530** Units: **mg/Kg** Analysis Date: **12-Dec-2019 18:19**
Client ID: Run ID: **FID-13_352439** SeqNo: **5388643** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	279.6	50	250	0	112	75 - 125				
>nC12 to nC28	285.9	50	250	0	114	75 - 125				
Surr: 2-Fluorobiphenyl	*21.9*	*0*	*25*	*0*	*87.6*	*70 - 130*				
Surr: Trifluoromethyl benzene	*23.46*	*0*	*25*	*0*	*93.8*	*70 - 130*				

LCSD Sample ID: **LCSD-148530** Units: **mg/Kg** Analysis Date: **12-Dec-2019 18:48**
Client ID: Run ID: **FID-13_352439** SeqNo: **5388644** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	265.1	50	250	0	106	75 - 125	279.6	5.31	20	
>nC12 to nC28	278.6	50	250	0	111	75 - 125	285.9	2.59	20	
Surr: 2-Fluorobiphenyl	*21.31*	*0*	*25*	*0*	*85.2*	*70 - 130*	*21.9*	*2.74*	*20*	
Surr: Trifluoromethyl benzene	*22.89*	*0*	*25*	*0*	*91.6*	*70 - 130*	*23.46*	*2.46*	*20*	

MS Sample ID: **HS19120483-01MS** Units: **mg/Kg** Analysis Date: **12-Dec-2019 19:46**
Client ID: **SO-1620-ROLLOFF-20191210** Run ID: **FID-13_352439** SeqNo: **5388646** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	331.7	48	242	51.76	116	75 - 125				
>nC12 to nC28	1358	48	242	838	215	75 - 125				SE
Surr: 2-Fluorobiphenyl	*24.51*	*0*	*24.2*	*0*	*101*	*70 - 130*				
Surr: Trifluoromethyl benzene	*25.63*	*0*	*24.2*	*0*	*106*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148530 (0) **Instrument: FID-13** **Method: TEXAS TPH BY TX1005**

MSD Sample ID: **HS19120483-01MSD** Units: **mg/Kg** Analysis Date: **12-Dec-2019 20:15**
Client ID: **SO-1620-ROLLOFF-20191210** Run ID: **FID-13_352439** SeqNo: **5388647** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	308.3	48	239.2	51.76	107	75 - 125	331.7	7.3	20	
>nC12 to nC28	1210	48	239.2	838	156	75 - 125	1358	11.5	20	SE
Surr: 2-Fluorobiphenyl	*22.98*	*0*	*23.92*	*0*	*96.0*	*70 - 130*	*24.51*	*6.45*	*20*	
Surr: Trifluoromethyl benzene	*24.42*	*0*	*23.92*	*0*	*102*	*70 - 130*	*25.63*	*4.83*	*20*	

The following samples were analyzed in this batch: HS19120483-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148630 (0) **Instrument: FID-10** **Method: TEXAS TPH BY TX1005**

MBLK Sample ID: **MBLK-148630** Units: **mg/Kg** Analysis Date: **14-Dec-2019 10:36**
Client ID: Run ID: **FID-10_352618** SeqNo: **5392681** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	< 50	50								
>nC12 to nC28	< 50	50								
>nC28 to nC35	< 50	50								
Total Petroleum Hydrocarbon	< 50	50								
Surr: 2-Fluorobiphenyl	*25.99*	*0*	*25*	*0*	*104*	*70 - 130*				
Surr: Trifluoromethyl benzene	*25.62*	*0*	*25*	*0*	*102*	*70 - 130*				

LCS Sample ID: **LCS-148630** Units: **mg/Kg** Analysis Date: **14-Dec-2019 11:05**
Client ID: Run ID: **FID-10_352618** SeqNo: **5392682** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	241	50	250	0	96.4	75 - 125				
>nC12 to nC28	212.4	50	250	0	85.0	75 - 125				
Surr: 2-Fluorobiphenyl	*30.75*	*0*	*25*	*0*	*123*	*70 - 130*				
Surr: Trifluoromethyl benzene	*26*	*0*	*25*	*0*	*104*	*70 - 130*				

LCSD Sample ID: **LCSD-148630** Units: **mg/Kg** Analysis Date: **14-Dec-2019 11:34**
Client ID: Run ID: **FID-10_352618** SeqNo: **5392683** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	251.9	50	250	0	101	75 - 125	241	4.43	20	
>nC12 to nC28	223.4	50	250	0	89.4	75 - 125	212.4	5.03	20	
Surr: 2-Fluorobiphenyl	*30.77*	*0*	*25*	*0*	*123*	*70 - 130*	*30.75*	*0.0597*	*20*	
Surr: Trifluoromethyl benzene	*26.31*	*0*	*25*	*0*	*105*	*70 - 130*	*26*	*1.19*	*20*	

MS Sample ID: **HS19120250-03MS** Units: **mg/Kg** Analysis Date: **14-Dec-2019 13:31**
Client ID: Run ID: **FID-10_352618** SeqNo: **5392685** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	225.5	48	239	0	94.4	75 - 125				
>nC12 to nC28	184.2	48	239	0	77.1	75 - 125				
Surr: 2-Fluorobiphenyl	*26.03*	*0*	*23.9*	*0*	*109*	*70 - 130*				
Surr: Trifluoromethyl benzene	*22.89*	*0*	*23.9*	*0*	*95.8*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148630 (0) **Instrument: FID-10** **Method: TEXAS TPH BY TX1005**

MSD Sample ID: **HS19120250-03MSD** Units: **mg/Kg** Analysis Date: **14-Dec-2019 14:00**
Client ID: Run ID: **FID-10_352618** SeqNo: **5392686** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
nC6 to nC12	250.4	48	238.8	0	105	75 - 125	225.5	10.5	20	
>nC12 to nC28	211.4	48	238.8	0	88.5	75 - 125	184.2	13.7	20	
Surr: 2-Fluorobiphenyl	*29.96*	*0*	*23.88*	*0*	*125*	*70 - 130*	*26.03*	*14.1*	*20*	
Surr: Trifluoromethyl benzene	*25.83*	*0*	*23.88*	*0*	*108*	*70 - 130*	*22.89*	*12.1*	*20*	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148597 (0) **Instrument: ICPMS04** **Method: TCLP METALS BY SW6020A**

MBLK Sample ID: **MBLKT2-148597** Units: **mg/L** Analysis Date: **12-Dec-2019 21:02**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387915** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	< 0.0500	0.0500								
Barium	< 0.200	0.200								
Cadmium	< 0.0500	0.0500								
Chromium	< 0.0500	0.0500								
Lead	< 0.0500	0.0500								
Selenium	< 0.0500	0.0500								
Silver	< 0.0500	0.0500								

MBLK Sample ID: **MBLKT3-148597** Units: **mg/L** Analysis Date: **12-Dec-2019 21:04**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387916** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	< 0.0500	0.0500								
Barium	< 0.200	0.200								
Cadmium	< 0.0500	0.0500								
Chromium	< 0.0500	0.0500								
Lead	< 0.0500	0.0500								
Selenium	< 0.0500	0.0500								
Silver	< 0.0500	0.0500								

MBLK Sample ID: **MBLKT1-148597** Units: **mg/L** Analysis Date: **12-Dec-2019 20:59**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387914** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	< 0.0500	0.0500								
Barium	< 0.200	0.200								
Cadmium	< 0.0500	0.0500								
Chromium	< 0.0500	0.0500								
Lead	< 0.0500	0.0500								
Selenium	< 0.0500	0.0500								
Silver	< 0.0500	0.0500								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148597 (0) **Instrument: ICPMS04** **Method: TCLP METALS BY SW6020A**

MBLK Sample ID: **MBLK-148597** Units: **mg/L** Analysis Date: **12-Dec-2019 20:57**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387913** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	< 0.00500	0.00500								
Barium	< 0.0200	0.0200								
Cadmium	< 0.00500	0.00500								
Chromium	< 0.00500	0.00500								
Lead	< 0.00500	0.00500								
Selenium	< 0.00500	0.00500								
Silver	< 0.00500	0.00500								

LCS Sample ID: **LCS-148597** Units: **mg/L** Analysis Date: **12-Dec-2019 21:06**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387917** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05233	0.00500	0.05	0	105	80 - 120				
Barium	0.05069	0.0200	0.05	0	101	80 - 120				
Cadmium	0.05231	0.00500	0.05	0	105	80 - 120				
Chromium	0.04915	0.00500	0.05	0	98.3	80 - 120				
Lead	0.04748	0.00500	0.05	0	95.0	80 - 120				
Selenium	0.055	0.00500	0.05	0	110	80 - 120				
Silver	0.04678	0.00500	0.05	0	93.6	80 - 120				

MS Sample ID: **HS19120360-01MS** Units: **mg/L** Analysis Date: **12-Dec-2019 21:17**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387922** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.5108	0.0500	0.5	0.00008	102	80 - 120				
Barium	0.8534	0.200	0.5	0.3451	102	80 - 120				
Cadmium	0.4951	0.0500	0.5	0.00009	99.0	80 - 120				
Chromium	0.4715	0.0500	0.5	-0.00098	94.5	80 - 120				
Lead	0.4631	0.0500	0.5	0.00332	92.0	80 - 120				
Selenium	0.546	0.0500	0.5	0.00132	109	80 - 120				
Silver	0.4378	0.0500	0.5	-0.0002	87.6	80 - 120				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148597 (0) **Instrument: ICPMS04** **Method: TCLP METALS BY SW6020A**

MSD Sample ID: **HS19120360-01MSD** Units: **mg/L** Analysis Date: **12-Dec-2019 21:19**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387923** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.5173	0.0500	0.5	0.00008	103	80 - 120	0.5108	1.28	20	
Barium	0.8485	0.200	0.5	0.3451	101	80 - 120	0.8534	0.577	20	
Cadmium	0.4906	0.0500	0.5	0.00009	98.1	80 - 120	0.4951	0.927	20	
Chromium	0.4699	0.0500	0.5	-0.00098	94.2	80 - 120	0.4715	0.344	20	
Lead	0.4527	0.0500	0.5	0.00332	89.9	80 - 120	0.4631	2.28	20	
Selenium	0.5496	0.0500	0.5	0.00132	110	80 - 120	0.546	0.665	20	
Silver	0.4343	0.0500	0.5	-0.0002	86.9	80 - 120	0.4378	0.8	20	

PDS Sample ID: **HS19120360-01PDS** Units: **mg/L** Analysis Date: **12-Dec-2019 21:21**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387924** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.145	0.0500	1	0.00008	114	75 - 125				
Barium	1.39	0.200	1	0.3451	104	75 - 125				
Cadmium	1.056	0.0500	1	0.00009	106	75 - 125				
Chromium	1.046	0.0500	1	-0.00098	105	75 - 125				
Lead	1.015	0.0500	1	0.00332	101	75 - 125				
Selenium	1.191	0.0500	1	0.00132	119	75 - 125				
Silver	1.017	0.0500	1	-0.0002	102	75 - 125				

SD Sample ID: **HS19120360-01SD** Units: **mg/L** Analysis Date: **12-Dec-2019 21:15**
Client ID: Run ID: **ICPMS04_352349** SeqNo: **5387921** PrepDate: **12-Dec-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	< 0.250	0.250					0.00008	0	10	
Barium	0.3267	1.00					0.3451	0	10	J
Cadmium	< 0.250	0.250					0.00009	0	10	
Chromium	< 0.250	0.250					-0.00098	0	10	
Lead	< 0.250	0.250					0.00332	0	10	
Selenium	< 0.250	0.250					0.00132	0	10	
Silver	< 0.250	0.250					-0.0002	0	10	

The following samples were analyzed in this batch: HS19120483-01 HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148662 (0) **Instrument: HG03** **Method: TCLP MERCURY BY SW7470A**

MBLK Sample ID: **MBLKT1-148662** Units: **mg/L** Analysis Date: **13-Dec-2019 14:41**
Client ID: Run ID: **HG03_352483** SeqNo: **5389476** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	< 0.000200	0.000200								

MBLK Sample ID: **MBLK-148662** Units: **mg/L** Analysis Date: **13-Dec-2019 14:33**
Client ID: Run ID: **HG03_352483** SeqNo: **5389471** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	< 0.000200	0.000200								

LCS Sample ID: **LCS-148662** Units: **mg/L** Analysis Date: **13-Dec-2019 14:34**
Client ID: Run ID: **HG03_352483** SeqNo: **5389472** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00518	0.000200	0.005	0	104	80 - 120				

MS Sample ID: **HS19120458-01MS** Units: **mg/L** Analysis Date: **13-Dec-2019 14:38**
Client ID: Run ID: **HG03_352483** SeqNo: **5389474** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00542	0.000200	0.005	0.000002	108	75 - 125				

MSD Sample ID: **HS19120458-01MSD** Units: **mg/L** Analysis Date: **13-Dec-2019 14:40**
Client ID: Run ID: **HG03_352483** SeqNo: **5389475** PrepDate: **13-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00539	0.000200	0.005	0.000002	108	75 - 125	0.00542	0.555	20	

