United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101

Date: 12/28/2015

Subject: Transmittal of Sample Analysis Results for ASR #: 7008

Project ID: TH07PZ01

Project Description: Oak Grove Village well - RA sampling

From: Margaret E.W. St. Germain, Chief
Laboratory Technology & Analysis Branch, Environmental Sciences & Technology Division

To: Tonya Howell
SUPR/MOKS

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Tonya Howell Org: SUPR/MOKS Phone: 913-551-7589

Project ID: TH07PZ01

Project Desc: Oak Grove Village well - RA sampling

Location: Oak Grove State: Missouri Program: Superfund

Site Name: OAK GROVE VILLAGE WELL - OAK GROVE VILLAGE WELL Site ID: 07PZ Site OU: 01

GPRA PRC: 303DD2

Purpose: Site Characterization

To determine the nature and extent of VOC contamination in air from an undefined TCE plume & determine if VOC concentrations in cave air are increasing or decreasing.

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

__ = Field Sample
FD = Field Duplicate

Units: Specific units in which results are reported.

ug/m3 = Micrograms per Cubic Meter

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank) = Values have been reviewed and found acceptable for use.
U = The analyte was not detected at or above the reporting limit.

ASR Number: 7008 Sample Information Summary 12/28/2015

Project ID: TH07PZ01 Project Desc: Oak Grove Village well - RA sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1	__	Air	Gift Shop		11/30/2015	09:39	12/01/2015	08:14	12/03/2015
1	FD	Air	Gift Shop		11/30/2015	09:40	12/01/2015	08:15	12/03/2015
3	__	Air	Ballroom		11/30/2015	09:34	12/01/2015	08:10	12/03/2015
4	__	Air	Loot Rock		11/30/2015	09:52	12/01/2015	08:23	12/03/2015
5	__	Air	B11		11/30/2015	09:45	12/01/2015	08:40	12/03/2015
6	__	Air	Jungle Room		11/30/2015	09:55	12/01/2015	08:29	12/03/2015
7	__	Air	Theatre		11/30/2015	09:47	12/01/2015	08:49	12/03/2015
8	__	Air	Ampitheatre		11/30/2015	10:09	12/01/2015	09:40	12/03/2015

Analysis	Comments About Results For This Analysis

1 VOCs in Air at Ambient Levels by GC/MS

Lab: RASP Contract Lab (Out-Source)

Method: Similar to EPA Region 7 RLAB Method 3230.4G (see comments)

Samples: 1-__ 1-FD 3-__ 4-__ 5-__ 6-__ 7-__ 8-__

Comments:

A couple of non-routine Freon compounds, Dichlorodifluoromethane and Trichlorofluoromethane, were added to the target compound target list and had reporting limits of 2.47 ug/m3 and 2.81 ug/m3, respectively.

1,1,2-trichloroethane and 1,2-dicholoroethane had very low requested reporting limits that could not be met. In order to report to the lowest limit possible, these compounds were reported down to their respective method detection limit (MDL). Any concentration for these compounds that was below the reporting limit but above the applicable MDL was reported with a "J" code.

Samples 7008-1; & -1FD required dilution due to target compound concentrations.

