Praskins, Wayne

From: Jack Keener <JKeener@demaximis.com>
Sent: Friday, March 18, 2016 11:56 AM
To: Praskins, Wayne
Subject: Omega: Submittal of the December 2015 Groundwater Sampling Data
Attachments: Omega December 2015 Groundwater Sampling Event Memo - final.pdf; removed.txt; removed.txt

Wayne

Please find attached for your use and reference the information collected during the December 2015 groundwater monitoring event conducted on the EPA network of well clusters (MW1-MW32) and the Water Replenishment District Koontz and Hawkins well cluster. Specifically, attached is a groundwater sampling method memo which provides an overview of the locations, analytical methodologies and sample collection procedures, a database of the laboratory results and lastly data validation reports.

Should you have any questions or comments please do not hesitate to contact me at (619) 300-4498 or reply directly to this email.

Thanks

Jack

Omega Chemical Corporation Superfund Site - Whittier, CA.
OU2 Groundwater Monitoring and Sampling Event Memorandum – December 2015

The Omega Chemical Corporation Superfund Site (Omega) is a former refrigerant/solvent recycling operation located in Whittier, California. Omega ceased operations by 1991 and U.S. EPA placed the site on the National Priorities List in January 1999. EPA currently oversees site remediation utilizing three operable units (OUs), OU1, OU2, and OU3. OU1 includes the vadose zone soils and shallow groundwater contamination at the former Omega property and immediate proximity. OU3 is composed of indoor air contamination at buildings located in the immediate vicinity of the former Omega property. OU2 is composed of groundwater contamination outside and generally downgradient of OU1, much of which has commingled with chemicals released at other locations into a regional plume containing multiple contaminants. When considered in total, the regional groundwater contamination is more than four miles long and one mile wide.

EPA installed monitoring wells within OU2 and has sampled them periodically since 2008. In addition, other groundwater monitoring wells have been installed at properties located within or adjacent to OU2 and those data have also been incorporated into EPA's database for OU2. In November 2015, at the request of EPA, the Omega PRP Organized Group (OPOG) and McKesson Corporation agreed to perform annual sampling at selected OU2 groundwater monitoring wells. They retained BBC Environmental, Inc. (BBC) to perform the work. The purpose of this groundwater sampling is to continue EPA's program of monitoring changes in the lateral and vertical extent of chemical constituents in groundwater associated with the OU2 regional groundwater contamination.

Project Description

The groundwater monitoring network at OU2 includes 32 well clusters (MW-1 through MW-32) installed by EPA, some with multiple depth screens. In total, there are 63 groundwater monitoring well locations/depths within OU2 that EPA has sampled during periodic monitoring events and included in previous groundwater monitoring reports. Sampling took place between December 14, 2015 and December 21, 2015.

Two groundwater monitoring wells (with multiple screen depths) owned by Water Replenishment District of Southern California (WRD) were also sampled during this event. The Koontz well and the Hawkins well are both located in Santa Fe Springs, California. Each of these wells consists of a cluster of 5 well casings constructed to 5 differing vertical depths offering discrete vertical assessment data.

Sample Collection

The majority of wells were equipped with dedicated bladder pumps and dedicated pump tubing to allow sampling using low-flow techniques. Groundwater purging and sampling was performed in accordance with the *Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2* (QAPP) as developed by CH2M Hill in June 2014 and adopted by EPA in July 2014. The groundwater monitoring and sampling procedures employed by BBC can be found in Appendix B, Field Procedures, of the QAPP.

Calibration checks were performed on equipment daily in accordance with the instrument manufacturer's calibration instructions. The calibration data is recorded in the maintenance log for each instrument used.

Upon arrival at the well head a visual inspection for damage, integrity, and security was initially performed. Any observations regarding damage, integrity, and security were noted on the groundwater sampling field collection log.

Screening for fugitive volatile organic vapors was performed using a photoionization detector (PID) upon access to the well box, and again upon access to the well casing. PID readings were also collected from the breathing zone. PID readings were noted on the groundwater sampling log.

Depth to groundwater was measured at monitoring wells immediately prior to well purging and sampling activities to establish a static groundwater level. Water levels were measured with a decontaminated electronic water level meter capable of measuring depth to water to the nearest 0.01 foot.

Where groundwater levels indicated that 1 foot of water column or less was present within the well casing, the well was categorized as "dry" and no further action was conducted. In wells where the groundwater level was determined to be below the dedicated pump intake, and the dedicated equipment was removable from the well, the sampling system was removed and a "grab" sample was attempted. Grab sampling was performed using a single-use, disposable polyethylene bailer and string. During grab sampling, well recharge was monitored in an effort to identify formational water flow into the well casing. Where sustainable recharge was not observed, the sampling effort was discontinued, and any collected volume of sample aliquot was containerized with other investigation derived waste (IDW) and handled under IDW protocols for the site.

Wells with adequate water column and appropriately placed dedicated sampling systems were purged and sampled using low-flow techniques. Groundwater levels were monitored during purging to minimize drawdown of the water table. A minimum of one tubing volume plus one bladder volume was purged prior to collecting field water quality measurements in an effort to remove any stagnant water contained within the sampling system.

Following removal of the minimum system volume, purge water was routed through a flow cell and continuous measurement of field parameters was performed. Field parameters measured included pH, temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, and turbidity. Field parameters were considered stable when measurement at the last three readings met the established stabilization criteria set in the QAPP. Once the criteria were successfully met, sample collection was initiated.

Sample Analyses

All groundwater samples were analyzed for volatile organic compounds (VOCs), 1,4-dioxane, hexavalent chromium, perchlorate, nitrates, sulfates, and total dissolved solids (TDS). Select wells were additionally analyzed for Bis(2-ethylhexyl)phthalate, dissolved metals (including mercury), alkalinity, chloride and fluoride.

Groundwater samples were analyzed by Test America - Irvine, CA, using the following EPA-approved methods:

- VOCs: SW846 8260B
- 1,4-Dioxane: SW846 8270C SIM
- Hexavalent Chromium: EPA 218.6
- Perchlorate: EPA E314.0
- Nitrate, Sulfate, Chloride and Fluoride: EPA E300.0
- TDS: SM 2540C
- Bis(2-ethylhexyl)phthalate: SW846 8270C
- CAM 17 metals + Aluminum, Manganese, Sodium, Potassium, Calcium, Magnesium and Iron: EPA 200.7/200.8
- Mercury: EPA E245.1
- Alkalinity: SM 2320B

Quality Assurance/Quality Control

Quality Assurance / Quality Control (QA/QC) samples were also collected in accordance with the QAPP. QA/QC samples collected included ambient blanks, equipment blanks, field duplicates, laboratory QC samples (MS/MSD), trip blanks, and temperature blanks.

Sample Labeling, Handling and Custody Requirements

Each sample collected was assigned a unique sample identifier that followed the sample identification convention established for the event. Sample labeling was performed in accordance with the QAPP. Immediately following collection and identification, samples were placed within a zip-lock bag and secured in a cooler with ice. The samples remained in the cooler until transferred under Chain-of-custody protocols to the laboratory representative.

Equipment Decontamination

Equipment decontamination has been minimized by the installation of dedicated sampling systems within wells located in OU2. Portable, non-dedicated equipment (water level meter, etc.) used during monitoring and sampling activities was decontaminated using a standard, three-bucket wash protocol as established in the QAPP.

Discussion

Groundwater elevations continue to drop across the OU2 plume. Between December 2014 and December 2015 the average decrease in groundwater elevation was calculated to be 2.87ft. On average, groundwater levels across the OU2 plume have decreased approximately 16ft since March 2012.