The following samples were analyzed in this batch: HS19120483-01 HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 12:04**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386907** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	< 6.6	6.6								
2,4,5-Trichlorophenol	< 6.6	6.6								
2,4,6-Trichlorophenol	< 6.6	6.6								
2,4-Dichlorophenol	< 6.6	6.6								
2,4-Dimethylphenol	< 6.6	6.6								
2,4-Dinitrophenol	< 13	13								
2,4-Dinitrotoluene	< 6.6	6.6								
2,6-Dinitrotoluene	< 6.6	6.6								
2-Chloronaphthalene	< 6.6	6.6								
2-Chlorophenol	< 6.6	6.6								
2-Methylnaphthalene	< 3.3	3.3								
2-Methylphenol	< 6.6	6.6								
2-Nitroaniline	< 6.6	6.6								
2-Nitrophenol	< 6.6	6.6								
3&4-Methylphenol	< 6.6	6.6								
3,3´-Dichlorobenzidine	< 6.6	6.6								
3-Nitroaniline	< 6.6	6.6								
4,6-Dinitro-2-methylphenol	< 6.6	6.6								
4-Bromophenyl phenyl ether	< 6.6	6.6								
4-Chloro-3-methylphenol	< 6.6	6.6								
4-Chloroaniline	< 6.6	6.6								
4-Chlorophenyl phenyl ether	< 6.6	6.6								
4-Nitroaniline	< 6.6	6.6								
4-Nitrophenol	< 13	13								
Acenaphthene	< 3.3	3.3								
Acenaphthylene	< 3.3	3.3								
Anthracene	< 3.3	3.3								
Benz(a)anthracene	< 3.3	3.3								
Benzidine	< 6.6	6.6								
Benzo(a)pyrene	< 3.3	3.3								
Benzo(b)fluoranthene	< 3.3	3.3								
Benzo(g,h,i)perylene	< 3.3	3.3								
Benzo(k)fluoranthene	< 3.3	3.3								
Benzyl alcohol	< 6.6	6.6								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 12:04**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386907** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	< 6.6	6.6								
Bis(2-chloroethyl)ether	< 6.6	6.6								
Bis(2-chloroisopropyl)ether	< 6.6	6.6								
Bis(2-ethylhexyl)phthalate	< 6.6	6.6								
Butyl benzyl phthalate	< 6.6	6.6								
Carbazole	< 6.6	6.6								
Chrysene	< 3.3	3.3								
Dibenz(a,h)anthracene	< 3.3	3.3								
Dibenzofuran	< 3.3	3.3								
Diethyl phthalate	< 6.6	6.6								
Dimethyl phthalate	< 6.6	6.6								
Di-n-butyl phthalate	< 6.6	6.6								
Di-n-octyl phthalate	< 6.6	6.6								
Fluoranthene	< 3.3	3.3								
Fluorene	< 3.3	3.3								
Hexachlorobenzene	< 6.6	6.6								
Hexachlorobutadiene	< 6.6	6.6								
Hexachlorocyclopentadiene	< 6.6	6.6								
Hexachloroethane	< 6.6	6.6								
Indeno(1,2,3-cd)pyrene	< 3.3	3.3								
Isophorone	< 6.6	6.6								
Naphthalene	< 3.3	3.3								
Nitrobenzene	< 6.6	6.6								
N-Nitrosodimethylamine	< 6.6	6.6								
N-Nitrosodi-n-propylamine	< 6.6	6.6								
N-Nitrosodiphenylamine	< 6.6	6.6								
Pentachlorophenol	< 6.6	6.6								
Phenanthrene	< 3.3	3.3								
Phenol	< 6.6	6.6								
Pyrene	< 3.3	3.3								
Pyridine	< 6.6	6.6								
Surr: 2,4,6-Tribromophenol	*93.9*	*0*	*167*	*0*	*56.2*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*114.9*	*0*	*167*	*0*	*68.8*	*43 - 125*				
Surr: 2-Fluorophenol	*110.5*	*0*	*167*	*0*	*66.2*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 12:04**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386907** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*116.2*	*0*	*167*	*0*	*69.6*	*32 - 125*				
Surr: Nitrobenzene-d5	*110.1*	*0*	*167*	*0*	*65.9*	*37 - 125*				
Surr: Phenol-d6	*111.8*	*0*	*167*	*0*	*66.9*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 11:45**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386906** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	127.2	6.6	167	0	76.2	50 - 120				
2,4,5-Trichlorophenol	136.9	6.6	167	0	81.9	45 - 127				
2,4,6-Trichlorophenol	132.4	6.6	167	0	79.3	45 - 130				
2,4-Dichlorophenol	141.3	6.6	167	0	84.6	45 - 125				
2,4-Dimethylphenol	132.2	6.6	167	0	79.2	45 - 120				
2,4-Dinitrophenol	70.21	13	167	0	42.0	10 - 126				
2,4-Dinitrotoluene	144	6.6	167	0	86.2	50 - 130				
2,6-Dinitrotoluene	142	6.6	167	0	85.1	50 - 125				
2-Chloronaphthalene	148.9	6.6	167	0	89.2	50 - 145				
2-Chlorophenol	131.4	6.6	167	0	78.7	45 - 120				
2-Methylnaphthalene	134.5	3.3	167	0	80.6	50 - 120				
2-Methylphenol	134.7	6.6	167	0	80.7	45 - 120				
2-Nitroaniline	161.8	6.6	167	0	96.9	45 - 138				
2-Nitrophenol	134.2	6.6	167	0	80.4	45 - 125				
3&4-Methylphenol	134.1	6.6	167	0	80.3	45 - 120				
3,3´-Dichlorobenzidine	195.8	6.6	167	0	117	15 - 120				
3-Nitroaniline	157.6	6.6	167	0	94.4	40 - 120				
4,6-Dinitro-2-methylphenol	132	6.6	167	0	79.0	15 - 135				
4-Bromophenyl phenyl ether	134.3	6.6	167	0	80.4	50 - 125				
4-Chloro-3-methylphenol	141	6.6	167	0	84.4	45 - 130				
4-Chloroaniline	132.4	6.6	167	0	79.3	20 - 120				
4-Chlorophenyl phenyl ether	133	6.6	167	0	79.6	50 - 120				
4-Nitroaniline	114.9	6.6	167	0	68.8	50 - 127				
4-Nitrophenol	149	13	167	0	89.2	40 - 147				
Acenaphthene	128.8	3.3	167	0	77.1	50 - 120				
Acenaphthylene	137.7	3.3	167	0	82.4	50 - 120				
Anthracene	141.7	3.3	167	0	84.8	50 - 123				
Benz(a)anthracene	140.5	3.3	167	0	84.1	50 - 131				
Benzidine	77.79	6.6	167	0	46.6	10 - 120				
Benzo(a)pyrene	129	3.3	167	0	77.3	50 - 130				
Benzo(b)fluoranthene	143	3.3	167	0	85.6	50 - 137				
Benzo(g,h,i)perylene	124.1	3.3	167	0	74.3	50 - 130				
Benzo(k)fluoranthene	130.1	3.3	167	0	77.9	50 - 143				
Benzyl alcohol	131.8	6.6	167	0	78.9	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 11:45**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386906** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	130.9	6.6	167	0	78.4	50 - 120				
Bis(2-chloroethyl)ether	128.7	6.6	167	0	77.1	45 - 127				
Bis(2-chloroisopropyl)ether	104	6.6	167	0	62.3	50 - 120				
Bis(2-ethylhexyl)phthalate	157.2	6.6	167	0	94.1	21 - 148				
Butyl benzyl phthalate	153.9	6.6	167	0	92.1	50 - 136				
Carbazole	176.2	6.6	167	0	106	50 - 143				
Chrysene	137.7	3.3	167	0	82.5	50 - 130				
Dibenz(a,h)anthracene	138.1	3.3	167	0	82.7	50 - 130				
Dibenzofuran	139	3.3	167	0	83.2	50 - 125				
Diethyl phthalate	140.7	6.6	167	0	84.3	50 - 125				
Dimethyl phthalate	141.6	6.6	167	0	84.8	50 - 125				
Di-n-butyl phthalate	151.4	6.6	167	0	90.7	50 - 140				
Di-n-octyl phthalate	156.5	6.6	167	0	93.7	50 - 140				
Fluoranthene	142.7	3.3	167	0	85.4	50 - 131				
Fluorene	139	3.3	167	0	83.3	50 - 125				
Hexachlorobenzene	141.2	6.6	167	0	84.6	50 - 124				
Hexachlorobutadiene	132.3	6.6	167	0	79.2	50 - 125				
Hexachlorocyclopentadiene	119.6	6.6	167	0	71.6	45 - 135				
Hexachloroethane	129	6.6	167	0	77.3	45 - 125				
Indeno(1,2,3-cd)pyrene	151.8	3.3	167	0	90.9	45 - 139				
Isophorone	131.7	6.6	167	0	78.9	45 - 130				
Naphthalene	138.8	3.3	167	0	83.1	50 - 125				
Nitrobenzene	129.3	6.6	167	0	77.4	50 - 125				
N-Nitrosodimethylamine	122.5	6.6	167	0	73.4	20 - 140				
N-Nitrosodi-n-propylamine	126.6	6.6	167	0	75.8	45 - 120				
N-Nitrosodiphenylamine	149.3	6.6	167	0	89.4	50 - 130				
Pentachlorophenol	90.95	6.6	167	0	54.5	23 - 136				
Phenanthrene	139.1	3.3	167	0	83.3	50 - 125				
Phenol	128.9	6.6	167	0	77.2	45 - 130				
Pyrene	145.6	3.3	167	0	87.2	45 - 130				
Pyridine	103	6.6	167	0	61.7	15 - 120				
Surr: 2,4,6-Tribromophenol	*137.4*	*0*	*167*	*0*	*82.3*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*137.9*	*0*	*167*	*0*	*82.6*	*43 - 125*				
Surr: 2-Fluorophenol	*127.3*	*0*	*167*	*0*	*76.2*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148519** Units: **ug/Kg** Analysis Date: **12-Dec-2019 11:45**
Client ID: Run ID: **SV-7_352369** SeqNo: **5386906** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*137.7*	*0*	*167*	*0*	*82.5*	*32 - 125*				
Surr: Nitrobenzene-d5	*127.2*	*0*	*167*	*0*	*76.2*	*37 - 125*				
Surr: Phenol-d6	*131.1*	*0*	*167*	*0*	*78.5*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120320-01MS** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:03**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386873** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	132.3	6.6	166.4	0	79.5	50 - 120				
2,4,5-Trichlorophenol	154.3	6.6	166.4	0	92.7	45 - 127				
2,4,6-Trichlorophenol	131.1	6.6	166.4	0	78.7	45 - 130				
2,4-Dichlorophenol	150.5	6.6	166.4	0	90.4	45 - 125				
2,4-Dimethylphenol	137.9	6.6	166.4	0	82.9	45 - 120				
2,4-Dinitrophenol	10.9	13	166.4	0	6.55	10 - 126				JS
2,4-Dinitrotoluene	71.42	6.6	166.4	0	42.9	50 - 130				S
2,6-Dinitrotoluene	87.96	6.6	166.4	0	52.8	50 - 125				
2-Chloronaphthalene	154.4	6.6	166.4	0	92.8	50 - 145				
2-Chlorophenol	134.8	6.6	166.4	0	81.0	45 - 120				
2-Methylnaphthalene	145.9	3.3	166.4	0	87.7	50 - 120				
2-Methylphenol	142.8	6.6	166.4	0	85.8	45 - 120				
2-Nitroaniline	131.4	6.6	166.4	0	78.9	45 - 138				
2-Nitrophenol	47.21	6.6	166.4	0	28.4	45 - 125				S
3&4-Methylphenol	141.1	6.6	166.4	0	84.8	45 - 120				
3,3´-Dichlorobenzidine	186.4	6.6	166.4	0	112	15 - 120				
3-Nitroaniline	186.9	6.6	166.4	0	112	40 - 120				
4,6-Dinitro-2-methylphenol	5.887	6.6	166.4	0	3.54	15 - 135				JS
4-Bromophenyl phenyl ether	137.5	6.6	166.4	0	82.6	50 - 125				
4-Chloro-3-methylphenol	161.7	6.6	166.4	0	97.1	45 - 130				
4-Chloroaniline	126.7	6.6	166.4	0	76.1	20 - 120				
4-Chlorophenyl phenyl ether	141.1	6.6	166.4	0	84.8	50 - 120				
4-Nitroaniline	174.6	6.6	166.4	0	105	50 - 127				
4-Nitrophenol	73.64	13	166.4	0	44.2	40 - 147				
Acenaphthene	137.6	3.3	166.4	0	82.7	50 - 120				
Acenaphthylene	145.5	3.3	166.4	0	87.4	50 - 120				
Anthracene	147.4	3.3	166.4	0	88.6	50 - 123				
Benz(a)anthracene	157.9	3.3	166.4	0	94.9	50 - 131				
Benzidine	77.95	6.6	166.4	0	46.8	10 - 120				
Benzo(a)pyrene	152.7	3.3	166.4	0	91.7	50 - 130				
Benzo(b)fluoranthene	171.5	3.3	166.4	0	103	50 - 137				
Benzo(g,h,i)perylene	130.8	3.3	166.4	0	78.6	50 - 130				
Benzo(k)fluoranthene	177.4	3.3	166.4	0	107	50 - 143				
Benzyl alcohol	128.6	6.6	166.4	0	77.2	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120320-01MS** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:03**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386873** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	133.6	6.6	166.4	0	80.3	50 - 120				
Bis(2-chloroethyl)ether	182.1	6.6	166.4	0	109	45 - 127				
Bis(2-chloroisopropyl)ether	103.8	6.6	166.4	0	62.4	50 - 120				
Bis(2-ethylhexyl)phthalate	174.3	6.6	166.4	0	105	21 - 148				
Butyl benzyl phthalate	169.7	6.6	166.4	0	102	50 - 136				
Carbazole	173.8	6.6	166.4	0	104	50 - 143				
Chrysene	153	3.3	166.4	0	91.9	50 - 130				
Dibenz(a,h)anthracene	163.6	3.3	166.4	0	98.3	50 - 130				
Dibenzofuran	145	3.3	166.4	0	87.1	50 - 125				
Diethyl phthalate	148.4	6.6	166.4	0	89.2	50 - 125				
Dimethyl phthalate	151.8	6.6	166.4	0	91.2	50 - 125				
Di-n-butyl phthalate	161.1	6.6	166.4	1.357	95.9	50 - 140				
Di-n-octyl phthalate	180.6	6.6	166.4	0	109	50 - 140				
Fluoranthene	149.1	3.3	166.4	0	89.6	50 - 131				
Fluorene	151.9	3.3	166.4	0	91.3	50 - 125				
Hexachlorobenzene	150.1	6.6	166.4	0	90.2	50 - 124				
Hexachlorobutadiene	131.6	6.6	166.4	0	79.0	50 - 125				
Hexachlorocyclopentadiene	15.08	6.6	166.4	0	9.06	45 - 135				S
Hexachloroethane	83.52	6.6	166.4	0	50.2	45 - 125				
Indeno(1,2,3-cd)pyrene	198	3.3	166.4	0	119	45 - 139				
Isophorone	130.4	6.6	166.4	0	78.3	45 - 130				
Naphthalene	146.1	3.3	166.4	0	87.8	50 - 125				
Nitrobenzene	127	6.6	166.4	0	76.3	50 - 125				
N-Nitrosodimethylamine	103.3	6.6	166.4	0	62.0	20 - 140				
N-Nitrosodi-n-propylamine	125	6.6	166.4	0	75.1	45 - 120				
N-Nitrosodiphenylamine	157.8	6.6	166.4	0	94.8	50 - 130				
Pentachlorophenol	136	6.6	166.4	0	81.7	23 - 136				
Phenanthrene	144.8	3.3	166.4	0	87.0	50 - 125				
Phenol	133.3	6.6	166.4	0	80.1	45 - 130				
Pyrene	164.6	3.3	166.4	0	98.9	45 - 130				
Pyridine	99.76	6.6	166.4	0	59.9	15 - 120				
Surr: 2,4,6-Tribromophenol	*154.8*	*0*	*166.4*	*0*	*93.0*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*138.6*	*0*	*166.4*	*0*	*83.2*	*43 - 125*				
Surr: 2-Fluorophenol	*108.6*	*0*	*166.4*	*0*	*65.2*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120320-01MS** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:03**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386873** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*146.8*	*0*	*166.4*	*0*	*88.2*	*32 - 125*				
Surr: Nitrobenzene-d5	*116.5*	*0*	*166.4*	*0*	*70.0*	*37 - 125*				
Surr: Phenol-d6	*128.3*	*0*	*166.4*	*0*	*77.1*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120320-01MSD** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:22**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386874** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	140.8	6.6	166.4	0	84.6	50 - 120	132.3	6.22	30	
2,4,5-Trichlorophenol	162.5	6.6	166.4	0	97.7	45 - 127	154.3	5.17	30	
2,4,6-Trichlorophenol	133.4	6.6	166.4	0	80.2	45 - 130	131.1	1.75	30	
2,4-Dichlorophenol	164.3	6.6	166.4	0	98.7	45 - 125	150.5	8.73	30	
2,4-Dimethylphenol	144.2	6.6	166.4	0	86.7	45 - 120	137.9	4.46	30	
2,4-Dinitrophenol	7.882	13	166.4	0	4.74	10 - 126	10.9	0	30	JS
2,4-Dinitrotoluene	60.9	6.6	166.4	0	36.6	50 - 130	71.42	15.9	30	S
2,6-Dinitrotoluene	67.75	6.6	166.4	0	40.7	50 - 125	87.96	26	30	S
2-Chloronaphthalene	158.6	6.6	166.4	0	95.3	50 - 145	154.4	2.65	30	
2-Chlorophenol	147.5	6.6	166.4	0	88.7	45 - 120	134.8	9	30	
2-Methylnaphthalene	156.2	3.3	166.4	0	93.9	50 - 120	145.9	6.77	30	
2-Methylphenol	156.6	6.6	166.4	0	94.1	45 - 120	142.8	9.17	30	
2-Nitroaniline	140.1	6.6	166.4	0	84.2	45 - 138	131.4	6.45	30	
2-Nitrophenol	35.15	6.6	166.4	0	21.1	45 - 125	47.21	29.3	30	S
3&4-Methylphenol	164.3	6.6	166.4	0	98.8	45 - 120	141.1	15.2	30	
3,3´-Dichlorobenzidine	198.6	6.6	166.4	0	119	15 - 120	186.4	6.38	30	
3-Nitroaniline	195.9	6.6	166.4	0	118	40 - 120	186.9	4.66	30	
4,6-Dinitro-2-methylphenol	2.481	6.6	166.4	0	1.49	15 - 135	5.887	0	30	JS
4-Bromophenyl phenyl ether	150.5	6.6	166.4	0	90.5	50 - 125	137.5	9.04	30	
4-Chloro-3-methylphenol	181.2	6.6	166.4	0	109	45 - 130	161.7	11.4	30	
4-Chloroaniline	123.4	6.6	166.4	0	74.1	20 - 120	126.7	2.68	30	
4-Chlorophenyl phenyl ether	144.2	6.6	166.4	0	86.6	50 - 120	141.1	2.13	30	
4-Nitroaniline	168.5	6.6	166.4	0	101	50 - 127	174.6	3.54	30	
4-Nitrophenol	62.43	13	166.4	0	37.5	40 - 147	73.64	16.5	30	S
Acenaphthene	141.8	3.3	166.4	0	85.3	50 - 120	137.6	3.03	30	
Acenaphthylene	146.1	3.3	166.4	0	87.8	50 - 120	145.5	0.387	30	
Anthracene	156.5	3.3	166.4	0	94.1	50 - 123	147.4	6.01	30	
Benz(a)anthracene	142.2	3.3	166.4	0	85.5	50 - 131	157.9	10.5	30	
Benzidine	77.34	6.6	166.4	0	46.5	10 - 120	77.95	0.786	30	
Benzo(a)pyrene	127	3.3	166.4	0	76.3	50 - 130	152.7	18.4	30	
Benzo(b)fluoranthene	144.4	3.3	166.4	0	86.8	50 - 137	171.5	17.1	30	
Benzo(g,h,i)perylene	111.4	3.3	166.4	0	67.0	50 - 130	130.8	16	30	
Benzo(k)fluoranthene	150.1	3.3	166.4	0	90.2	50 - 143	177.4	16.7	30	
Benzyl alcohol	133.7	6.6	166.4	0	80.4	40 - 143	128.6	3.93	30	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120320-01MSD** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:22**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386874** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	145.5	6.6	166.4	0	87.5	50 - 120	133.6	8.53	30	
Bis(2-chloroethyl)ether	177.3	6.6	166.4	0	107	45 - 127	182.1	2.66	30	
Bis(2-chloroisopropyl)ether	120.6	6.6	166.4	0	72.5	50 - 120	103.8	15	30	
Bis(2-ethylhexyl)phthalate	157.7	6.6	166.4	0	94.8	21 - 148	174.3	9.98	30	
Butyl benzyl phthalate	153.6	6.6	166.4	0	92.3	50 - 136	169.7	9.97	30	
Carbazole	191.2	6.6	166.4	0	115	50 - 143	173.8	9.5	30	
Chrysene	147.8	3.3	166.4	0	88.8	50 - 130	153	3.5	30	
Dibenz(a,h)anthracene	138.8	3.3	166.4	0	83.4	50 - 130	163.6	16.4	30	
Dibenzofuran	147.7	3.3	166.4	0	88.8	50 - 125	145	1.85	30	
Diethyl phthalate	150.1	6.6	166.4	0	90.2	50 - 125	148.4	1.1	30	
Dimethyl phthalate	146.9	6.6	166.4	0	88.3	50 - 125	151.8	3.25	30	
Di-n-butyl phthalate	174.1	6.6	166.4	1.357	104	50 - 140	161.1	7.77	30	
Di-n-octyl phthalate	154.5	6.6	166.4	0	92.9	50 - 140	180.6	15.6	30	
Fluoranthene	158.6	3.3	166.4	0	95.3	50 - 131	149.1	6.17	30	
Fluorene	148.8	3.3	166.4	0	89.4	50 - 125	151.9	2.1	30	
Hexachlorobenzene	166.8	6.6	166.4	0	100	50 - 124	150.1	10.5	30	
Hexachlorobutadiene	141.1	6.6	166.4	0	84.8	50 - 125	131.6	6.97	30	
Hexachlorocyclopentadiene	9.599	6.6	166.4	0	5.77	45 - 135	15.08	44.4	30	SR
Hexachloroethane	84.46	6.6	166.4	0	50.8	45 - 125	83.52	1.12	30	
Indeno(1,2,3-cd)pyrene	157.2	3.3	166.4	0	94.5	45 - 139	198	23	30	
Isophorone	139.3	6.6	166.4	0	83.7	45 - 130	130.4	6.61	30	
Naphthalene	157.6	3.3	166.4	0	94.7	50 - 125	146.1	7.57	30	
Nitrobenzene	135	6.6	166.4	0	81.1	50 - 125	127	6.11	30	
N-Nitrosodimethylamine	104.7	6.6	166.4	0	62.9	20 - 140	103.3	1.4	30	
N-Nitrosodi-n-propylamine	139.9	6.6	166.4	0	84.1	45 - 120	125	11.3	30	
N-Nitrosodiphenylamine	170	6.6	166.4	0	102	50 - 130	157.8	7.41	30	
Pentachlorophenol	128.2	6.6	166.4	0	77.0	23 - 136	136	5.95	30	
Phenanthrene	153.4	3.3	166.4	0	92.2	50 - 125	144.8	5.73	30	
Phenol	140.4	6.6	166.4	0	84.4	45 - 130	133.3	5.24	30	
Pyrene	148.6	3.3	166.4	0	89.3	45 - 130	164.6	10.2	30	
Pyridine	114	6.6	166.4	0	68.5	15 - 120	99.76	13.3	30	
Surr: 2,4,6-Tribromophenol	*155.7*	*0*	*166.4*	*0*	*93.6*	*36 - 126*	*154.8*	*0.601*	*30*	
Surr: 2-Fluorobiphenyl	*139.4*	*0*	*166.4*	*0*	*83.8*	*43 - 125*	*138.6*	*0.621*	*30*	
Surr: 2-Fluorophenol	*127.5*	*0*	*166.4*	*0*	*76.6*	*37 - 125*	*108.6*	*16*	*30*	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148519 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120320-01MSD** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:22**
Client ID: Run ID: **SV-7_352279** SeqNo: **5386874** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*139.7*	*0*	*166.4*	*0*	*84.0*	*32 - 125*	*146.8*	*4.93*	*30*	
Surr: Nitrobenzene-d5	*122.9*	*0*	*166.4*	*0*	*73.9*	*37 - 125*	*116.5*	*5.33*	*30*	
Surr: Phenol-d6	*139.8*	*0*	*166.4*	*0*	*84.0*	*40 - 125*	*128.3*	*8.58*	*30*	