Analysis/ Analyte	Units	1-__	1-FD	3-__	4-__
1 VOCs in Air at Ambient Levels by GC/MS					
Acetone	ug/m3	84.2	167	5.95 U	5.95 U
Benzene	ug/m3	0.607	0.671	0.31 U	0.31 U
Bromodichloromethane	ug/m3	3.35 U	3.35 U	3.35 U	3.35 U
Bromoform	ug/m3	5.17 U	5.17 U	5.17 U	5.17 U
Bromomethane	ug/m3	1.94 U	1.94 U	1.94 U	1.94 U
2-Butanone	ug/m3	1.47 U	1.47 U	1.47 U	1.47 U
Carbon Disulfide	ug/m3	1.56 U	1.56 U	1.56 U	1.56 U
Carbon Tetrachloride	ug/m3	0.44	0.629	0.503	0.44
Chlorobenzene	ug/m3	2.3 U	2.3 U	2.3 U	2.3 U
Chloroethane	ug/m3	1.32 U	1.32 U	1.32 U	1.32 U
Chloroform	ug/m3	3.9	3.51	6.59	2.44 U
Chloromethane	ug/m3	1.03 U	1.03 U	1.03 U	1.03 U
Dibromochloromethane	ug/m3	4.26 U	4.26 U	4.26 U	4.26 U
1,2-Dibromoethane	ug/m3	3.84 U	3.84 U	3.84 U	3.84 U
1,2-Dichlorobenzene	ug/m3	3 U	3 U	3 U	3 U
1,3-Dichlorobenzene	ug/m3	3 U	3 U	3 U	3 U
Dichlorodifluoromethane	ug/m3	3.51	5.78	3.21	2.72
1,1-Dichloroethane	ug/m3	2.02 U	2.02 U	2.02 U	2.02 U
1,2-Dichloroethane	ug/m3	1.54	1.46	0.202	0.19 U
1,1-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
cis-1,2-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
trans-1,2-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
1,2-Dichloropropane	ug/m3	2.31 U	2.31 U	2.31 U	2.31 U
cis-1,3-Dichloropropene	ug/m3	2.27 U	2.27 U	2.27 U	2.27 U
trans-1,3-Dichloropropene	ug/m3	2.27 U	2.27 U	2.27 U	2.27 U
Ethyl Benzene	ug/m3	2.17 U	2.17 U	2.17 U	2.17 U
Heptane	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Hexachlorobutadiene	ug/m3	5.33 U	5.33 U	5.33 U	5.33 U
Hexane	ug/m3	1.76 U	1.76 U	1.76 U	1.76 U
2-Hexanone	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Isopropylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U
Methylene Chloride	ug/m3	8.7 U	34.8 U	8.7 U	15.3
4-Methyl-2-Pentanone	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Naphthalene	ug/m3	2.62 U	2.62 U	2.62 U	2.62 U
Styrene	ug/m3	2.13 U	2.13 U	2.13 U	2.13 U
1,1,2,2-Tetrachloroethane	ug/m3	3.43 U	3.43 U	3.43 U	3.43 U
Tetrachloroethene	ug/m3	7.8	8.54	1.97	0.41 U
Toluene	ug/m3	1.92	2.94	1.88 U	1.88 U
1,2,4-Trichlorobenzene	ug/m3	3.71 U	3.71 U	3.71 U	3.71 U
1,1,1-Trichloroethane	ug/m3	2.73 U	2.73 U	2.73 U	2.73 U
1,1,2-Trichloroethane	ug/m3	0.23 U	0.327	0.23 U	0.23 U
Trichloroethene	ug/m3	6.5	5.69	43.3	36.7
Trichlorofluoromethane	ug/m3	4.16	4.21	11.6	5.17
1,1,2-Trichlorotrifluoroethane	ug/m3	3.83 U	3.83 U	3.83 U	3.83 U
1,2,4-Trimethylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U

Analysis/ Analyte	Units	1-__	1-FD	3-__	4-__
1,3,5-Trimethylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U
Vinyl Chloride	ug/m3	0.16 U	0.16 U	0.16 U	0.16 U
m and/or p-Xylene	ug/m3	4.34 U	4.34 U	4.34 U	4.34 U
o-Xylene	ug/m3	2.17 U	2.17 U	2.17 U	2.17 U