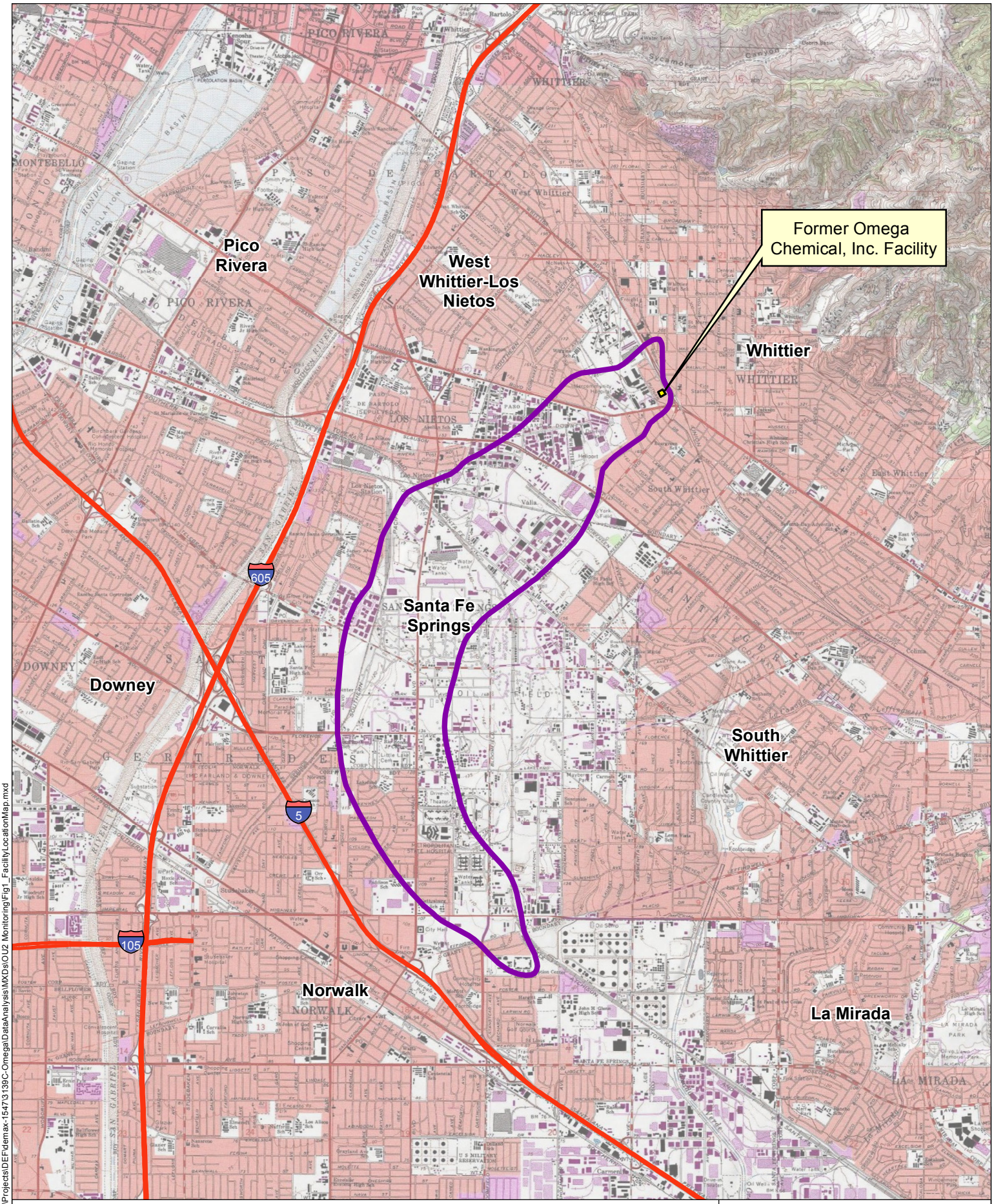
For this sampling event, 45 of the 63 EPA wells were sampled. In general, the 18 wells that did not produce a sample were either dry wells or wells that did not contain sufficient water column to yield a sample.[1] Additionally, 6 of the 45 samples collected were grab sampled due to minimal water column in these wells or a groundwater elevation that was below the pump set depth of the dedicated sampling system.[2]

Laboratory analytical results are included in electronic format for use and reference. Per prior agreement with the Agency no interpretation or analysis of the data is required for this sampling event. Provisions and requirements for future reports will be proposed in the forthcoming Work Area Groundwater Monitoring Workplan (WAMP).

All IDW was containerized within 55-gallon, DOT drums, labeled, and secured at the OU1 remediation compound following the field event. Waste characterization samples will be collected to evaluate handling and disposal requirements of the accumulated fluids

[1] Samples were not collected from the following wells because the wells were categorized as "dry": MW3, MW5, MW6, MW8A, MW9A, MW9B, MW10, MW11, MW12, MW13A, MW16A, MW17A, MW19, MW20A, MW21, MW22, MW25A and MW26A.

[2] Grab samples were taken from the following wells using disposable polyethylene bailers: MW17C, MW25C, MW27A, MW27C, MW28 and MW30.



Former Omega Chemical, Inc. Facility
Operable Unit 2 (OU2) Boundary
Major Highway

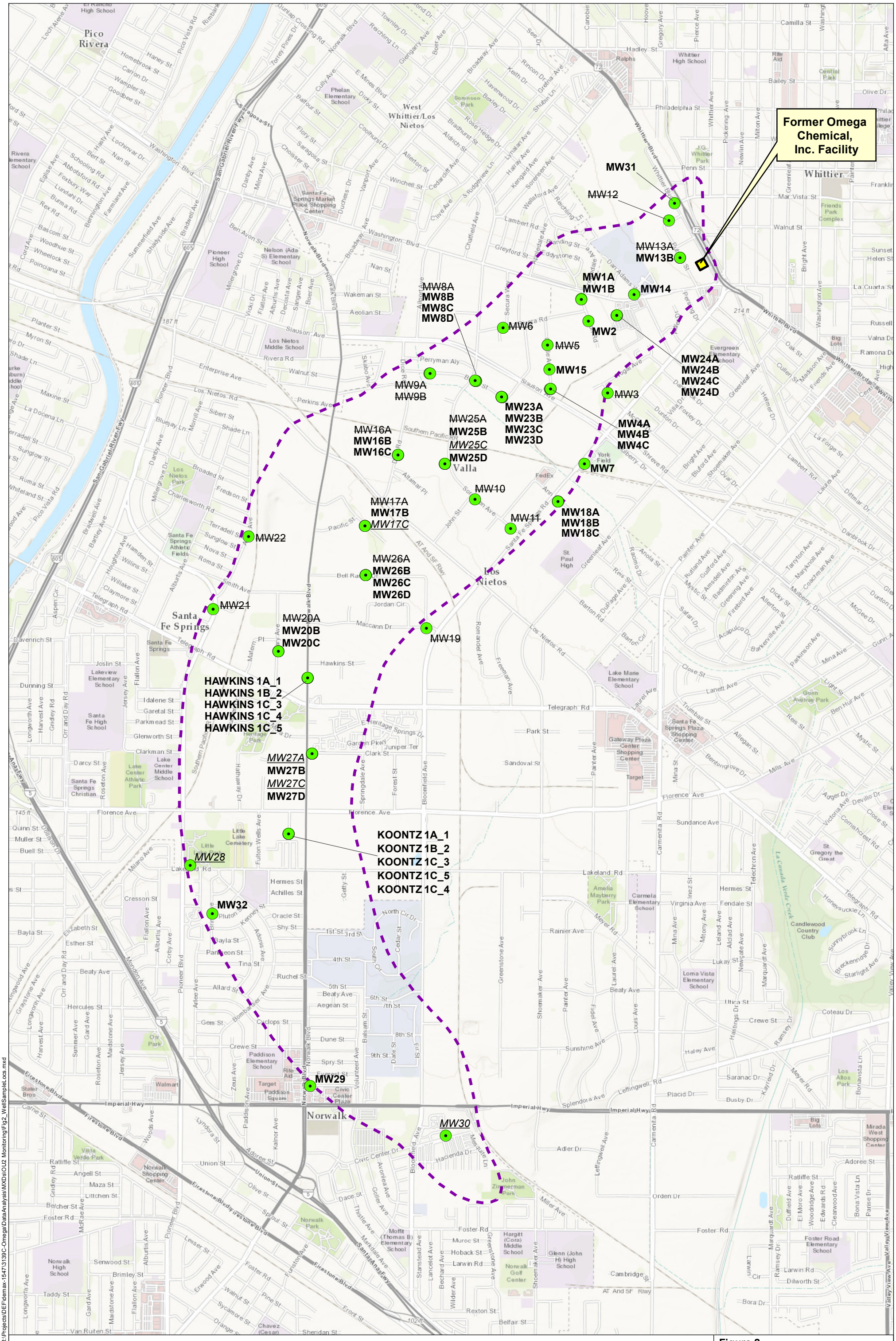
0 0.25 0.5 1 Miles

N

Figure 1
Facility Location Map
Omega Chemical Superfund Site - OU2

ddms
de maximis, inc.

DDMS Server Path: R:\Projects\DEF\demax-1547\3139C-Omega\DataAnalysis\MXDs\OU2 Monitoring\Fig1_FacilityLocationMap.mxd



OU2 Monitoring Wells

Former Omega Chemical, Inc. Facility

OU2 Boundary

Dec 2015 Sampling Event Key:

MW25B: Well sampled via low-flow purge method

MW25C: Well sampled via grab method

~~MW25A~~: Dry well, not sampled

0 500 1,000 2,000 Feet

N

Figure 2
Monitoring Well Locations
Omega Chemical Superfund Site - OU2

ddms de maximis, inc.