The following samples were analyzed in this batch: HS19120483-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 12:52**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388867** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	< 6.6	6.6								
2,4,5-Trichlorophenol	< 6.6	6.6								
2,4,6-Trichlorophenol	< 6.6	6.6								
2,4-Dichlorophenol	< 6.6	6.6								
2,4-Dimethylphenol	< 6.6	6.6								
2,4-Dinitrophenol	< 13	13								
2,4-Dinitrotoluene	< 6.6	6.6								
2,6-Dinitrotoluene	< 6.6	6.6								
2-Chloronaphthalene	< 6.6	6.6								
2-Chlorophenol	< 6.6	6.6								
2-Methylnaphthalene	< 3.3	3.3								
2-Methylphenol	< 6.6	6.6								
2-Nitroaniline	< 6.6	6.6								
2-Nitrophenol	< 6.6	6.6								
3&4-Methylphenol	< 6.6	6.6								
3,3´-Dichlorobenzidine	< 6.6	6.6								
3-Nitroaniline	< 6.6	6.6								
4,6-Dinitro-2-methylphenol	< 6.6	6.6								
4-Bromophenyl phenyl ether	< 6.6	6.6								
4-Chloro-3-methylphenol	< 6.6	6.6								
4-Chloroaniline	< 6.6	6.6								
4-Chlorophenyl phenyl ether	< 6.6	6.6								
4-Nitroaniline	< 6.6	6.6								
4-Nitrophenol	< 13	13								
Acenaphthene	< 3.3	3.3								
Acenaphthylene	< 3.3	3.3								
Anthracene	< 3.3	3.3								
Benz(a)anthracene	< 3.3	3.3								
Benzidine	< 6.6	6.6								
Benzo(a)pyrene	< 3.3	3.3								
Benzo(b)fluoranthene	< 3.3	3.3								
Benzo(g,h,i)perylene	< 3.3	3.3								
Benzo(k)fluoranthene	< 3.3	3.3								
Benzyl alcohol	< 6.6	6.6								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 12:52**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388867** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	< 6.6	6.6								
Bis(2-chloroethyl)ether	< 6.6	6.6								
Bis(2-chloroisopropyl)ether	< 6.6	6.6								
Bis(2-ethylhexyl)phthalate	< 6.6	6.6								
Butyl benzyl phthalate	< 6.6	6.6								
Carbazole	< 6.6	6.6								
Chrysene	< 3.3	3.3								
Dibenz(a,h)anthracene	< 3.3	3.3								
Dibenzofuran	< 3.3	3.3								
Diethyl phthalate	< 6.6	6.6								
Dimethyl phthalate	< 6.6	6.6								
Di-n-butyl phthalate	< 6.6	6.6								
Di-n-octyl phthalate	< 6.6	6.6								
Fluoranthene	< 3.3	3.3								
Fluorene	< 3.3	3.3								
Hexachlorobenzene	< 6.6	6.6								
Hexachlorobutadiene	< 6.6	6.6								
Hexachlorocyclopentadiene	< 6.6	6.6								
Hexachloroethane	< 6.6	6.6								
Indeno(1,2,3-cd)pyrene	< 3.3	3.3								
Isophorone	< 6.6	6.6								
Naphthalene	< 3.3	3.3								
Nitrobenzene	< 6.6	6.6								
N-Nitrosodimethylamine	< 6.6	6.6								
N-Nitrosodi-n-propylamine	< 6.6	6.6								
N-Nitrosodiphenylamine	< 6.6	6.6								
Pentachlorophenol	< 6.6	6.6								
Phenanthrene	< 3.3	3.3								
Phenol	< 6.6	6.6								
Pyrene	< 3.3	3.3								
Pyridine	< 6.6	6.6								
Surr: 2,4,6-Tribromophenol	*128.7*	*0*	*167*	*0*	*77.1*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*159.2*	*0*	*167*	*0*	*95.3*	*43 - 125*				
Surr: 2-Fluorophenol	*143.1*	*0*	*167*	*0*	*85.7*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MBLK Sample ID: **MBLK-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 12:52**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388867** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*164.7*	*0*	*167*	*0*	*98.6*	*32 - 125*				
Surr: Nitrobenzene-d5	*150.3*	*0*	*167*	*0*	*90.0*	*37 - 125*				
Surr: Phenol-d6	*148.8*	*0*	*167*	*0*	*89.1*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 13:11**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388868** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	125.8	6.6	167	0	75.3	50 - 120				
2,4,5-Trichlorophenol	141.8	6.6	167	0	84.9	45 - 127				
2,4,6-Trichlorophenol	137.8	6.6	167	0	82.5	45 - 130				
2,4-Dichlorophenol	147.8	6.6	167	0	88.5	45 - 125				
2,4-Dimethylphenol	139.2	6.6	167	0	83.4	45 - 120				
2,4-Dinitrophenol	83.34	13	167	0	49.9	10 - 126				
2,4-Dinitrotoluene	157.6	6.6	167	0	94.4	50 - 130				
2,6-Dinitrotoluene	149.9	6.6	167	0	89.8	50 - 125				
2-Chloronaphthalene	149.8	6.6	167	0	89.7	50 - 145				
2-Chlorophenol	129.4	6.6	167	0	77.5	45 - 120				
2-Methylnaphthalene	132.5	3.3	167	0	79.4	50 - 120				
2-Methylphenol	132.7	6.6	167	0	79.5	45 - 120				
2-Nitroaniline	172.6	6.6	167	0	103	45 - 138				
2-Nitrophenol	140.3	6.6	167	0	84.0	45 - 125				
3&4-Methylphenol	142	6.6	167	0	85.1	45 - 120				
3,3´-Dichlorobenzidine	197.7	6.6	167	0	118	15 - 120				
3-Nitroaniline	163.2	6.6	167	0	97.7	40 - 120				
4,6-Dinitro-2-methylphenol	168.3	6.6	167	0	101	15 - 135				
4-Bromophenyl phenyl ether	145.5	6.6	167	0	87.1	50 - 125				
4-Chloro-3-methylphenol	153.3	6.6	167	0	91.8	45 - 130				
4-Chloroaniline	144.3	6.6	167	0	86.4	20 - 120				
4-Chlorophenyl phenyl ether	138.6	6.6	167	0	83.0	50 - 120				
4-Nitroaniline	167.9	6.6	167	0	101	50 - 127				
4-Nitrophenol	154.8	13	167	0	92.7	40 - 147				
Acenaphthene	127.6	3.3	167	0	76.4	50 - 120				
Acenaphthylene	136	3.3	167	0	81.4	50 - 120				
Anthracene	151.6	3.3	167	0	90.8	50 - 123				
Benz(a)anthracene	158.8	3.3	167	0	95.1	50 - 131				
Benzidine	26.12	6.6	167	0	15.6	10 - 120				
Benzo(a)pyrene	148.7	3.3	167	0	89.0	50 - 130				
Benzo(b)fluoranthene	183.9	3.3	167	0	110	50 - 137				
Benzo(g,h,i)perylene	142	3.3	167	0	85.1	50 - 130				
Benzo(k)fluoranthene	152	3.3	167	0	91.0	50 - 143				
Benzyl alcohol	135.4	6.6	167	0	81.1	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 13:11**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388868** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	134	6.6	167	0	80.3	50 - 120				
Bis(2-chloroethyl)ether	121.9	6.6	167	0	73.0	45 - 127				
Bis(2-chloroisopropyl)ether	88.72	6.6	167	0	53.1	50 - 120				
Bis(2-ethylhexyl)phthalate	177	6.6	167	0	106	21 - 148				
Butyl benzyl phthalate	178.3	6.6	167	0	107	50 - 136				
Carbazole	186.6	6.6	167	0	112	50 - 143				
Chrysene	163.1	3.3	167	0	97.7	50 - 130				
Dibenz(a,h)anthracene	156.4	3.3	167	0	93.6	50 - 130				
Dibenzofuran	139.9	3.3	167	0	83.8	50 - 125				
Diethyl phthalate	155.2	6.6	167	0	92.9	50 - 125				
Dimethyl phthalate	151.5	6.6	167	0	90.7	50 - 125				
Di-n-butyl phthalate	171.8	6.6	167	0	103	50 - 140				
Di-n-octyl phthalate	177.2	6.6	167	0	106	50 - 140				
Fluoranthene	158.8	3.3	167	0	95.1	50 - 131				
Fluorene	144.3	3.3	167	0	86.4	50 - 125				
Hexachlorobenzene	151.8	6.6	167	0	90.9	50 - 124				
Hexachlorobutadiene	127.1	6.6	167	0	76.1	50 - 125				
Hexachlorocyclopentadiene	109.4	6.6	167	0	65.5	45 - 135				
Hexachloroethane	121.8	6.6	167	0	72.9	45 - 125				
Indeno(1,2,3-cd)pyrene	156.6	3.3	167	0	93.8	45 - 139				
Isophorone	134.8	6.6	167	0	80.7	45 - 130				
Naphthalene	135.9	3.3	167	0	81.4	50 - 125				
Nitrobenzene	124.7	6.6	167	0	74.7	50 - 125				
N-Nitrosodimethylamine	122.8	6.6	167	0	73.5	20 - 140				
N-Nitrosodi-n-propylamine	125.5	6.6	167	0	75.2	45 - 120				
N-Nitrosodiphenylamine	163.3	6.6	167	0	97.8	50 - 130				
Pentachlorophenol	112.9	6.6	167	0	67.6	23 - 136				
Phenanthrene	150.8	3.3	167	0	90.3	50 - 125				
Phenol	128.1	6.6	167	0	76.7	45 - 130				
Pyrene	166.3	3.3	167	0	99.6	45 - 130				
Pyridine	100.9	6.6	167	0	60.4	15 - 120				
Surr: 2,4,6-Tribromophenol	*152*	*0*	*167*	*0*	*91.0*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*134.7*	*0*	*167*	*0*	*80.6*	*43 - 125*				
Surr: 2-Fluorophenol	*122.3*	*0*	*167*	*0*	*73.2*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