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
1 VOCs in Air at Ambient Levels by GC/MS					
Acetone	ug/m3	5.95 U	5.95 U	5.95 U	6.89
Benzene	ug/m3	0.31 U	0.31 U	0.31 U	0.575
Bromodichloromethane	ug/m3	3.35 U	3.35 U	3.35 U	3.35 U
Bromoform	ug/m3	5.17 U	5.17 U	5.17 U	5.17 U
Bromomethane	ug/m3	1.94 U	1.94 U	1.94 U	1.94 U
2-Butanone	ug/m3	1.47 U	1.47 U	1.47 U	1.47 U
Carbon Disulfide	ug/m3	1.56 U	1.56 U	1.56 U	1.56 U
Carbon Tetrachloride	ug/m3	0.44	0.503	0.503	0.566
Chlorobenzene	ug/m3	2.3 U	2.3 U	2.3 U	2.3 U
Chloroethane	ug/m3	1.32 U	1.32 U	1.32 U	1.32 U
Chloroform	ug/m3	2.44 U	2.44 U	2.73	2.44 U
Chloromethane	ug/m3	1.03 U	1.03 U	1.03 U	1.03 U
Dibromochloromethane	ug/m3	4.26 U	4.26 U	4.26 U	4.26 U
1,2-Dibromoethane	ug/m3	3.84 U	3.84 U	3.84 U	3.84 U
1,2-Dichlorobenzene	ug/m3	3 U	3 U	3 U	3 U
1,3-Dichlorobenzene	ug/m3	3 U	3 U	3 U	3 U
Dichlorodifluoromethane	ug/m3	3.21	2.92	3.66	3.21
1,1-Dichloroethane	ug/m3	2.02 U	2.02 U	2.02 U	2.02 U
1,2-Dichloroethane	ug/m3	0.19 U	0.19 U	0.19 U	0.19 U
1,1-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
cis-1,2-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
trans-1,2-Dichloroethene	ug/m3	1.98 U	1.98 U	1.98 U	1.98 U
1,2-Dichloropropane	ug/m3	2.31 U	2.31 U	2.31 U	2.31 U
cis-1,3-Dichloropropene	ug/m3	2.27 U	2.27 U	2.27 U	2.27 U
trans-1,3-Dichloropropene	ug/m3	2.27 U	2.27 U	2.27 U	2.27 U
Ethyl Benzene	ug/m3	2.17 U	2.17 U	2.17 U	2.17 U
Heptane	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Hexachlorobutadiene	ug/m3	5.33 U	5.33 U	5.33 U	5.33 U
Hexane	ug/m3	1.76 U	1.76 U	1.76 U	2.96
2-Hexanone	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Isopropylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U
Methylene Chloride	ug/m3	8.7 U	8.7 U	17	17.6
4-Methyl-2-Pentanone	ug/m3	2.05 U	2.05 U	2.05 U	2.05 U
Naphthalene	ug/m3	2.62 U	2.62 U	2.62 U	2.62 U
Styrene	ug/m3	2.13 U	2.13 U	2.13 U	2.13 U
1,1,2,2-Tetrachloroethane	ug/m3	3.43 U	3.43 U	3.43 U	3.43 U
Tetrachloroethene	ug/m3	1.08	0.475	1.83	0.41 U
Toluene	ug/m3	1.88 U	1.88 U	1.88 U	1.88 U
1,2,4-Trichlorobenzene	ug/m3	3.71 U	3.71 U	3.71 U	3.71 U
1,1,1-Trichloroethane	ug/m3	2.73 U	2.73 U	2.73 U	2.73 U
1,1,2-Trichloroethane	ug/m3	0.23 U	0.23 U	0.23 U	0.23 U
Trichloroethene	ug/m3	52.9	51.8	33.4	1.02
Trichlorofluoromethane	ug/m3	8.93	6.96	12.1	2.81 U
1,1,2-Trichlorotrifluoroethane	ug/m3	3.83 U	3.83 U	3.83 U	3.83 U
1,2,4-Trimethylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
1,3,5-Trimethylbenzene	ug/m3	2.46 U	2.46 U	2.46 U	2.46 U
Vinyl Chloride	ug/m3	0.16 U	0.16 U	0.16 U	0.16 U
m and/or p-Xylene	ug/m3	4.34 U	4.34 U	4.34 U	4.34 U
o-Xylene	ug/m3	2.17 U	2.17 U	2.17 U	2.17 U

United States Environmental Protection Agency
Region VII
300 Minnesota Avenue
Kansas City, KS 66101

Transmittal Date: __/__/____

Subject: Data Disposition/Sample Disposition for ASR : 7008

Project ID: TH07PZ01

Project Description: Oak Grove Village well - RA sampling

From: Tonya Howell
SUPR/MOKS

To: Alisha Claycamp
ENST/LTAB/LABS

I have received and reviewed the Transmittal of Sample Analysis Results for the above-referenced Analytical Services Request(ASR) and have indicated my findings below by checking one of the boxes for Data Disposition and Sample Disposition.

I understand all samples will be disposed of unless samples are requested to be held. If I do not return this form within 30 days of the transmittal all samples will have a waste determination made and scheduled for disposal.

Data Disposition

☐ "RELEASED" - Read-only to all Region 7 employees and contractors that have R7LIMS "Customer" account. All Samples may be disposed of upon receipt of this form if not requested to

☐ "Project Manager Accessible" - Available on the LAN in R7LIMS for my use only. All Samples may be disposed of upon receipt of this form if not requested to be held.

☐ "Archived" - THIS DATA IS OF A SENSITIVE NATURE. Any future reports must be requested through the laboratory. All samples may be disposed of upon receipt of the form if not requested to be held.

Sample Disposition

☐ No longer need samples for site characterization

☐ Hold Samples - I have determined that the samples need to be held until _____, after which time they will be disposed of in accordance with applicable regulations.
The reason for the hold is:

☐ Samples are associated with a legal proceeding.

☐ Question/Concern with data - possible reanalysis requested.

☐ Other:_____