DDMS Server Path: R:\Projects\DEF\demax-1547\3139C-Omega\DataAnalysis\MXDs\OU2 Monitoring\Fig2_WellSampleLocs.mxd

Table 1.0
Sample Analytical Matrix
Omega - December 2015 Event

					Q4 2015 Analyses											
					Base Analyte List						Expanded Analyte List					
Location ID	Depth to Water (ft)	Previous Depth to Water (ft) Dec 2014	Sample ID	Sample Type	VOCs (8260B)	1,4-Dioxane (8270C SIM)	Chromium VI (218.6)	Nitrate/Sulfate (300.0)	Perchlorate (314.0)	TDS (SM 2540C)	Bis(2-ethylhexyl)phthalate (8270C)	Alkalinity (2320A)	Metals - CAM 17 + Al, Mn, Na, K, Ca, Mg, Fe (200.8)	Mercury (E245.1)	Chloride/Fluoride (300.0)	Note
MW1A	55.29	52.05	OC2-MW1A-W-0-20151221	N	x	x	x	x	x	x						
MW1B	55.15	51.99	OC2-MW1B-W-0-20151221	N												
			OC2-MW1B-W-1-20151221	FD	x	x	x	x	x	x						
MW2	51.29	47.95	OC2-MW2-W-0-20151221	N	x	x	x	x	x	x						
MW3	---	42.72	DTW below Pump Set Depth; Pump head sealed, could not remove pump for grab sample	Not Sampled												
MW4A	44.56	41.80	OC2-MW4A-W-0-20151218	N	x	x	x	x	x	x						
MW4B	44.85	41.83	OC2-MW4B-W-0-20151218	N	x	x	x	x	x	x						
MW4C	49.50	46.27	OC2-MW4C-W-0-20151218	N	x	x	x	x	x	x						
MW5	---	46.30	DTW below Pump Set Depth; Pump head sealed, could not remove pump for grab sample	Not Sampled												
MW6	---	46.40	Dry	Not Sampled												
MW7	39.14	36.14	OC2-MW7-W-0-20151217	N	x	x	x	x	x	x						
			OC2-MW7-W-3-20151217	EB	x	x	x	x	x	x						
MW8A	---	59.20	Dry	Not Sampled												
MW8B	50.35	49.23	OC2-MW8B-W-0-20151217	N	x	x	x	x	x	x						
MW8C	52.42	47.39	OC2-MW8C-W-0-20151217	N	x	x	x	x	x	x						
MW8D	63.16	44.69	OC2-MW8D-W-0-20151217	N	x	x	x	x	x	x						
MW9A	---	34.57	Dry	Not Sampled												
MW9B	---	52.99	DTW below Pump Set Depth; Pump head sealed, could not remove pump for grab sample	Not Sampled												
MW10	---	55.31	Dry	Not Sampled												
MW11	---	49.92	Dry	Not Sampled												
MW12	---	96.60	Dry	Not Sampled												
MW13A	---	70.22	Dry; no dedicated line or pump in well.	Not Sampled												
MW13B	107.01	103.30	OC2-MW13B-W-0-20151221	N	x	x	x	x	x	x						
MW14	67.06	63.69	OC2-MW14-W-0-20151218	N	x	x	x	x	x	x						
MW15	45.55	42.66	OC2-MW15-W-0-20151217	N	x	x	x	x	x	x						
MW16A	---	60.74	Dry	Not Sampled												
MW16B	78.75	75.13	OC2-MW16B-W-0-20151217	N	x	x	x	x	x	x						
MW16C	81.87	78.15	OC2-MW16C-W-0-20151217	N	x	x	x	x	x	x						
MW17A	---	75.36	Dry	Not Sampled												
MW17B	94.45	91.46	OC2-MW17B-W-0-20151215	N	x	x	x	x	x	x						
MW17C	109.92	106.74	OC2-MW17C-W-0-20151215	N	x	x	x	x	x	x						Grab Sample
MW18A	49.02	45.22	OC2-MW18A-W-0-20151221	N	x	x	x	x	x	x						
			OC2-MW18A-W-5-20151221	MS/MSD	x	x	x	x	x	x						
MW18B	48.94	45.11	OC2-MW18B-W-0-20151221	N	x	x	x	x	x	x						
MW18C	52.74	45.22	OC2-MW18C-W-0-20151221	N	x	x	x	x	x	x						
MW19	---	73.91	Dry	Not Sampled												
MW20A	---	89.30	Dry	Not Sampled												
MW20B	100.70	97.64	OC2-MW20B-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
			OC2-MW20B-W-1-20151216	FD	x	x	x	x	x	x	x	x	x	x	x	
MW20C	119.66	118.00	OC2-MW20C-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
MW21	80.84	79.05	Dry	N												
MW22	92.92	88.61	Dry	N												
MW23A	48.87	46.10	OC2-MW23A-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
			OC2-MW23A-W-1-20151216	FD	x	x	x	x	x	x	x	x	x	x	x	
			OC2-MW23A-W-5-20151216	MS/MSD	x	x	x	x	x	x	x	x	x	x	x	
MW23B	52.43	49.05	OC2-MW23B-W-0-20151217	N	x	x	x	x	x	x	x	x	x	x	x	
MW23C	59.88	56.00	OC2-MW23C-W-0-20151217	N	x	x	x	x	x	x	x	x	x	x	x	
MW23D	60.82	56.78	OC2-MW23D-W-0-20151217	N	x	x	x	x	x	x	x	x	x	x	x	
MW24A	57.83	54.21	OC2-MW24A-W-0-20151218	N	x	x	x	x	x	x						
MW24B	67.55	63.65	OC2-MW24B-W-0-20151218	N	x	x	x	x	x	x						

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MW24C	67.83	63.88	OC2-MW24C-W-0-20151218	N	x	x	x	x	x	x						
MW24D	68.67	64.69	OC2-MW24D-W-0-20151218	N	x	x	x	x	x	x						
MW25A	---	61.63	Dry	Not Sampled												
MW25B	66.17	62.40	OC2-MW25B-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
MW25C	70.62	66.76	OC2-MW25C-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	Grab Sample
MW25D	94.38	91.33	OC2-MW25D-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
MW26A	---	89.54	Dry	Not Sampled												
MW26B	97.04	93.60	OC2-MW26B-W-0-20151215	N	x	x	x	x	x	x						
			OC2-MW26B-W-1-20151215	FD	x	x	x	x	x	x						
MW26C	111.42	108.29	OC2-MW26C-W-0-20151215	N	x	x	x	x	x	x						
MW26D	114.29	110.90	OC2-MW26D-W-0-20151215	N	x	x	x	x	x	x						
MW27A	106.58	102.55	OC2-MW27A-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	Grab Sample
MW27B	106.43	102.50	OC2-MW27B-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
MW27C	114.24	112.55	OC2-MW27C-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	Grab Sample
MW27D	124.75	123.73	OC2-MW27D-W-0-20151216	N	x	x	x	x	x	x	x	x	x	x	x	
MW28	101.62	98.95	OC2-MW28-W-0-20151215	N	x	x	x	x	x	x						Grab Sample
MW29	99.27	96.95	OC2-MW29-W-0-20151215	N	x	x	x	x	x	x						
MW30	109.70	101.31	OC2-MW30-W-0-20151215	N	x	x	x	x	x	x						Grab Sample
MW31	107.97	104.85	OC2-MW31-W-0-20151221	N	x	x	x	x	x	x						
MW32	104.30	105.16	OC2-MW32-W-0-20151215	N	x	x	x	x	x	x						
			OC2-MW32-W-1-20151215	FD	x	x	x	x	x	x						
Hawkins 1A_1	117.03	---	OC2-Hawkins 1A_1-W-0-20151214	N	x	x	x	x	x	x						
Hawkins 1B_2	121.13	---	OC2-Hawkins 1B_2-W-0-20151214	N	x	x	x	x	x	x						
Hawkins 1C_3	122.71	---	OC2-Hawkins 1C_3-W-0-20151214	N	x	x	x	x	x	x						
Hawkins 1C_4	121.25	---	OC2-Hawkins 1C_4-W-0-20151214	N	x	x	x	x	x	x						
			OC2-Hawkins 1C_4-W-1-20151214	FD	x	x	x	x	x	x						
Hawkins 1C_5	120.99	---	OC2-Hawkins 1C_5-W-0-20151214	N	x	x	x	x	x	x						
Koontz 1A_1	124.41	---	OC2-Koontz 1A_1-W-0-20151214	N	x	x	x	x	x	x						
Koontz 1B_2	134.19	---	OC2-Koontz 1B_2-W-0-20151214	N	x	x	x	x	x	x						
Koontz 1C_3	128.31	---	OC2-Koontz 1C_3-W-0-20151214	N	x	x	x	x	x	x						
Koontz 1C_4	126.08	---	OC2-Koontz 1C_4-W-0-20151214	N	x	x	x	x	x	x						
			OC2-Koontz 1C_4-W-1-20151214	FD	x	x	x	x	x	x						
Koontz 1C_5	112.03	---	OC2-Koontz 1C_5-W-0-20151214	N	x	x	x	x	x	x						