LCS Sample ID: **LCS-148570** Units: **ug/Kg** Analysis Date: **13-Dec-2019 13:11**
Client ID: Run ID: **SV-7_352459** SeqNo: **5388868** PrepDate: **12-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*153.1*	*0*	*167*	*0*	*91.6*	*32 - 125*				
Surr: Nitrobenzene-d5	*120*	*0*	*167*	*0*	*71.8*	*37 - 125*				
Surr: Phenol-d6	*131.8*	*0*	*167*	*0*	*78.9*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120505-02MS** Units: **ug/Kg** Analysis Date: **12-Dec-2019 20:53**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388672** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	116.7	66	166.5	0	70.1	50 - 120				
2,4,5-Trichlorophenol	118.8	66	166.5	0	71.3	45 - 127				
2,4,6-Trichlorophenol	97.49	66	166.5	0	58.5	45 - 130				
2,4-Dichlorophenol	119.8	66	166.5	0	72.0	45 - 125				
2,4-Dimethylphenol	115.7	66	166.5	0	69.5	45 - 120				
2,4-Dinitrophenol	65.03	130	166.5	0	39.1	10 - 126				J
2,4-Dinitrotoluene	152.6	66	166.5	0	91.6	50 - 130				
2,6-Dinitrotoluene	121.4	66	166.5	0	72.9	50 - 125				
2-Chloronaphthalene	130.6	66	166.5	0	78.5	50 - 145				
2-Chlorophenol	123.3	66	166.5	0	74.1	45 - 120				
2-Methylnaphthalene	176.8	33	166.5	28.69	88.9	50 - 120				
2-Methylphenol	126.6	66	166.5	0	76.0	45 - 120				
2-Nitroaniline	159	66	166.5	0	95.5	45 - 138				
2-Nitrophenol	102.2	66	166.5	0	61.4	45 - 125				
3&4-Methylphenol	148.3	66	166.5	0	89.1	45 - 120				
3,3´-Dichlorobenzidine	158.8	66	166.5	0	95.4	15 - 120				
3-Nitroaniline	181.8	66	166.5	0	109	40 - 120				
4,6-Dinitro-2-methylphenol	< 66	66	166.5	0	0	15 - 135				S
4-Bromophenyl phenyl ether	152.8	66	166.5	0	91.8	50 - 125				
4-Chloro-3-methylphenol	131.2	66	166.5	0	78.8	45 - 130				
4-Chloroaniline	106.5	66	166.5	0	63.9	20 - 120				
4-Chlorophenyl phenyl ether	130.7	66	166.5	0	78.5	50 - 120				
4-Nitroaniline	93.49	66	166.5	0	56.1	50 - 127				
4-Nitrophenol	98.22	130	166.5	0	59.0	40 - 147				J
Acenaphthene	132.5	33	166.5	12.68	71.9	50 - 120				
Acenaphthylene	128.6	33	166.5	0	77.2	50 - 120				
Anthracene	272.3	33	166.5	71.91	120	50 - 123				
Benz(a)anthracene	2088	33	166.5	1050	623	50 - 131				SO
Benzidine	63.77	66	166.5	0	38.3	10 - 120				J
Benzo(a)pyrene	554.3	33	166.5	249	183	50 - 130				S
Benzo(b)fluoranthene	437.2	33	166.5	165.8	163	50 - 137				S
Benzo(g,h,i)perylene	242	33	166.5	113.2	77.4	50 - 130				
Benzo(k)fluoranthene	175.2	33	166.5	48.44	76.1	50 - 143				
Benzyl alcohol	122.3	66	166.5	0	73.4	40 - 143				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120505-02MS** Units: **ug/Kg** Analysis Date: **12-Dec-2019 20:53**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388672** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	109.6	66	166.5	0	65.8	50 - 120				
Bis(2-chloroethyl)ether	123.4	66	166.5	0	74.1	45 - 127				
Bis(2-chloroisopropyl)ether	97.85	66	166.5	0	58.8	50 - 120				
Bis(2-ethylhexyl)phthalate	183.7	66	166.5	0	110	21 - 148				
Butyl benzyl phthalate	144.2	66	166.5	0	86.6	50 - 136				
Carbazole	170.6	66	166.5	0	102	50 - 143				
Chrysene	3537	33	166.5	2022	910	50 - 130				SEO
Dibenz(a,h)anthracene	211.1	33	166.5	73.69	82.5	50 - 130				
Dibenzofuran	141.9	33	166.5	6.911	81.1	50 - 125				
Diethyl phthalate	140.8	66	166.5	0	84.6	50 - 125				
Dimethyl phthalate	138.2	66	166.5	0	83.0	50 - 125				
Di-n-butyl phthalate	170.3	66	166.5	0	102	50 - 140				
Di-n-octyl phthalate	170.4	66	166.5	0	102	50 - 140				
Fluoranthene	653.2	33	166.5	279.1	225	50 - 131				S
Fluorene	158.9	33	166.5	17.54	84.9	50 - 125				
Hexachlorobenzene	143	66	166.5	0	85.9	50 - 124				
Hexachlorobutadiene	116.8	66	166.5	0	70.1	50 - 125				
Hexachlorocyclopentadiene	14.35	66	166.5	0	8.62	45 - 135				JS
Hexachloroethane	123.3	66	166.5	0	74.0	45 - 125				
Indeno(1,2,3-cd)pyrene	226	33	166.5	26.57	120	45 - 139				
Isophorone	123.5	66	166.5	0	74.2	45 - 130				
Naphthalene	139.3	33	166.5	9.244	78.1	50 - 125				
Nitrobenzene	132.5	66	166.5	0	79.6	50 - 125				
N-Nitrosodimethylamine	96.78	66	166.5	0	58.1	20 - 140				
N-Nitrosodi-n-propylamine	113.6	66	166.5	0	68.2	45 - 120				
N-Nitrosodiphenylamine	126.4	66	166.5	0	75.9	50 - 130				
Pentachlorophenol	98.22	66	166.5	0	59.0	23 - 136				
Phenanthrene	404.1	33	166.5	202.6	121	50 - 125				
Phenol	128.9	66	166.5	0	77.4	45 - 130				
Pyrene	2586	33	166.5	1499	653	45 - 130				SO
Pyridine	100.7	66	166.5	0	60.5	15 - 120				
Surr: 2,4,6-Tribromophenol	*142.6*	*0*	*166.5*	*0*	*85.7*	*36 - 126*				
Surr: 2-Fluorobiphenyl	*123*	*0*	*166.5*	*0*	*73.9*	*43 - 125*				
Surr: 2-Fluorophenol	*125*	*0*	*166.5*	*0*	*75.1*	*37 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MS Sample ID: **HS19120505-02MS** Units: **ug/Kg** Analysis Date: **12-Dec-2019 20:53**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388672** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*131.7*	*0*	*166.5*	*0*	*79.1*	*32 - 125*				
Surr: Nitrobenzene-d5	*121.6*	*0*	*166.5*	*0*	*73.0*	*37 - 125*				
Surr: Phenol-d6	*110.4*	*0*	*166.5*	*0*	*66.3*	*40 - 125*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120505-02MSD** Units: **ug/Kg** Analysis Date: **12-Dec-2019 21:12**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388673** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	138.3	66	166.8	0	82.9	50 - 120	116.7	17	30	
2,4,5-Trichlorophenol	171.3	66	166.8	0	103	45 - 127	118.8	36.2	30	R
2,4,6-Trichlorophenol	137	66	166.8	0	82.2	45 - 130	97.49	33.7	30	R
2,4-Dichlorophenol	149.9	66	166.8	0	89.9	45 - 125	119.8	22.3	30	
2,4-Dimethylphenol	146.3	66	166.8	0	87.7	45 - 120	115.7	23.4	30	
2,4-Dinitrophenol	63.4	130	166.8	0	38.0	10 - 126	65.03	0	30	J
2,4-Dinitrotoluene	178.3	66	166.8	0	107	50 - 130	152.6	15.6	30	
2,6-Dinitrotoluene	163.3	66	166.8	0	97.9	50 - 125	121.4	29.4	30	
2-Chloronaphthalene	162.5	66	166.8	0	97.4	50 - 145	130.6	21.7	30	
2-Chlorophenol	147.6	66	166.8	0	88.5	45 - 120	123.3	17.9	30	
2-Methylnaphthalene	216.1	33	166.8	28.69	112	50 - 120	176.8	20.1	30	
2-Methylphenol	143.9	66	166.8	0	86.3	45 - 120	126.6	12.8	30	
2-Nitroaniline	146.1	66	166.8	0	87.6	45 - 138	159	8.41	30	
2-Nitrophenol	136.8	66	166.8	0	82.0	45 - 125	102.2	29	30	
3&4-Methylphenol	147	66	166.8	0	88.1	45 - 120	148.3	0.884	30	
3,3´-Dichlorobenzidine	112.4	66	166.8	0	67.4	15 - 120	158.8	34.2	30	R
3-Nitroaniline	145	66	166.8	0	86.9	40 - 120	181.8	22.5	30	
4,6-Dinitro-2-methylphenol	36.37	66	166.8	0	21.8	15 - 135	0	0	30	J
4-Bromophenyl phenyl ether	171.8	66	166.8	0	103	50 - 125	152.8	11.7	30	
4-Chloro-3-methylphenol	171.6	66	166.8	0	103	45 - 130	131.2	26.7	30	
4-Chloroaniline	118.2	66	166.8	0	70.9	20 - 120	106.5	10.4	30	
4-Chlorophenyl phenyl ether	156.6	66	166.8	0	93.9	50 - 120	130.7	18.1	30	
4-Nitroaniline	123.5	66	166.8	0	74.0	50 - 127	93.49	27.6	30	
4-Nitrophenol	121.8	130	166.8	0	73.0	40 - 147	98.22	0	30	J
Acenaphthene	179.2	33	166.8	12.68	99.9	50 - 120	132.5	30	30	R
Acenaphthylene	163.1	33	166.8	0	97.8	50 - 120	128.6	23.6	30	
Anthracene	318.6	33	166.8	71.91	148	50 - 123	272.3	15.7	30	S
Benz(a)anthracene	2290	33	166.8	1050	744	50 - 131	2088	9.27	30	SO
Benzidine	37.79	66	166.8	0	22.7	10 - 120	63.77	0	30	J
Benzo(a)pyrene	760.3	33	166.8	249	307	50 - 130	554.3	31.3	30	SR
Benzo(b)fluoranthene	530.2	33	166.8	165.8	219	50 - 137	437.2	19.2	30	S
Benzo(g,h,i)perylene	348.4	33	166.8	113.2	141	50 - 130	242	36	30	SR
Benzo(k)fluoranthene	200.3	33	166.8	48.44	91.1	50 - 143	175.2	13.4	30	
Benzyl alcohol	128.3	66	166.8	0	76.9	40 - 143	122.3	4.79	30	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120505-02MSD** Units: **ug/Kg** Analysis Date: **12-Dec-2019 21:12**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388673** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bis(2-chloroethoxy)methane	129.6	66	166.8	0	77.7	50 - 120	109.6	16.7	30	
Bis(2-chloroethyl)ether	138.1	66	166.8	0	82.8	45 - 127	123.4	11.3	30	
Bis(2-chloroisopropyl)ether	113.7	66	166.8	0	68.2	50 - 120	97.85	15	30	
Bis(2-ethylhexyl)phthalate	250.3	66	166.8	0	150	21 - 148	183.7	30.7	30	SR
Butyl benzyl phthalate	159.1	66	166.8	0	95.4	50 - 136	144.2	9.86	30	
Carbazole	435.3	66	166.8	0	261	50 - 143	170.6	87.4	30	SR
Chrysene	3986	33	166.8	2022	1180	50 - 130	3537	11.9	30	SEO
Dibenz(a,h)anthracene	246.3	33	166.8	73.69	104	50 - 130	211.1	15.4	30	
Dibenzofuran	169.8	33	166.8	6.911	97.7	50 - 125	141.9	17.9	30	
Diethyl phthalate	175.7	66	166.8	0	105	50 - 125	140.8	22.1	30	
Dimethyl phthalate	179.4	66	166.8	0	108	50 - 125	138.2	26	30	
Di-n-butyl phthalate	188.8	66	166.8	0	113	50 - 140	170.3	10.3	30	
Di-n-octyl phthalate	223.4	66	166.8	0	134	50 - 140	170.4	26.9	30	
Fluoranthene	782.3	33	166.8	279.1	302	50 - 131	653.2	18	30	S
Fluorene	198.9	33	166.8	17.54	109	50 - 125	158.9	22.4	30	
Hexachlorobenzene	180.1	66	166.8	0	108	50 - 124	143	23	30	
Hexachlorobutadiene	139.3	66	166.8	0	83.5	50 - 125	116.8	17.6	30	
Hexachlorocyclopentadiene	19.51	66	166.8	0	11.7	45 - 135	14.35	0	30	JS
Hexachloroethane	136	66	166.8	0	81.5	45 - 125	123.3	9.8	30	
Indeno(1,2,3-cd)pyrene	285	33	166.8	26.57	155	45 - 139	226	23.1	30	S
Isophorone	145.4	66	166.8	0	87.2	45 - 130	123.5	16.3	30	
Naphthalene	168	33	166.8	9.244	95.2	50 - 125	139.3	18.7	30	
Nitrobenzene	154.8	66	166.8	0	92.8	50 - 125	132.5	15.5	30	
N-Nitrosodimethylamine	123.1	66	166.8	0	73.8	20 - 140	96.78	23.9	30	
N-Nitrosodi-n-propylamine	136.3	66	166.8	0	81.7	45 - 120	113.6	18.1	30	
N-Nitrosodiphenylamine	113.6	66	166.8	0	68.1	50 - 130	126.4	10.6	30	
Pentachlorophenol	142	66	166.8	0	85.2	23 - 136	98.22	36.5	30	R
Phenanthrene	541	33	166.8	202.6	203	50 - 125	404.1	29	30	S
Phenol	143.4	66	166.8	0	86.0	45 - 130	128.9	10.6	30	
Pyrene	3070	33	166.8	1499	942	45 - 130	2586	17.1	30	SO
Pyridine	114.8	66	166.8	0	68.9	15 - 120	100.7	13.2	30	
Surr: 2,4,6-Tribromophenol	*176.6*	*0*	*166.8*	*0*	*106*	*36 - 126*	*142.6*	*21.3*	*30*	
Surr: 2-Fluorobiphenyl	*150.8*	*0*	*166.8*	*0*	*90.4*	*43 - 125*	*123*	*20.3*	*30*	
Surr: 2-Fluorophenol	*138.5*	*0*	*166.8*	*0*	*83.0*	*37 - 125*	*125*	*10.2*	*30*	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148570 (0) **Instrument: SV-7** **Method: LOW-LEVEL SEMIVOLATILES BY 8270D**

MSD Sample ID: **HS19120505-02MSD** Units: **ug/Kg** Analysis Date: **12-Dec-2019 21:12**
Client ID: Run ID: **SV-7_352369** SeqNo: **5388673** PrepDate: **12-Dec-2019** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	*159.4*	*0*	*166.8*	*0*	*95.6*	*32 - 125*	*131.7*	*19*	*30*	
Surr: Nitrobenzene-d5	*132.7*	*0*	*166.8*	*0*	*79.6*	*37 - 125*	*121.6*	*8.72*	*30*	
Surr: Phenol-d6	*132*	*0*	*166.8*	*0*	*79.2*	*40 - 125*	*110.4*	*17.8*	*30*	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKS1-121119** Units: **ug/Kg** Analysis Date: **11-Dec-2019 11:12**
Client ID: Run ID: **VOA5_352253** SeqNo: **5383931** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	< 5.0	5.0								
1,1,2,2-Tetrachloroethane	< 5.0	5.0								
1,1,2-Trichloroethane	< 5.0	5.0								
1,1-Dichloroethane	< 5.0	5.0								
1,1-Dichloroethene	< 5.0	5.0								
1,2-Dichlorobenzene	< 5.0	5.0								
1,2-Dichloroethane	< 5.0	5.0								
1,2-Dichloropropane	< 5.0	5.0								
1,3-Dichlorobenzene	< 5.0	5.0								
1,4-Dichlorobenzene	< 5.0	5.0								
2-Butanone	< 10	10								
2-Hexanone	< 10	10								
4-Methyl-2-pentanone	< 10	10								
Acetone	< 20	20								
Benzene	< 5.0	5.0								
Bromochloromethane	< 5.0	5.0								
Bromodichloromethane	< 5.0	5.0								
Bromoform	< 5.0	5.0								
Bromomethane	< 10	10								
Carbon disulfide	< 10	10								
Carbon tetrachloride	< 5.0	5.0								
Chlorobenzene	< 5.0	5.0								
Chloroethane	< 10	10								
Chloroform	< 5.0	5.0								
Chloromethane	< 10	10								
cis-1,2-Dichloroethene	< 5.0	5.0								
cis-1,3-Dichloropropene	< 5.0	5.0								
Dibromochloromethane	< 5.0	5.0								
Ethylbenzene	< 5.0	5.0								
m,p-Xylene	< 10	10								
Methylene chloride	< 10	10								
o-Xylene	< 5.0	5.0								
Styrene	< 5.0	5.0								
Tetrachloroethene	< 5.0	5.0								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKS1-121119** Units: **ug/Kg** Analysis Date: **11-Dec-2019 11:12**
Client ID: Run ID: **VOA5_352253** SeqNo: **5383931** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	< 5.0	5.0								
trans-1,2-Dichloroethene	< 5.0	5.0								
trans-1,3-Dichloropropene	< 5.0	5.0								
Trichloroethene	< 5.0	5.0								
Vinyl acetate	< 10	10								
Vinyl chloride	< 2.0	2.0								
Xylenes, Total	< 5.0	5.0								
1,2-Dichloroethene, Total	< 5.0	5.0								
Surr: 1,2-Dichloroethane-d4	*41.74*	*0*	*50*	*0*	*83.5*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*48.91*	*0*	*50*	*0*	*97.8*	*80 - 120*				
Surr: Dibromofluoromethane	*45.11*	*0*	*50*	*0*	*90.2*	*80 - 119*				
Surr: Toluene-d8	*49.39*	*0*	*50*	*0*	*98.8*	*81 - 118*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