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER CALIFORNIA

Volatile Organics in Water

Laboratory Job Nos.
440-130859-1
440-130989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed
By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

1547-3139C/jlr
Omega\Voa.docx

EXECUTIVE SUMMARY

Validation of the volatile organic data prepared by Test America for 72 ground water samples and three trip blanks from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on eight samples (**bolded below**), which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos 440-130859-1, 440-130989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

OC2- KOONTZ-1A_1-W-0-20151214
OC2-KOONTZ-1C_3-W-0-20151214
OC2-KOONTZ -1C_4-W-1-20151214
OC2-KOONTZ-W-2-20151214
OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-W-1-20151214
OC2-Hawkins-1B_2-W-0-20151214

OC2-KOONTZ-1B_2-W-0-20151214
OC2-KOONTZ-1C_4-W-0-20151214
OC2-KOONTZ-1C_5-W-0-20151214
OC2-KOONTZ-W-4-20151214
OC2-Hawkins-1C_4-W-0-20151214
OC2-Hawkins-1C_5-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214

OC2-MW28-W-0-20151215
OC2-MW26B-W-1-20151215
OC2-MW26C-W-0-20151215
OC2-MW26B-W-2-20151215
OC2-MW32-W-0-20151215
OC2-MW32-W-4-20151215
OC2-MW32-W-1-20151215

OC2-MW30-W-0-20151215
OC2-MW26B-W-0-20151215
OC2-MW26D-W-0-20151215
OC2-MW29-W-0-20151215
OC2-MW17B-W-0-20151215
OC2-MW17C-W-0-20151215

OC2-MW27A-W-0-20151216
OC2-MW-27C-W-0-20151216
OC2-MW-25C-W-0-20151216
OC2-MW20C-W-0-20151216
OC2-MW25D-W-0-20151216
OC2-MW23A-W-1-20151216
OC2-MW23A-W-4-20151216

OC2-MW27B-W-0-20151216
OC2-MW-27D-W-0-20151216
OC2-MW25B-W-0-20151216
OC2-MW20B-W-0-20151216
OC2-MW23A-W-0-20151216
OC2-MW23A-W-2-20151216
OC2-MW20B-W-1-20151216

OC2-MW23B-W-0-20151217
OC2-MW23D-W-0-20151217
OC2-MW7-W-2-20151217
OC2-TB-W-4-20151217
OC2-MW8B-W-0-20151217
OC2-MW16C-W-0-20151217
OC2-MW15-W-0-20151217

OC2-MW23C-W-0-20151217
OC2-MW7-W-0-20151217
OC2-MW7-W-3-20151217
OC2-MW8D-W-0-20151217
OC2-MW8C-W-0-20151217
OC2-MW16B-W-0-20151217

OC2-MW04B-W-0-20151218
OC2-MW04A-W-0-20151218

OC2-MW04C-W-0-20151218
OC2-MW24A-W-0-20151218

OC2-MW24B-W-0-20151218	OC2-MW24C-W-0-20151218
OC2-MW24D-W-0-20151218	OC2-MW14-W-0-20151218
OC2-MW14-W-2-20151218	OC2-TB-W-4-20151218
OC2-MW18A-W-0-20151221	OC2-MW18B-W-0-20151221
OC2-MW18C-W-0-20151221	OC2-MW13B-W-0-20151221
OC2-TB-W-4-20151221	OC2-MW31-W-0-20151221
OC2-MW1A-W-0-20151221	OC2-MW1B-W-0-20151221
OC2-MW1B-W-1-20151221	OC2-MW2-W-0-20151221
OC2-MW18C-W-2-20151221	

Based on the validation effort, the following data qualifiers were applied:

- The result for isopropanol in all samples and acetone in OC2-MW26B-W-2-20151215 were qualified as estimated (J+, UJ).

- The results for dichlorodifluoromethane in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217 and OC2-MW15-W-0-20151217 were qualified as estimated (UJ).

- The result for trans-1,2-dichloroethene in OC2-MW20B-W-1-20151216 was qualified as not detected (U) at the reporting limit (RL).

- The results for methyl acetate and methyl cyclohexane in all samples were qualified as estimated (J, UJ).

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section XIV). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section XIII.

This report should be considered <u>part of the data package</u> for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA SW846 Method 8260B. These methodologies do not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Organic Data Review" (Rev. 06/08). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and December 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The case narratives indicate the samples were properly preserved, but provided no documentation of the actual pH of each sample. The validation was performed under the assumption the samples were properly preserved. The samples were analyzed on December 18, 19, 21, 22, 24 and 29, 2015 and January 4, 2016, all within hold time.

II. GC/MS Instrument Performance Check

Summary forms were provided for 23 bromofluorobenzene (BFB) instrument performance checks in support of sample analyses. All of the performance checks associated with samples receiving full validation were fully documented and were acceptable.

III. Calibration

A. Initial Calibration (IC)

Summary results for 12 initial calibrations (ICs) were reported in support of the sample analyses:

- GCMS09 – 8/1/2015, 8/12/2015, 11/28/2015
- GCMS59 – 11/3/2015, 11/4/2015, 11/19/2015
- GCMS36 – 10/10/2015, 12/5/2015
- GCMS58 – 9/29/2015, 12/18/2015
- GCMS31 – 11/4/2015, 12/21/2015

Although more compounds than were specifically applicable to these analyses were reported, only project-specified target analytes were reviewed. Documentation of all of the individual IC standards was present in the data package and relative response factors (RRFs) as well as percent relative standard deviation (%RSD) values were accurately reported. All reported %RSD values were below the maximum acceptance limit of 15 percent as defined in the analytical method and project-specific QAPP. Correlation coefficients were acceptable (>0.99). All average RRF values were acceptable.

Initial calibration verifications (ICVs) associated with the full validation effort were performed and percent differences (%D) were acceptable with the following exceptions:

- GCMS59 – acetone (26%), 2-butanone (34%), methyl isobutyl ketone (21%)
- GCMS09 – methyl isobutyl ketone (25%), 2-hexanone (28.8%)
- GCMS58 – methyl isobutyl ketone (28%), 2-hexanone (23%)
- GCMS31 – 2-butanone (33%), methyl isobutyl ketone (40%), 2-hexanone (39%)

Since the recoveries of acetone, 2-butanone, ethyl isobutyl ketone and 2-hexanone were biased high, and the compound was not detected in the associated samples, no qualification of sample results was warranted.

B. Continuing Calibration (CC)

Six continuing calibration (CC) standards were run in support of the sample analyses. Documentation was present in the data package, and the percent differences (%Ds) were acceptable (<20%D) with the following exceptions:

- Methylene chloride (33%) in the CC run on December 18, 2015, on instrument 'GCMS59'.
- Methyl isobutyl ketone (28%) and 2-hexanone (23%) in the CC run on December 19, 2015 on instrument GCMS36.
- Acetone (-22%) in the CC run on GCMS58 on December 18, 2015.
- trans-1,2-Dichloropropene in the CC run on GCMS58 on December 29, 2015.
- Acetone (31%) in the CC run on GCMS59 on January 4, 2016.

In all instances listed above, with the exception of acetone in the CC run on GCMS58 on 12/18/2015, the %D represents an increase in instrument sensitivity and these compounds were not detected in the associated samples. No qualification of sample results was warranted. Acetone was not reported in the samples associated with the low response for acetone in CC run on GCMS58 on 12/18/2015, and no qualification was warranted.

IV. Blanks

A laboratory method blank was analyzed each day of sample analysis and two trip blanks were submitted with these samples. No target compounds were detected in either the method or trip blanks.

V. Surrogate Compound Recovery

Recoveries of all of the surrogate compounds were correctly calculated, accurately reported, and within acceptance limits.

VI. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on the following site samples:

- OC2-KOONTZ-1A_1-W-0-20151214
- OC2-MW28-W-0-20151215
- OC2-MW23A-W-0-20151216
- OC2-MW23C-W-0-20151217
- OC2-MW24A-W-0-20151218
- OC2-MW18A-W-0-20151221

All percent recoveries and relative percent differences (RPD) were acceptable with the following exceptions:

- Tetrachloroethene (-32% / -8% R) in the MS/MSD performed on OC2-MW23A-W-0-20151216 and tetrachloroethene (30 %R) in the MS/MSD performed on OC2-MW23C-W-0-20151217. In both parent samples, the concentration of tetrachloroethene was more than four times the concentration spiked in the MS/MSD and a meaningful recovery is not expected. No qualification of sample results was warranted.

- Acetone (131 %R in MS), 2-butanone (133 %R in MS) and methyl isobutyl ketone (141 / 142 %R) in the MS/MSD performed on OC2-MW28-W-0-20151215. The results for acetone, 2-butanone and methyl isobutyl ketone in the associated samples were non-detect and no qualification was warranted based on the high MS and/or MSD recoveries.

- Dichlorodifluoromethane (69 %R in the MS) in the MS/MSD performed on OC2-MW23C-W-0-2015121. The results for dichlorodifluoromethane in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217 and OC2-MW15-W-0-20151217 were qualified as estimated (UJ) due to low MS recovery.

- 1,1-Dichloroethene (41% / 46 %R), tetrachloroethene (43% / 55 %R) and 1,1,2-trichoro-1,2,2-trifluoroethane (40 / 30 %R) in the MS/MSD performed on OC2-MW24A-W-0-20151218. The concentrations of 1,1-dichloroethene, tetrachloroethene and 1,1,2-trichoro-1,2,2-trifluoroethane in the parent sample were more than four times the concentration spiked in the MS/MSD and a meaningful recoveries are not expected. No qualification of sample results was warranted.

The laboratory did not report MS/MSD spike results for isopropanol. As a result, there is no recovery data for these compounds and any matrix effect cannot be determined.

B. Blank Spike

A blank spike was reported for each day of sample analysis. All percent recoveries were acceptable with the exception of acetone (135% R) in the LCS analyzed on December 18, 2015, on instrument GCMS59. The result for acetone in OC2-MW26B-W-2-20151215 was qualified as estimated (J+) due to high LCS recovery.

The laboratory did not report LCS spike results for isopropanol. The results for isopropanol in all samples were qualified as estimated (J, UJ) because the laboratory has not proven they can acceptably recover the compound by this method.

VII. Field Duplicate

Seven sets of field duplicates were submitted:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

The result for trans-1,2-dichloroethene in OC2-MW20B-W-1-20151216 was qualified as not detected (U) at the RL because it was not detected in the paired sample. Following this qualification, precision between paired samples, in all other sets of field duplicates was acceptable.

VIII. Internal Standard Performance

All internal standard areas and retention times were within quality control limits for the applicable analyses.

IX. Target Compound Identification

An acceptable mass spectrum was provided for each target analyte detected in the samples receiving full validation with the exception of 1,2-dichloroethane in OC2-MW13B-W-0-20151221. The result for 1,2-dichloroethane in OC2-MW13B-W-0-20151221 was qualified as not detected (U) at the RL due to poor spectral match.

The laboratory did not calibrate for methyl acetate and methyl cyclohexane. These compounds were reported as tentatively identified compounds (TICs). The results for methyl acetate and methyl cyclohexane in all samples were qualified as estimated (J, UJ) and the reporting limits were estimated on this basis.

X. Compound Quantitation and Reporting Limits

Target compound concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort. Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section III).

The laboratory's reporting limits for acetone, benzene, carbon tetrachloride, cyclohexane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,4-dichlorobenzene, isopropanol and 1,1,2-trichloro-1,2,2-trifluoroethane are above the reporting limits specified in Table 2-2A of the site specific QAPP.

XI. Tentatively Identified Compounds (TIC)

Non-target compounds were not part of the analytical requirement.

XII. System Performance

The analytical system appears to have been working satisfactorily at the time of these analyses, based on evaluation of the available raw data.

XIII. Documentation

No documentation issues were observed during the validation of these data:

XIV. Overall Assessment

Based on the validation effort, the following qualifiers were applied:

- The results for dichlorodifluoromethane in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217 and OC2-MW15-W-0-20151217 were qualified as estimated (UJ) due to low MS recovery.

- The result for acetone in OC2-MW26B-W-2-20151215 was qualified as estimated (J+) due to high LCS recovery.

- The results for isopropanol in all samples were qualified as estimated (J, UJ) because the laboratory has not proven they can acceptably recover the compound by this method.

- The result for trans-1,2-dichloroethene in OC2-MW20B-W-1-20151216 was qualified as not detected (U) at the RL because it was not detected in the paired sample.

- The results for methyl acetate and methyl cyclohexane in all samples were qualified as estimated (J, UJ) because the laboratory was not calibrated for these compounds and reported them as TICs.

All other results were determined to be valid as reported.

Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Volatiles in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-1		440-130859-2		440-130859-3		440-130859-4	
		DF	1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l					0.37 J		0.70	
1,1-Dichloroethene	0.50	ug/l					4.1		5.0	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l								
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l								
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l					3.6		7.6	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l								
Freon 113	2.0	ug/l								
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l					2.0			
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l							3.3	
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l					25		2.4	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-5		440-130859-6		440-130859-7	
DF			1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l						
1,1,2,2-Tetrachloroethane	0.50	ug/l						
1,1,2-Trichloroethane	0.50	ug/l						
1,1-Dichloroethane	0.50	ug/l	0.74		14			
1,1-Dichloroethene	0.50	ug/l	5.6		120			
1,2,3-Trichlorobenzene	1.0	ug/l						
1,2,4-Trichlorobenzene	1.0	ug/l						
1,2-Dibromo-3-chloropropane	1.0	ug/l						
1,2-Dibromoethane (EDB)	0.50	ug/l						
1,2-Dichlorobenzene	0.50	ug/l						
1,2-Dichloroethane	0.50	ug/l			2.8			
1,2-Dichloropropane	0.50	ug/l						
1,3-Dichlorobenzene	0.50	ug/l						
1,4-Dichlorobenzene	0.50	ug/l						
2-Hexanone	5.0	ug/l						
Acetone	20	ug/l						
Benzene	0.50	ug/l						
Bromochloromethane	0.50	ug/l						
Bromodichloromethane	0.50	ug/l						
Bromoform	1.0	ug/l						
Bromomethane	0.50	ug/l						
Carbon disulfide	1.0	ug/l						
Carbon tetrachloride	0.50	ug/l						
Chlorobenzene	0.50	ug/l						
Chloroethane	1.0	ug/l						
Chloroform	0.50	ug/l						
Chloromethane	0.50	ug/l						
cis-1,2-Dichloroethene	0.50	ug/l	7.9		44			
cis-1,3-Dichloropropene	0.50	ug/l						
Cyclohexane	2.0	ug/l						
Dibromochloromethane	0.50	ug/l						
Ethylbenzene	0.50	ug/l						
Freon 11	0.50	ug/l						
Freon 113	2.0	ug/l			1.0 J			
Freon 12	0.50	ug/l						
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l						
Methyl acetate		ug/l		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l						
Methyl isobutyl ketone	5.0	ug/l						
Methyl Tert-Butyl Ether	0.50	ug/l						
Methylcyclohexane		ug/l		UJ		UJ		UJ
Methylene chloride	2.0	ug/l						
Styrene	0.50	ug/l						
Tetrachloroethene (PCE)	0.50	ug/l			23			
Toluene	0.50	ug/l						
Total Xylenes	1.0	ug/l						
trans-1,2-Dichloroethene	0.50	ug/l	3.7		0.64			
trans-1,3-Dichloropropene	0.50	ug/l						
Trichloroethene (TCE)	0.50	ug/l	2.6		260			
Vinyl chloride	0.50	ug/l						