LCS Sample ID: **VLCSS1-121119** Units: **ug/Kg** Analysis Date: **11-Dec-2019 10:22**
Client ID: Run ID: **VOA5_352253** SeqNo: **5383942** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.08	5.0	50	0	94.2	72 - 130				
1,1,2,2-Tetrachloroethane	53.17	5.0	50	0	106	71 - 124				
1,1,2-Trichloroethane	50.26	5.0	50	0	101	78 - 117				
1,1-Dichloroethane	49.16	5.0	50	0	98.3	76 - 128				
1,1-Dichloroethene	48.18	5.0	50	0	96.4	72 - 130				
1,2-Dichlorobenzene	51.69	5.0	50	0	103	79 - 121				
1,2-Dichloroethane	44.63	5.0	50	0	89.3	77 - 120				
1,2-Dichloropropane	51.01	5.0	50	0	102	77 - 121				
1,3-Dichlorobenzene	51.01	5.0	50	0	102	78 - 121				
1,4-Dichlorobenzene	50.49	5.0	50	0	101	78 - 120				
2-Butanone	84.02	10	100	0	84.0	70 - 128				
2-Hexanone	95.35	10	100	0	95.4	72 - 127				
4-Methyl-2-pentanone	97.41	10	100	0	97.4	70 - 128				
Acetone	72.85	20	100	0	72.9	70 - 130				
Benzene	51.8	5.0	50	0	104	75 - 124				
Bromochloromethane	49.18	5.0	50	0	98.4	74 - 124				
Bromodichloromethane	50.85	5.0	50	0	102	78 - 122				
Bromoform	50.49	5.0	50	0	101	74 - 120				
Bromomethane	45.85	10	50	0	91.7	70 - 130				
Carbon disulfide	91.66	10	100	0	91.7	70 - 122				
Carbon tetrachloride	45.08	5.0	50	0	90.2	72 - 128				
Chlorobenzene	52.93	5.0	50	0	106	78 - 122				
Chloroethane	46.1	10	50	0	92.2	70 - 130				
Chloroform	43.1	5.0	50	0	86.2	73 - 127				
Chloromethane	50	10	50	0	100.0	70 - 130				
cis-1,2-Dichloroethene	49.28	5.0	50	0	98.6	77 - 125				
cis-1,3-Dichloropropene	46.62	5.0	50	0	93.2	78 - 122				
Dibromochloromethane	47.93	5.0	50	0	95.9	78 - 120				
Ethylbenzene	53.12	5.0	50	0	106	70 - 123				
m,p-Xylene	102.7	10	100	0	103	77 - 125				
Methylene chloride	48.33	10	50	0	96.7	71 - 125				
o-Xylene	51.85	5.0	50	0	104	78 - 122				
Styrene	52.56	5.0	50	0	105	80 - 123				
Tetrachloroethene	52.29	5.0	50	0	105	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

LCS Sample ID: **VLCSS1-121119** Units: **ug/Kg** Analysis Date: **11-Dec-2019 10:22**
Client ID: Run ID: **VOA5_352253** SeqNo: **5383942** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	51.67	5.0	50	0	103	76 - 122				
trans-1,2-Dichloroethene	49.62	5.0	50	0	99.2	75 - 128				
trans-1,3-Dichloropropene	49.15	5.0	50	0	98.3	75 - 123				
Trichloroethene	52.02	5.0	50	0	104	78 - 125				
Vinyl acetate	90.75	10	100	0	90.8	70 - 130				
Vinyl chloride	46.13	2.0	50	0	92.3	70 - 130				
Xylenes, Total	154.6	5.0	150	0	103	77 - 128				
1,2-Dichloroethene, Total	98.9	5.0	100	0	98.9	75 - 128				
Surr: 1,2-Dichloroethane-d4	*43.58*	*0*	*50*	*0*	*87.2*	*76 - 125*				
Surr: 4-Bromofluorobenzene	*47.66*	*0*	*50*	*0*	*95.3*	*80 - 120*				
Surr: Dibromofluoromethane	*47.24*	*0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*50.1*	*0*	*50*	*0*	*100*	*81 - 118*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MS Sample ID: **HS19120360-01MS** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:57**
Client ID: Run ID: **VOA5_352253** SeqNo: **5386079** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	42.49	4.9	49	0	86.7	70 - 130				
1,1,2,2-Tetrachloroethane	97.5	4.9	49	0	199	70 - 130				S
1,1,2-Trichloroethane	46.49	4.9	49	0	94.9	70 - 130				
1,1-Dichloroethane	45.63	4.9	49	0	93.1	70 - 130				
1,1-Dichloroethene	46.84	4.9	49	0	95.6	70 - 130				
1,2-Dichlorobenzene	37.08	4.9	49	0	75.7	70 - 130				
1,2-Dichloroethane	40.93	4.9	49	0	83.5	70 - 130				
1,2-Dichloropropane	44.77	4.9	49	0	91.4	70 - 130				
1,3-Dichlorobenzene	37.22	4.9	49	0	76.0	70 - 130				
1,4-Dichlorobenzene	36.76	4.9	49	0	75.0	70 - 130				
2-Butanone	70.25	9.8	98	0	71.7	70 - 130				
2-Hexanone	84.68	9.8	98	0	86.4	70 - 130				
4-Methyl-2-pentanone	109.4	9.8	98	0	112	70 - 128				
Acetone	191.2	20	98	10.13	185	70 - 130				S
Benzene	46.15	4.9	49	0	94.2	70 - 130				
Bromochloromethane	44.53	4.9	49	0	90.9	70 - 130				
Bromodichloromethane	31.46	4.9	49	0	64.2	70 - 130				S
Bromoform	42.07	4.9	49	0	85.8	70 - 130				
Bromomethane	41.96	9.8	49	0	85.6	70 - 130				
Carbon disulfide	72.52	9.8	98	0	74.0	70 - 130				
Carbon tetrachloride	38.53	4.9	49	0	78.6	70 - 130				
Chlorobenzene	45.55	4.9	49	0.9886	90.9	70 - 130				
Chloroethane	41.93	9.8	49	0	85.6	70 - 130				
Chloroform	39.54	4.9	49	0	80.7	70 - 130				
Chloromethane	44.61	9.8	49	0	91.0	70 - 130				
cis-1,2-Dichloroethene	45.52	4.9	49	0	92.9	70 - 130				
cis-1,3-Dichloropropene	40.11	4.9	49	0	81.9	70 - 130				
Dibromochloromethane	41.96	4.9	49	0	85.6	70 - 130				
Ethylbenzene	42.51	4.9	49	0	86.7	70 - 130				
m,p-Xylene	85.03	9.8	98	0	86.8	70 - 130				
Methylene chloride	46.43	9.8	49	0	94.7	70 - 130				
o-Xylene	43.09	4.9	49	0	87.9	70 - 130				
Styrene	43.59	4.9	49	0	89.0	70 - 130				
Tetrachloroethene	42.01	4.9	49	0	85.7	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MS Sample ID: **HS19120360-01MS** Units: **ug/Kg** Analysis Date: **11-Dec-2019 19:57**
Client ID: Run ID: **VOA5_352253** SeqNo: **5386079** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	45.72	4.9	49	0	93.3	70 - 130				
trans-1,2-Dichloroethene	46.01	4.9	49	0	93.9	70 - 130				
trans-1,3-Dichloropropene	43.09	4.9	49	0	87.9	70 - 130				
Trichloroethene	45.12	4.9	49	0	92.1	70 - 130				
Vinyl acetate	35.91	9.8	98	0	36.6	70 - 130				S
Vinyl chloride	42.69	2.0	49	0	87.1	70 - 130				
Xylenes, Total	128.1	4.9	147	0	87.2	70 - 130				
1,2-Dichloroethene, Total	91.54	4.9	98	0	93.4	70 - 130				
Surr: 1,2-Dichloroethane-d4	*42.48*	*0*	*49*	*0*	*86.7*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*49.09*	*0*	*49*	*0*	*100*	*70 - 130*				
Surr: Dibromofluoromethane	*45.51*	*0*	*49*	*0*	*92.9*	*70 - 130*				
Surr: Toluene-d8	*49.99*	*0*	*49*	*0*	*102*	*70 - 130*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MSD Sample ID: **HS19120360-01MSD** Units: **ug/Kg** Analysis Date: **11-Dec-2019 20:22**
Client ID: Run ID: **VOA5_352253** SeqNo: **5386080** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1-Trichloroethane	37	5.0	49.5	0	74.7	70 - 130	42.49	13.8	30	
1,1,2,2-Tetrachloroethane	109.4	5.0	49.5	0	221	70 - 130	97.5	11.5	30	S
1,1,2-Trichloroethane	41.85	5.0	49.5	0	84.5	70 - 130	46.49	10.5	30	
1,1-Dichloroethane	42.34	5.0	49.5	0	85.5	70 - 130	45.63	7.47	30	
1,1-Dichloroethene	40.67	5.0	49.5	0	82.2	70 - 130	46.84	14.1	30	
1,2-Dichlorobenzene	31.04	5.0	49.5	0	62.7	70 - 130	37.08	17.8	30	S
1,2-Dichloroethane	37.98	5.0	49.5	0	76.7	70 - 130	40.93	7.48	30	
1,2-Dichloropropane	41.22	5.0	49.5	0	83.3	70 - 130	44.77	8.25	30	
1,3-Dichlorobenzene	31.24	5.0	49.5	0	63.1	70 - 130	37.22	17.5	30	S
1,4-Dichlorobenzene	30.37	5.0	49.5	0	61.3	70 - 130	36.76	19	30	S
2-Butanone	66.16	9.9	99	0	66.8	70 - 130	70.25	6.01	30	S
2-Hexanone	78.2	9.9	99	0	79.0	70 - 130	84.68	7.96	30	
4-Methyl-2-pentanone	111.8	9.9	99	0	113	70 - 128	109.4	2.19	30	
Acetone	232.5	20	99	10.13	225	70 - 130	191.2	19.5	30	S
Benzene	42.21	5.0	49.5	0	85.3	70 - 130	46.15	8.91	30	
Bromochloromethane	42.07	5.0	49.5	0	85.0	70 - 130	44.53	5.7	30	
Bromodichloromethane	27.42	5.0	49.5	0	55.4	70 - 130	31.46	13.7	30	S
Bromoform	34	5.0	49.5	0	68.7	70 - 130	42.07	21.2	30	S
Bromomethane	39.18	9.9	49.5	0	79.2	70 - 130	41.96	6.85	30	
Carbon disulfide	61.79	9.9	99	0	62.4	70 - 130	72.52	16	30	S
Carbon tetrachloride	32.26	5.0	49.5	0	65.2	70 - 130	38.53	17.7	30	S
Chlorobenzene	38.74	5.0	49.5	0.9886	76.3	70 - 130	45.55	16.2	30	
Chloroethane	38.73	9.9	49.5	0	78.3	70 - 130	41.93	7.93	30	
Chloroform	35.86	5.0	49.5	0	72.5	70 - 130	39.54	9.76	30	
Chloromethane	43.94	9.9	49.5	0	88.8	70 - 130	44.61	1.52	30	
cis-1,2-Dichloroethene	41.96	5.0	49.5	0	84.8	70 - 130	45.52	8.14	30	
cis-1,3-Dichloropropene	35.84	5.0	49.5	0	72.4	70 - 130	40.11	11.2	30	
Dibromochloromethane	34.79	5.0	49.5	0	70.3	70 - 130	41.96	18.7	30	
Ethylbenzene	36.73	5.0	49.5	0	74.2	70 - 130	42.51	14.6	30	
m,p-Xylene	71.36	9.9	99	0	72.1	70 - 130	85.03	17.5	30	
Methylene chloride	43.57	9.9	49.5	0	88.0	70 - 130	46.43	6.36	30	
o-Xylene	35.73	5.0	49.5	0	72.2	70 - 130	43.09	18.7	30	
Styrene	37.11	5.0	49.5	0	75.0	70 - 130	43.59	16.1	30	
Tetrachloroethene	36.45	5.0	49.5	0	73.6	70 - 130	42.01	14.2	30	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352253 (0) **Instrument: VOA5** **Method: VOLATILES BY SW8260C**