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-W-4-20151214		OC2-HAWKINS-1C_3-W-0-20151214		OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-8		440-130859-9		440-130859-10		440-130859-11	
DF			1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l								
1,1-Dichloroethene	0.50	ug/l								
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l								
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l								
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l								
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l								
Freon 113	2.0	ug/l								
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l								
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l								
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214		OC2-HAWKINS-1A_1-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-12		440-130859-13		440-130859-14	
DF			1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l						
1,1,2,2-Tetrachloroethane	0.50	ug/l						
1,1,2-Trichloroethane	0.50	ug/l						
1,1-Dichloroethane	0.50	ug/l	8.6					
1,1-Dichloroethene	0.50	ug/l	47					
1,2,3-Trichlorobenzene	1.0	ug/l						
1,2,4-Trichlorobenzene	1.0	ug/l						
1,2-Dibromo-3-chloropropane	1.0	ug/l						
1,2-Dibromoethane (EDB)	0.50	ug/l						
1,2-Dichlorobenzene	0.50	ug/l						
1,2-Dichloroethane	0.50	ug/l	1.2					
1,2-Dichloropropane	0.50	ug/l						
1,3-Dichlorobenzene	0.50	ug/l						
1,4-Dichlorobenzene	0.50	ug/l						
2-Hexanone	5.0	ug/l						
Acetone	20	ug/l						
Benzene	0.50	ug/l						
Bromochloromethane	0.50	ug/l						
Bromodichloromethane	0.50	ug/l						
Bromoform	1.0	ug/l						
Bromomethane	0.50	ug/l						
Carbon disulfide	1.0	ug/l						
Carbon tetrachloride	0.50	ug/l						
Chlorobenzene	0.50	ug/l						
Chloroethane	1.0	ug/l						
Chloroform	0.50	ug/l						
Chloromethane	0.50	ug/l						
cis-1,2-Dichloroethene	0.50	ug/l	32					
cis-1,3-Dichloropropene	0.50	ug/l						
Cyclohexane	2.0	ug/l						
Dibromochloromethane	0.50	ug/l						
Ethylbenzene	0.50	ug/l						
Freon 11	0.50	ug/l						
Freon 113	2.0	ug/l						
Freon 12	0.50	ug/l						
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l						
Methyl acetate		ug/l		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l						
Methyl isobutyl ketone	5.0	ug/l						
Methyl Tert-Butyl Ether	0.50	ug/l						
Methylcyclohexane		ug/l		UJ		UJ		UJ
Methylene chloride	2.0	ug/l						
Styrene	0.50	ug/l						
Tetrachloroethene (PCE)	0.50	ug/l	27					
Toluene	0.50	ug/l						
Total Xylenes	1.0	ug/l						
trans-1,2-Dichloroethene	0.50	ug/l	9.9					
trans-1,3-Dichloropropene	0.50	ug/l						
Trichloroethene (TCE)	0.50	ug/l	48					
Vinyl chloride	0.50	ug/l	1.4					

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-1-20151215		OC2-MW26B-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-1		440-130989-2		440-130989-3		440-130989-4	
DF			1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l					0.60		0.78	
1,1-Dichloroethene	0.50	ug/l					7.1		9.0	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l			0.93					
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l					0.76		0.85	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l					1.5		1.9	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l					2.6		2.9	
Freon 113	2.0	ug/l					5.5		5.8	
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	0.69				39		45	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	1.4				19		22	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8	
DF			1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l								
1,1-Dichloroethene	0.50	ug/l	11		0.47 J					
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l								
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l					12	J+		
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	0.87							
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	1.8		0.61					
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	10							
Freon 113	2.0	ug/l	23							
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	40		1.7					
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	48		3.5					
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-130989-1		440-130989-1		440-130989-1		440-130989-1	
		Field Sample ID	OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW32-W-4-20151215		OC2-MW17C-W-0-20151215	
		Sample Date	12/15/2015		12/15/2015		12/15/2015		12/15/2015	
		Lab Sample ID	440-130989-9		440-130989-10		440-130989-11		440-130989-12	
		DF	1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l	6.7		4.4					
1,1-Dichloroethene	0.50	ug/l	29		65					
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l	0.94		1.7					
1,2-Dichloropropane	0.50	ug/l	1.4							
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	3.3		15					
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	14		11					
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	5.8		19					
Freon 113	2.0	ug/l	14		44					
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	52		130				0.30 J	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	50		68				0.69	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

	Lab SDG		440-130989-1	
	Field Sample ID		OC2-MW32-W-1-20151215	
	Sample Date		12/15/2015	
	Lab Sample ID		440-130989-13	
	DF		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l		
1,1,2,2-Tetrachloroethane	0.50	ug/l		
1,1,2-Trichloroethane	0.50	ug/l		
1,1-Dichloroethane	0.50	ug/l	6.8	
1,1-Dichloroethene	0.50	ug/l	27	
1,2,3-Trichlorobenzene	1.0	ug/l		
1,2,4-Trichlorobenzene	1.0	ug/l		
1,2-Dibromo-3-chloropropane	1.0	ug/l		
1,2-Dibromoethane (EDB)	0.50	ug/l		
1,2-Dichlorobenzene	0.50	ug/l		
1,2-Dichloroethane	0.50	ug/l	1.0	
1,2-Dichloropropane	0.50	ug/l	1.4	
1,3-Dichlorobenzene	0.50	ug/l		
1,4-Dichlorobenzene	0.50	ug/l		
2-Hexanone	5.0	ug/l		
Acetone	20	ug/l		
Benzene	0.50	ug/l		
Bromochloromethane	0.50	ug/l		
Bromodichloromethane	0.50	ug/l		
Bromoform	1.0	ug/l		
Bromomethane	0.50	ug/l		
Carbon disulfide	1.0	ug/l		
Carbon tetrachloride	0.50	ug/l		
Chlorobenzene	0.50	ug/l		
Chloroethane	1.0	ug/l		
Chloroform	0.50	ug/l	3.4	
Chloromethane	0.50	ug/l		
cis-1,2-Dichloroethene	0.50	ug/l	15	
cis-1,3-Dichloropropene	0.50	ug/l		
Cyclohexane	2.0	ug/l		
Dibromochloromethane	0.50	ug/l		
Ethylbenzene	0.50	ug/l		
Freon 11	0.50	ug/l	5.6	
Freon 113	2.0	ug/l	13	
Freon 12	0.50	ug/l		
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ
Isopropylbenzene	0.50	ug/l		
Methyl acetate		ug/l		UJ
Methyl ethyl ketone	5.0	ug/l		
Methyl isobutyl ketone	5.0	ug/l		
Methyl Tert-Butyl Ether	0.50	ug/l		
Methylcyclohexane		ug/l		UJ
Methylene chloride	2.0	ug/l		
Styrene	0.50	ug/l		
Tetrachloroethene (PCE)	0.50	ug/l	50	
Toluene	0.50	ug/l		
Total Xylenes	1.0	ug/l		
trans-1,2-Dichloroethene	0.50	ug/l		
trans-1,3-Dichloropropene	0.50	ug/l		
Trichloroethene (TCE)	0.50	ug/l	50	
Vinyl chloride	0.50	ug/l		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID		ample	OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216	
Sample Date		ple_	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID		samp	440-131235-1		440-131235-2		440-131235-3		440-131235-4	
DF		on_f	1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l	3.2		4.2				2.8	
1,1-Dichloroethene	0.50	ug/l	34		60		1.1		39	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l	0.73		0.77					
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l	0.48	J						
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l								
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	13		150		1.5		20	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l	83							
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l								
Freon 113	2.0	ug/l	2.0							
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	10	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l	84	JN		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	63		0.60				0.40	J
Toluene	0.50	ug/l					0.98			
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l	15		6.0				0.85	
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	66		73		1.9		58	
Vinyl chloride	0.50	ug/l	1.1							

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG Field Sample ID Sample Date Lab Sample ID DF		ample ple_ samp on_f	440-131235-1 OC2-MW-25C-W-0-20151216 12/16/2015 440-131235-5 1		440-131235-1 OC2-MW25B-W-0-20151216 12/16/2015 440-131235-6 2	
1,1,1-Trichloroethane (TCA)	0.50	ug/l				
1,1,2,2-Tetrachloroethane	0.50	ug/l				
1,1,2-Trichloroethane	0.50	ug/l				
1,1-Dichloroethane	0.50	ug/l			0.86	J
1,1-Dichloroethene	0.50	ug/l			190	
1,2,3-Trichlorobenzene	1.0	ug/l				
1,2,4-Trichlorobenzene	1.0	ug/l				
1,2-Dibromo-3-chloropropane	1.0	ug/l				
1,2-Dibromoethane (EDB)	0.50	ug/l				
1,2-Dichlorobenzene	0.50	ug/l				
1,2-Dichloroethane	0.50	ug/l			4.2	
1,2-Dichloropropane	0.50	ug/l				
1,3-Dichlorobenzene	0.50	ug/l				
1,4-Dichlorobenzene	0.50	ug/l				
2-Hexanone	5.0	ug/l				
Acetone	20	ug/l				
Benzene	0.50	ug/l				
Bromochloromethane	0.50	ug/l				
Bromodichloromethane	0.50	ug/l				
Bromoform	1.0	ug/l				
Bromomethane	0.50	ug/l				
Carbon disulfide	1.0	ug/l				
Carbon tetrachloride	0.50	ug/l				
Chlorobenzene	0.50	ug/l				
Chloroethane	1.0	ug/l				
Chloroform	0.50	ug/l			44	
Chloromethane	0.50	ug/l				
cis-1,2-Dichloroethene	0.50	ug/l			9.0	
cis-1,3-Dichloropropene	0.50	ug/l				
Cyclohexane	2.0	ug/l				
Dibromochloromethane	0.50	ug/l				
Ethylbenzene	0.50	ug/l				
Freon 11	0.50	ug/l			70	
Freon 113	2.0	ug/l			190	
Freon 12	0.50	ug/l				
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ
Isopropylbenzene	0.50	ug/l				
Methyl acetate		ug/l		UJ		UJ
Methyl ethyl ketone	10	ug/l				
Methyl isobutyl ketone	5.0	ug/l				
Methyl Tert-Butyl Ether	0.50	ug/l			0.63 J	
Methylcyclohexane		ug/l		UJ		UJ
Methylene chloride	2.0	ug/l				
Styrene	0.50	ug/l				
Tetrachloroethene (PCE)	0.50	ug/l	0.47	J	360	
Toluene	0.50	ug/l				
Total Xylenes	1.0	ug/l				
trans-1,2-Dichloroethene	0.50	ug/l				
trans-1,3-Dichloropropene	0.50	ug/l				
Trichloroethene (TCE)	0.50	ug/l	0.27 J	J	200	
Vinyl chloride	0.50	ug/l				

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216		OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-7		440-131235-8		440-131235-9		440-131235-10	
		DF	1		1		1		2	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l	4.0		11					
1,1-Dichloroethene	0.50	ug/l	29		81		0.56		21	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l	0.87		2.3					
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l			14				2.2	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	24		20				19	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l			21				13	
Freon 113	2.0	ug/l			59		0.98	J	21	
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	10	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	2.9		140		2.8		380	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	51		97		1.6		22	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216		OC2-MW23A-W-4-20151216		OC2-MW20B-W-1-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-11		440-131235-12		440-131235-13		440-131235-14	
		DF	2		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l							11	
1,1-Dichloroethene	0.50	ug/l	19						75	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l							2.4	
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	2.4						14	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	17						20	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	12						21	
Freon 113	2.0	ug/l	19						57	
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								UJ
Methyl acetate		ug/l		UJ		UJ		UJ		
Methyl ethyl ketone	10	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								UJ
Methylcyclohexane		ug/l		UJ		UJ		UJ		
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	310						140	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								U
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	21						99	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUONDWATERS

		Lab SDG	440-131363-1		440-131363-1		440-131363-1		440-131363-1	
		Field Sample ID	OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217	
		Sample Date	12/17/2015		12/17/2015		12/17/2015		12/17/2015	
		Lab Sample ID	440-131363-1		440-131363-2		440-131363-3		440-131363-4	
		DF	2		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l	1.2							
1,1-Dichloroethene	0.50	ug/l	180		40		40			
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l	4.9		0.63		0.36	J		
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	10	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	44		5.5		2.0		1.4	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l	13		6.7		2.0			
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	76		24		38			
Freon 113	2.0	ug/l	200		54		95			
Freon 12	0.50	ug/l		UJ		UJ		UJ		UJ
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l			0.31	J				
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	440		180		76		1.6	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l	0.88	J						
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	220		40		200		0.81	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUONDWATERS

		Lab SDG	440-131363-1		440-131363-1		440-131363-1	
		Field Sample ID	OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-TB-W-4-20151217	
		Sample Date	12/17/2015		12/17/2015		12/17/2015	
		Lab Sample ID	440-131363-5		440-131363-6		440-131363-7	
		DF	1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l						
1,1,2,2-Tetrachloroethane	0.50	ug/l						
1,1,2-Trichloroethane	0.50	ug/l						
1,1-Dichloroethane	0.50	ug/l						
1,1-Dichloroethene	0.50	ug/l						
1,2,3-Trichlorobenzene	1.0	ug/l						
1,2,4-Trichlorobenzene	1.0	ug/l						
1,2-Dibromo-3-chloropropane	1.0	ug/l						
1,2-Dibromoethane (EDB)	0.50	ug/l						
1,2-Dichlorobenzene	0.50	ug/l						
1,2-Dichloroethane	0.50	ug/l						
1,2-Dichloropropane	0.50	ug/l						
1,3-Dichlorobenzene	0.50	ug/l						
1,4-Dichlorobenzene	0.50	ug/l						
2-Hexanone	10	ug/l						
Acetone	20	ug/l						
Benzene	0.50	ug/l						
Bromochloromethane	0.50	ug/l						
Bromodichloromethane	0.50	ug/l						
Bromoform	1.0	ug/l						
Bromomethane	0.50	ug/l						
Carbon disulfide	1.0	ug/l						
Carbon tetrachloride	0.50	ug/l						
Chlorobenzene	0.50	ug/l						
Chloroethane	1.0	ug/l						
Chloroform	0.50	ug/l						
Chloromethane	0.50	ug/l						
cis-1,2-Dichloroethene	0.50	ug/l						
cis-1,3-Dichloropropene	0.50	ug/l						
Cyclohexane	2.0	ug/l						
Dibromochloromethane	0.50	ug/l						
Ethylbenzene	0.50	ug/l						
Freon 11	0.50	ug/l						
Freon 113	2.0	ug/l						
Freon 12	0.50	ug/l		UJ		UJ		
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l						
Methyl acetate		ug/l		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l						
Methyl isobutyl ketone	5.0	ug/l						
Methyl Tert-Butyl Ether	0.50	ug/l						
Methylcyclohexane		ug/l		UJ		UJ		UJ
Methylene chloride	2.0	ug/l						
Styrene	0.50	ug/l						
Tetrachloroethene (PCE)	0.50	ug/l						
Toluene	0.50	ug/l						
Total Xylenes	1.0	ug/l						
trans-1,2-Dichloroethene	0.50	ug/l						
trans-1,3-Dichloropropene	0.50	ug/l						
Trichloroethene (TCE)	0.50	ug/l						
Vinyl chloride	0.50	ug/l						

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131363-1		440-131363-1		440-131363-1		440-131363-1	
		Field Sample ID	OC2-TB-W-4-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217		OC2-MW8C-W-0-20151217	
		Sample Date	12/17/2015		12/17/2015		12/17/2015		12/17/2015	
		Lab Sample ID	440-131363-7		440-131363-8		440-131363-9		440-131363-10	
		DF	1		1		1,10		2	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l					1.1		1.3	
1,1-Dichloroethene	0.50	ug/l			5.5		120		150	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l					4.0		4.9	
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	10	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l			1.7		31		38	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l			0.68		15		18	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l			3.9		43		52	
Freon 113	2.0	ug/l			9.4		110		140	
Freon 12	0.50	ug/l		UJ		UJ		UJ		UJ
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l					0.29 J			
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l			14		530		510	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l					0.74		0.98	J
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l			66		180		210	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131363-1		440-131363-1		440-131363-1	
		Field Sample ID	OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217	
		Sample Date	12/17/2015		12/17/2015		12/17/2015	
		Lab Sample ID	440-131363-11		440-131363-12		440-131363-13	
		DF	1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l						
1,1,2,2-Tetrachloroethane	0.50	ug/l						
1,1,2-Trichloroethane	0.50	ug/l						
1,1-Dichloroethane	0.50	ug/l			1.2			
1,1-Dichloroethene	0.50	ug/l			85		19	
1,2,3-Trichlorobenzene	1.0	ug/l						
1,2,4-Trichlorobenzene	1.0	ug/l						
1,2-Dibromo-3-chloropropane	1.0	ug/l						
1,2-Dibromoethane (EDB)	0.50	ug/l						
1,2-Dichlorobenzene	0.50	ug/l						
1,2-Dichloroethane	0.50	ug/l			1.5		0.39	J
1,2-Dichloropropane	0.50	ug/l						
1,3-Dichlorobenzene	0.50	ug/l						
1,4-Dichlorobenzene	0.50	ug/l						
2-Hexanone	10	ug/l						
Acetone	20	ug/l						
Benzene	0.50	ug/l						
Bromochloromethane	0.50	ug/l						
Bromodichloromethane	0.50	ug/l						
Bromoform	1.0	ug/l						
Bromomethane	0.50	ug/l						
Carbon disulfide	1.0	ug/l						
Carbon tetrachloride	0.50	ug/l						
Chlorobenzene	0.50	ug/l						
Chloroethane	1.0	ug/l						
Chloroform	0.50	ug/l			17		2.7	
Chloromethane	0.50	ug/l						
cis-1,2-Dichloroethene	0.50	ug/l			4.8			
cis-1,3-Dichloropropene	0.50	ug/l						
Cyclohexane	2.0	ug/l						
Dibromochloromethane	0.50	ug/l						
Ethylbenzene	0.50	ug/l						
Freon 11	0.50	ug/l			41		12	
Freon 113	2.0	ug/l	0.70	J	100		30	
Freon 12	0.50	ug/l		UJ		UJ		UJ
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l						
Methyl acetate		ug/l		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l						
Methyl isobutyl ketone	5.0	ug/l						
Methyl Tert-Butyl Ether	0.50	ug/l			0.42	J		
Methylcyclohexane		ug/l		UJ		UJ		UJ
Methylene chloride	2.0	ug/l						
Styrene	0.50	ug/l						
Tetrachloroethene (PCE)	0.50	ug/l	2.8		170		46	
Toluene	0.50	ug/l						
Total Xylenes	1.0	ug/l						
trans-1,2-Dichloroethene	0.50	ug/l						
trans-1,3-Dichloropropene	0.50	ug/l						
Trichloroethene (TCE)	0.50	ug/l	1.3		110		17	
Vinyl chloride	0.50	ug/l						