MSD Sample ID: **HS19120360-01MSD** Units: **ug/Kg** Analysis Date: **11-Dec-2019 20:22**
Client ID: Run ID: **VOA5_352253** SeqNo: **5386080** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Toluene	39.55	5.0	49.5	0	79.9	70 - 130	45.72	14.5	30	
trans-1,2-Dichloroethene	42.86	5.0	49.5	0	86.6	70 - 130	46.01	7.09	30	
trans-1,3-Dichloropropene	36.34	5.0	49.5	0	73.4	70 - 130	43.09	17	30	
Trichloroethene	40.45	5.0	49.5	0	81.7	70 - 130	45.12	10.9	30	
Vinyl acetate	33.82	9.9	99	0	34.2	70 - 130	35.91	6.01	30	S
Vinyl chloride	41.39	2.0	49.5	0	83.6	70 - 130	42.69	3.07	30	
Xylenes, Total	107.1	5.0	148.5	0	72.1	70 - 130	128.1	17.9	30	
1,2-Dichloroethene, Total	84.83	5.0	99	0	85.7	70 - 130	91.54	7.61	30	
Surr: 1,2-Dichloroethane-d4	*41.76*	*0*	*49.5*	*0*	*84.4*	*70 - 126*	*42.48*	*1.72*	*30*	
Surr: 4-Bromofluorobenzene	*48.06*	*0*	*49.5*	*0*	*97.1*	*70 - 130*	*49.09*	*2.12*	*30*	
Surr: Dibromofluoromethane	*45.96*	*0*	*49.5*	*0*	*92.8*	*70 - 130*	*45.51*	*0.97*	*30*	
Surr: Toluene-d8	*50.53*	*0*	*49.5*	*0*	*102*	*70 - 130*	*49.99*	*1.08*	*30*	

The following samples were analyzed in this batch: HS19120483-01

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-191211** Units: **ug/L** Analysis Date: **11-Dec-2019 14:14**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386312** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	< 1.0	1.0								
1,1,2,2-Tetrachloroethane	< 1.0	1.0								
1,1,2-Trichloroethane	< 1.0	1.0								
1,1-Dichloroethane	< 1.0	1.0								
1,1-Dichloroethene	< 1.0	1.0								
1,2-Dichlorobenzene	< 1.0	1.0								
1,2-Dichloroethane	< 1.0	1.0								
1,2-Dichloropropane	< 1.0	1.0								
1,3-Dichlorobenzene	< 1.0	1.0								
1,4-Dichlorobenzene	< 1.0	1.0								
2-Butanone	< 2.0	2.0								
2-Hexanone	< 2.0	2.0								
4-Methyl-2-pentanone	< 2.0	2.0								
Acetone	< 2.0	2.0								
Benzene	< 1.0	1.0								
Bromochloromethane	< 1.0	1.0								
Bromodichloromethane	< 1.0	1.0								
Bromoform	< 1.0	1.0								
Bromomethane	< 1.0	1.0								
Carbon disulfide	< 2.0	2.0								
Carbon tetrachloride	< 1.0	1.0								
Chlorobenzene	< 1.0	1.0								
Chloroethane	< 1.0	1.0								
Chloroform	< 1.0	1.0								
Chloromethane	< 1.0	1.0								
cis-1,2-Dichloroethene	< 1.0	1.0								
cis-1,3-Dichloropropene	< 1.0	1.0								
Dibromochloromethane	< 1.0	1.0								
Ethylbenzene	< 1.0	1.0								
m,p-Xylene	< 2.0	2.0								
Methylene chloride	< 2.0	2.0								
o-Xylene	< 1.0	1.0								
Styrene	< 1.0	1.0								
Tetrachloroethene	< 1.0	1.0								

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MBLK Sample ID: **VBLKW-191211** Units: **ug/L** Analysis Date: **11-Dec-2019 14:14**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386312** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	< 1.0	1.0								
trans-1,2-Dichloroethene	< 1.0	1.0								
trans-1,3-Dichloropropene	< 1.0	1.0								
Trichloroethene	< 1.0	1.0								
Vinyl acetate	< 1.0	1.0								
Vinyl chloride	< 1.0	1.0								
Xylenes, Total	< 1.0	1.0								
1,2-Dichloroethene, Total	< 1.0	1.0								
Surr: 1,2-Dichloroethane-d4	*51.11*	*1.0*	*50*	*0*	*102*	*70 - 123*				
Surr: 4-Bromofluorobenzene	*50.02*	*1.0*	*50*	*0*	*100*	*82 - 115*				
Surr: Dibromofluoromethane	*51.95*	*1.0*	*50*	*0*	*104*	*73 - 126*				
Surr: Toluene-d8	*51.21*	*1.0*	*50*	*0*	*102*	*81 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-191211** Units: **ug/L** Analysis Date: **11-Dec-2019 13:25**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19	1.0	20	0	95.0	70 - 130				
1,1,2,2-Tetrachloroethane	22.98	1.0	20	0	115	70 - 120				
1,1,2-Trichloroethane	21.22	1.0	20	0	106	77 - 113				
1,1-Dichloroethane	19.55	1.0	20	0	97.7	71 - 122				
1,1-Dichloroethene	19.58	1.0	20	0	97.9	70 - 130				
1,2-Dichlorobenzene	20.79	1.0	20	0	104	77 - 113				
1,2-Dichloroethane	19.23	1.0	20	0	96.1	70 - 124				
1,2-Dichloropropane	19.81	1.0	20	0	99.0	72 - 119				
1,3-Dichlorobenzene	20.55	1.0	20	0	103	78 - 118				
1,4-Dichlorobenzene	19.37	1.0	20	0	96.9	79 - 113				
2-Butanone	44.79	2.0	40	0	112	70 - 130				
2-Hexanone	49.22	2.0	40	0	123	70 - 130				
4-Methyl-2-pentanone	47.37	2.0	40	0	118	70 - 130				
Acetone	44.19	2.0	40	0	110	70 - 130				
Benzene	19.06	1.0	20	0	95.3	74 - 120				
Bromochloromethane	20.52	1.0	20	0	103	76 - 124				
Bromodichloromethane	18.77	1.0	20	0	93.8	74 - 122				
Bromoform	19.07	1.0	20	0	95.4	73 - 128				
Bromomethane	17.16	1.0	20	0	85.8	70 - 130				
Carbon disulfide	33.44	2.0	40	0	83.6	70 - 130				
Carbon tetrachloride	17.49	1.0	20	0	87.4	71 - 125				
Chlorobenzene	19.34	1.0	20	0	96.7	76 - 113				
Chloroethane	19.41	1.0	20	0	97.0	70 - 130				
Chloroform	19.17	1.0	20	0	95.8	71 - 121				
Chloromethane	17.74	1.0	20	0	88.7	70 - 129				
cis-1,2-Dichloroethene	19.61	1.0	20	0	98.1	75 - 122				
cis-1,3-Dichloropropene	20.22	1.0	20	0	101	73 - 127				
Dibromochloromethane	19.55	1.0	20	0	97.7	77 - 122				
Ethylbenzene	19.42	1.0	20	0	97.1	77 - 117				
m,p-Xylene	39.44	2.0	40	0	98.6	77 - 122				
Methylene chloride	18.64	2.0	20	0	93.2	70 - 127				
o-Xylene	19.8	1.0	20	0	99.0	75 - 119				
Styrene	19.87	1.0	20	0	99.3	72 - 126				
Tetrachloroethene	19.94	1.0	20	0	99.7	76 - 119				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

LCS Sample ID: **VLCSW-191211** Units: **ug/L** Analysis Date: **11-Dec-2019 13:25**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	19.47	1.0	20	0	97.3	77 - 118				
trans-1,2-Dichloroethene	19.79	1.0	20	0	98.9	72 - 127				
trans-1,3-Dichloropropene	20.35	1.0	20	0	102	77 - 119				
Trichloroethene	19.36	1.0	20	0	96.8	77 - 121				
Vinyl acetate	40.92	1.0	40	0	102	70 - 130				
Vinyl chloride	19.14	1.0	20	0	95.7	70 - 130				
Xylenes, Total	59.24	1.0	60	0	98.7	75 - 122				
1,2-Dichloroethene, Total	39.4	1.0	40	0	98.5	72 - 127				
Surr: 1,2-Dichloroethane-d4	*52.54*	*1.0*	*50*	*0*	*105*	*70 - 130*				
Surr: 4-Bromofluorobenzene	*50.66*	*1.0*	*50*	*0*	*101*	*82 - 115*				
Surr: Dibromofluoromethane	*50.3*	*1.0*	*50*	*0*	*101*	*73 - 126*				
Surr: Toluene-d8	*51.24*	*1.0*	*50*	*0*	*102*	*81 - 120*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS19120370-05MS** Units: **ug/L** Analysis Date: **11-Dec-2019 17:32**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.42	1.0	20	0	97.1	70 - 130				
1,1,2,2-Tetrachloroethane	19.3	1.0	20	0	96.5	70 - 123				
1,1,2-Trichloroethane	19.07	1.0	20	0	95.4	70 - 117				
1,1-Dichloroethane	40.62	1.0	20	22.34	91.4	70 - 127				
1,1-Dichloroethene	21.58	1.0	20	1.949	98.2	70 - 130				
1,2-Dichlorobenzene	19.22	1.0	20	0	96.1	70 - 115				
1,2-Dichloroethane	17.44	1.0	20	0	87.2	70 - 127				
1,2-Dichloropropane	18.8	1.0	20	0	94.0	70 - 122				
1,3-Dichlorobenzene	18.88	1.0	20	0	94.4	70 - 119				
1,4-Dichlorobenzene	18.42	1.0	20	0	92.1	70 - 114				
2-Butanone	37.56	2.0	40	0	93.9	70 - 130				
2-Hexanone	39.95	2.0	40	0	99.9	70 - 130				
4-Methyl-2-pentanone	40.04	2.0	40	0	100	70 - 130				
Acetone	37.4	2.0	40	0	93.5	70 - 130				
Benzene	18.23	1.0	20	0	91.1	70 - 127				
Bromochloromethane	19.01	1.0	20	0	95.0	70 - 127				
Bromodichloromethane	17.58	1.0	20	0	87.9	70 - 124				
Bromoform	16.55	1.0	20	0	82.8	70 - 129				
Bromomethane	17.75	1.0	20	0	88.8	70 - 130				
Carbon disulfide	34.24	2.0	40	0	85.6	70 - 130				
Carbon tetrachloride	17.97	1.0	20	0	89.9	70 - 130				
Chlorobenzene	18.12	1.0	20	0	90.6	70 - 114				
Chloroethane	19.27	1.0	20	0	96.4	70 - 130				
Chloroform	18.45	1.0	20	0	92.3	70 - 125				
Chloromethane	15.67	1.0	20	0	78.3	70 - 130				
cis-1,2-Dichloroethene	58.04	1.0	20	40.65	87.0	70 - 128				
cis-1,3-Dichloropropene	18.33	1.0	20	0	91.7	70 - 125				
Dibromochloromethane	17.4	1.0	20	0	87.0	70 - 124				
Ethylbenzene	18.89	1.0	20	0	94.4	70 - 124				
m,p-Xylene	38.45	2.0	40	0	96.1	70 - 130				
Methylene chloride	17.44	2.0	20	0	87.2	70 - 128				
o-Xylene	19.08	1.0	20	0	95.4	70 - 124				
Styrene	18.73	1.0	20	0	93.7	70 - 130				
Tetrachloroethene	21.56	1.0	20	0	108	70 - 130				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MS Sample ID: **HS19120370-05MS** Units: **ug/L** Analysis Date: **11-Dec-2019 17:32**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Toluene	18.77	1.0	20	0	93.8	70 - 123				
trans-1,2-Dichloroethene	20.3	1.0	20	0.8384	97.3	70 - 130				
trans-1,3-Dichloropropene	17.96	1.0	20	0	89.8	70 - 121				
Trichloroethene	19.46	1.0	20	0.4529	95.0	70 - 129				
Vinyl acetate	35.13	1.0	40	0	87.8	70 - 130				
Vinyl chloride	50.86	1.0	20	33.22	88.2	70 - 130				
Xylenes, Total	57.53	1.0	60	0	95.9	70 - 130				
1,2-Dichloroethene, Total	78.34	1.0	40	41.49	92.1	70 - 130				
Surr: 1,2-Dichloroethane-d4	*52.28*	*1.0*	*50*	*0*	*105*	*70 - 126*				
Surr: 4-Bromofluorobenzene	*51.24*	*1.0*	*50*	*0*	*102*	*81 - 113*				
Surr: Dibromofluoromethane	*50.95*	*1.0*	*50*	*0*	*102*	*77 - 123*				
Surr: Toluene-d8	*51.05*	*1.0*	*50*	*0*	*102*	*82 - 127*				

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS19120370-05MSD** Units: **ug/L** Analysis Date: **11-Dec-2019 17:57**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.97	1.0	20	0	94.9	70 - 130	19.42	2.33	20	
1,1,2,2-Tetrachloroethane	20.02	1.0	20	0	100	70 - 123	19.3	3.65	20	
1,1,2-Trichloroethane	19.27	1.0	20	0	96.3	70 - 117	19.07	1.03	20	
1,1-Dichloroethane	39.89	1.0	20	22.34	87.7	70 - 127	40.62	1.82	20	
1,1-Dichloroethene	20.89	1.0	20	1.949	94.7	70 - 130	21.58	3.25	20	
1,2-Dichlorobenzene	19.04	1.0	20	0	95.2	70 - 115	19.22	0.94	20	
1,2-Dichloroethane	17.89	1.0	20	0	89.4	70 - 127	17.44	2.54	20	
1,2-Dichloropropane	18.43	1.0	20	0	92.1	70 - 122	18.8	2	20	
1,3-Dichlorobenzene	18.74	1.0	20	0	93.7	70 - 119	18.88	0.744	20	
1,4-Dichlorobenzene	18.17	1.0	20	0	90.8	70 - 114	18.42	1.39	20	
2-Butanone	40.19	2.0	40	0	100	70 - 130	37.56	6.76	20	
2-Hexanone	43.81	2.0	40	0	110	70 - 130	39.95	9.22	20	
4-Methyl-2-pentanone	42.84	2.0	40	0	107	70 - 130	40.04	6.76	20	
Acetone	37.68	2.0	40	0	94.2	70 - 130	37.4	0.728	20	
Benzene	18.05	1.0	20	0	90.3	70 - 127	18.23	0.95	20	
Bromochloromethane	19.2	1.0	20	0	96.0	70 - 127	19.01	1.02	20	
Bromodichloromethane	17.43	1.0	20	0	87.2	70 - 124	17.58	0.828	20	
Bromoform	17.01	1.0	20	0	85.1	70 - 129	16.55	2.74	20	
Bromomethane	15.91	1.0	20	0	79.5	70 - 130	17.75	11	20	
Carbon disulfide	33.46	2.0	40	0	83.7	70 - 130	34.24	2.29	20	
Carbon tetrachloride	17.76	1.0	20	0	88.8	70 - 130	17.97	1.17	20	
Chlorobenzene	17.67	1.0	20	0	88.3	70 - 114	18.12	2.53	20	
Chloroethane	18.84	1.0	20	0	94.2	70 - 130	19.27	2.29	20	
Chloroform	18.08	1.0	20	0	90.4	70 - 125	18.45	2.02	20	
Chloromethane	15.54	1.0	20	0	77.7	70 - 130	15.67	0.834	20	
cis-1,2-Dichloroethene	57.04	1.0	20	40.65	82.0	70 - 128	58.04	1.74	20	
cis-1,3-Dichloropropene	18.41	1.0	20	0	92.1	70 - 125	18.33	0.432	20	
Dibromochloromethane	17.62	1.0	20	0	88.1	70 - 124	17.4	1.27	20	
Ethylbenzene	18.37	1.0	20	0	91.9	70 - 124	18.89	2.76	20	
m,p-Xylene	37.3	2.0	40	0	93.2	70 - 130	38.45	3.04	20	
Methylene chloride	17.53	2.0	20	0	87.7	70 - 128	17.44	0.56	20	
o-Xylene	18.54	1.0	20	0	92.7	70 - 124	19.08	2.88	20	
Styrene	18.34	1.0	20	0	91.7	70 - 130	18.73	2.1	20	
Tetrachloroethene	19.99	1.0	20	0	99.9	70 - 130	21.56	7.57	20	

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352338 (0) **Instrument: VOA2** **Method: LOW LEVEL VOLATILES BY SW8260C**

MSD Sample ID: **HS19120370-05MSD** Units: **ug/L** Analysis Date: **11-Dec-2019 17:57**
Client ID: Run ID: **VOA2_352338** SeqNo: **5386320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Toluene	18.39	1.0	20	0	92.0	70 - 123	18.77	2.01	20	
trans-1,2-Dichloroethene	19.64	1.0	20	0.8384	94.0	70 - 130	20.3	3.27	20	
trans-1,3-Dichloropropene	18.36	1.0	20	0	91.8	70 - 121	17.96	2.21	20	
Trichloroethene	19.17	1.0	20	0.4529	93.6	70 - 129	19.46	1.48	20	
Vinyl acetate	36.06	1.0	40	0	90.1	70 - 130	35.13	2.6	20	
Vinyl chloride	49.61	1.0	20	33.22	81.9	70 - 130	50.86	2.5	20	
Xylenes, Total	55.83	1.0	60	0	93.1	70 - 130	57.53	2.99	20	
1,2-Dichloroethene, Total	76.68	1.0	40	41.49	88.0	70 - 130	78.34	2.14	20	
Surr: 1,2-Dichloroethane-d4	*53.14*	*1.0*	*50*	*0*	*106*	*70 - 126*	*52.28*	*1.63*	*20*	
Surr: 4-Bromofluorobenzene	*50.69*	*1.0*	*50*	*0*	*101*	*81 - 113*	*51.24*	*1.08*	*20*	
Surr: Dibromofluoromethane	*51.07*	*1.0*	*50*	*0*	*102*	*77 - 123*	*50.95*	*0.238*	*20*	
Surr: Toluene-d8	*50.69*	*1.0*	*50*	*0*	*101*	*82 - 127*	*51.05*	*0.698*	*20*	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: 148579 (0) **Instrument: UV-2450** **Method: CYANIDE - SW9014**

MBLK Sample ID: **MBLK-148579** Units: **mg/L** Analysis Date: **11-Dec-2019 15:30**
Client ID: Run ID: **UV-2450_352334** SeqNo: **5386196** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	< 0.00500	0.00500								

LCS Sample ID: **LCS-148579** Units: **mg/L** Analysis Date: **11-Dec-2019 15:30**
Client ID: Run ID: **UV-2450_352334** SeqNo: **5386195** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.178	0.00500	0.2	0	89.0	80 - 120				

MS Sample ID: **HS19120441-01MS** Units: **mg/L** Analysis Date: **11-Dec-2019 15:30**
Client ID: Run ID: **UV-2450_352334** SeqNo: **5386193** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.187	0.00500	0.2	0.021	83.0	80 - 120				

MSD Sample ID: **HS19120441-01MSD** Units: **mg/L** Analysis Date: **11-Dec-2019 15:30**
Client ID: Run ID: **UV-2450_352334** SeqNo: **5386194** PrepDate: **11-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.191	0.00500	0.2	0.021	85.0	80 - 120	0.187	2.12	20	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352294 (0) **Instrument: WetChem_HS** **Method: SULFIDE BY SM4500 S2-F**

MBLK Sample ID: **MBLK-R352294** Units: **mg/L** Analysis Date: **11-Dec-2019 14:00**
Client ID: Run ID: **WetChem_HS_352294** SeqNo: **5384954** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	< 1.00	1.00								

LCS Sample ID: **LCS-R352294** Units: **mg/L** Analysis Date: **11-Dec-2019 14:00**
Client ID: Run ID: **WetChem_HS_352294** SeqNo: **5384953** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.56	1.00	25	0	86.2	85 - 115				

LCSD Sample ID: **LCSD-R352294** Units: **mg/L** Analysis Date: **11-Dec-2019 14:00**
Client ID: Run ID: **WetChem_HS_352294** SeqNo: **5384952** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.76	1.00	25	0	87.0	85 - 115	21.56	0.923	20	

MS Sample ID: **HS19120326-03MS** Units: **mg/L** Analysis Date: **11-Dec-2019 14:00**
Client ID: Run ID: **WetChem_HS_352294** SeqNo: **5384955** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	22.56	1.00	25	-0.44	92.0	80 - 120				

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352440 (0) **Instrument:** WetChem_HS **Method:** FLASH POINT BY PENSKY-MARTENS SW1010A

LCS Sample ID: **LCS-R352440** Units: **°F** Analysis Date: **13-Dec-2019 08:00**
Client ID: Run ID: **WetChem_HS_352440** SeqNo: **5388674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80.48	70.0	81	0	99.4	95 - 105				

DUP Sample ID: **HS19120359-01DUP** Units: **°F** Analysis Date: **13-Dec-2019 08:00**
Client ID: Run ID: **WetChem_HS_352440** SeqNo: **5388675** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	> 212	70.0					0	0	20	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: HS19120483

QC BATCH REPORT

Batch ID: R352482 (0) **Instrument:** WetChem_HS **Method:** PH BY SW9040C

DUP Sample ID: **HS19120630-01DUP** Units: **pH Units** Analysis Date: **13-Dec-2019 11:30**
Client ID: Run ID: **WetChem_HS_352482** SeqNo: **5389455** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.69	0.100					7.65	0.522	10	
Temp Deg C @pH	20.5	0					20.4	0.489	10	

The following samples were analyzed in this batch: HS19120483-02

Client: Golder Associates Inc.
Project: Houston TX-Wood Preserving Works
WorkOrder: **HS19120483**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
Date	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

Sample Receipt Checklist

Client Name: PBW
Work Order: HS19120483

Date/Time Received: **10-Dec-2019 15:04**
Received by: **PMG**

Checklist completed by: *Paresh M. Giga* eSignature — 11-Dec-2019 Date

Reviewed by: *Dane J. Wacasey* eSignature — 11-Dec-2019 Date

Matrices: **Solid/Sludge**

Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:212492
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.7c U/C	IR25
Cooler(s)/Kit(s):	45133	
Date/Time sample(s) sent to storage:	12/10/19 10:35	

Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Water sample is extremely turbid. pH of preserved containers >2, due to matrix, the sample is buffered and pH adjustment is not achievable

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Middletown, PA +1 717 944 5541
Spring City, PA +1 610 948 4903
Salt Lake City, UT +1 801 266 7700
South Charleston, WV +1 304 356 3168
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 212492

ALS Project Manager: | ALS Work Order #: HS19120483

Customer Information		Project Information	
Purchase Order	UPRR/Kevin Peterburs	Project Name	Houston TX-Wood Preserving Works
Work Order		Project Number	1620-10-Rev0 SR 92688 (IDW)
Company Name	Golder Associates Inc.	Bill To Company	Union Pacific Railroad- A/P
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750
Phone	(512) 671-3434	Phone	
Fax	(512) 671-3446	Fax	
e-Mail Address	Eric_Matzner@golder.com	e-Mail Address	

Parameter/Method Request for Analysis

A	5632528[redacted] VOC 8260_S/LL_W [redacted] 8260 (IDWS))
B	8270_LOW_S/_W (5632532 Semivolatile Organics w/pyridine
C	TX1005_S_REV3 (5643233 TX1005 TPH)
D	1311_METALS_HS (5640672 5652643 TCLP RCRA 8 (IDWS))
E	ICP_TW (5652643 RCRA 8 Metals (IDWW))
F	CN_TW_9014 (5652638 Cyanide - RCI (IDWW))
G	SULFD_4500S F (5652638 Sulfide - RCI (IDWW))
H	pH_W_9040C (5632436 pH - RCI (IDWW))
I	IGN_W (5652637 Ignitability - RCI (IDWW))
J	TX1005_W_Low (5643233 TPH TX1005)

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SO-1620-ROLLOFF-20191210	12-10-19	1305	Solid	8	3	X	X	X	X							
2	WG-1620-VACBOX-20191210	12-10-19	1215	Water	1,2,4,7,8	12	X	X			X	X	X	X	X	X	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HS19120483
Golder Associates Inc.
Houston TX-Wood Preserving Works

Sampler(s) Please Print & Sign: Blake Sokora / Blake Sokora

Shipment Method:

Required Turnaround Time: (Check Box) ☐ Other ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☒ 24 Hour

Results Due Date:

Relinquished by: Blake Sokora	Date: 12-10-19	Time: 1504	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	12/10/19 15:04
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Notes: UPRR HWPW 1620 TPH NAPL Assessment

Cooler ID	Cooler Temp.
45133	0.7°
	2°

QC Package: (Check One Box Below)

- ☒ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.