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l								
1,1-Dichloroethene	0.50	ug/l								
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l								
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l								
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l								
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l								
Freon 113	2.0	ug/l								
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	0.57		0.60				4.6	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l								
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131654-1		440-131654-1		440-131654-1		440-131654-1	
		Field Sample ID	OC2-TB-W-4-20151221		OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221	
		Sample Date	12/21/2015		12/21/2015		12/21/2015		12/21/2015	
		Lab Sample ID	440-131654-5		440-131654-6		440-131654-7		440-131654-8	
		DF	1		10		10		10	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l								
1,1-Dichloroethene	0.50	ug/l			9.0		60		56	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l								
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l					18		15	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l					200		110	
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l					19		19	
Freon 113	2.0	ug/l					57		58	
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l								
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l					310		330	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l			620		470		480	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131479-1		440-131479-1		440-131479-1		440-131479-1	
		Field Sample ID	OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
		Sample Date	12/18/2015		12/18/2015		12/18/2015		12/18/2015	
		Lab Sample ID	440-131479-1		440-131479-2		440-131479-3		440-131479-4	
		DF	1		10		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l							0.33	J
1,1-Dichloroethene	0.50	ug/l	3.0		200				95	
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l			10				1.6	
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	0.72		71		0.49	J	25	
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l			13				0.39	J
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	2.7		94		1.2		59	
Freon 113	2.0	ug/l	12		280		2.1		120	
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l	0.94	J	12 J					
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	25		690		140		170	
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	2.3		400		1.2		30	
Vinyl chloride	0.50	ug/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131479-1		440-131479-1		440-131479-1		440-131479-1	
		Field Sample ID	OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-2-20151218	
		Sample Date	12/18/2015		12/18/2015		12/18/2015		12/18/2015	
		Lab Sample ID	440-131479-5		440-131479-6		440-131479-7		440-131479-9	
		DF	1		1		1		1	
1,1,1-Trichloroethane (TCA)	0.50	ug/l								
1,1,2,2-Tetrachloroethane	0.50	ug/l								
1,1,2-Trichloroethane	0.50	ug/l								
1,1-Dichloroethane	0.50	ug/l								
1,1-Dichloroethene	0.50	ug/l	41		1.9					
1,2,3-Trichlorobenzene	1.0	ug/l								
1,2,4-Trichlorobenzene	1.0	ug/l								
1,2-Dibromo-3-chloropropane	1.0	ug/l								
1,2-Dibromoethane (EDB)	0.50	ug/l								
1,2-Dichlorobenzene	0.50	ug/l								
1,2-Dichloroethane	0.50	ug/l	0.43 J							
1,2-Dichloropropane	0.50	ug/l								
1,3-Dichlorobenzene	0.50	ug/l								
1,4-Dichlorobenzene	0.50	ug/l								
2-Hexanone	5.0	ug/l								
Acetone	20	ug/l								
Benzene	0.50	ug/l								
Bromochloromethane	0.50	ug/l								
Bromodichloromethane	0.50	ug/l								
Bromoform	1.0	ug/l								
Bromomethane	0.50	ug/l								
Carbon disulfide	1.0	ug/l								
Carbon tetrachloride	0.50	ug/l								
Chlorobenzene	0.50	ug/l								
Chloroethane	1.0	ug/l								
Chloroform	0.50	ug/l	4.5		0.35 J					
Chloromethane	0.50	ug/l								
cis-1,2-Dichloroethene	0.50	ug/l								
cis-1,3-Dichloropropene	0.50	ug/l								
Cyclohexane	2.0	ug/l								
Dibromochloromethane	0.50	ug/l								
Ethylbenzene	0.50	ug/l								
Freon 11	0.50	ug/l	21		9.1					
Freon 113	2.0	ug/l	50		26		1.4	J		
Freon 12	0.50	ug/l								
Isopropyl Alcohol (Isopropanol)	250	ug/l		UJ		UJ		UJ		UJ
Isopropylbenzene	0.50	ug/l								
Methyl acetate		ug/l		UJ		UJ		UJ		UJ
Methyl ethyl ketone	5.0	ug/l								
Methyl isobutyl ketone	5.0	ug/l								
Methyl Tert-Butyl Ether	0.50	ug/l								
Methylcyclohexane		ug/l		UJ		UJ		UJ		UJ
Methylene chloride	2.0	ug/l	0.91	J						
Styrene	0.50	ug/l								
Tetrachloroethene (PCE)	0.50	ug/l	38		5.2		1.3			
Toluene	0.50	ug/l								
Total Xylenes	1.0	ug/l								
trans-1,2-Dichloroethene	0.50	ug/l								
trans-1,3-Dichloropropene	0.50	ug/l								
Trichloroethene (TCE)	0.50	ug/l	16		2.0					
Vinyl chloride	0.50	ug/l								

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER CALIFORNIA

Semi-Volatile Organics
1,4-Dioxane and bis-(2-Ethylhexyl)phthalate) in Water

Laboratory Job Nos.

440-130859-1
440-130989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed
By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

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EXECUTIVE SUMMARY

Validation of the semi-volatile data prepared by Test America for 1,4-dioxane on 69 ground water samples and for bis-(2-ehtylhexyl) phthalate on 25 groundwaters from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on the samples bolded below, which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos 440-130859-1, 440-130989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

1,4-Dioxane analysis:

OC2-KOONTZ-1A_1-W-0-20151214
OC2-KOONTZ-1C_3-W-0-20151214
OC2-KOONTZ-1C_4-W-1-20151214
OC2-KOONTZ-W-2-20151214
OC2-Hawkins-1C_4-W-0-20151214
OC2-Hawkins-1C_5-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214
OC2-KOONTZ-1B_2-W-0-20151214
OC2-KOONTZ-1C_4-W-0-20151214
OC2-KOONTZ-1C_5-W-0-20151214
OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-W-1-20151214
OC2-Hawkins-1B_2-W-0-20151214

OC2-MW28-W-0-20151215
OC2-MW26B-W-1-20151215
OC2-MW26C-W-0-20151215
OC2-MW26B-W-2-20151215
OC2-MW32-W-0-20151215
OC2-MW17C-W-0-20151215
OC2-MW30-W-0-20151215
OC2-MW26B-W-0-20151215
OC2-MW26D-W-0-20151215
OC2-MW29-W-0-20151215
OC2-MW17B-W-0-20151215
OC2-MW32-W-1-20151215

OC2-MW27A-W-0-20151216
OC2-MW27C-W-0-20151216
OC2-MW25C-W-0-20151216
OC2-MW20C-W-0-20151216
OC2-MW25D-W-0-20151216
OC2-MW23A-W-1-20151216
OC2-MW20B-W-1-20151216
OC2-MW27B-W-0-20151216
OC2-MW27D-W-0-20151216
OC2-MW25B-W-0-20151216
OC2-MW20B-W-0-20151216
OC2-MW23A-W-0-20151216
OC2-MW23A-W-2-20151216

OC2-MW23B-W-0-20151217
OC2-MW23D-W-0-20151217
OC2-MW7-W-2-20151217
OC2-MW8D-W-0-20151217
OC2-MW8C-W-0-20151217
OC2-MW16B-W-0-20151217
OC2-MW23C-W-0-20151217
OC2-MW7-W-0-20151217
OC2-MW7-W-3-20151217
OC2-MW8B-W-0-20151217
OC2-MW16C-W-0-20151217
OC2-MW15-W-0-20151217

OC2-MW04B-W-0-20151218	**OC2-MW04C-W-0-20151218**
OC2-MW04A-W-0-20151218	OC2-MW24A-W-0-20151218
OC2-MW24B-W-0-20151218	OC2-MW24C-W-0-20151218
OC2-MW24D-W-0-20151218	OC2-MW14-W-0-20151218
OC2-MW14-W-2-20151218	

OC2-MW18A-W-0-20151221	OC2-MW18B-W-0-20151221
OC2-MW18C-W-0-20151221	OC2-MW13B-W-0-20151221
OC2-MW31-W-0-20151221	OC2-MW1A-W-0-20151221
OC2-MW1B-W-0-20151221	**OC2-MW1B-W-1-20151221**
OC2-MW2-W-0-20151221	OC2-MW18C-W-2-20151221

<u>bis-(2-Ethylhexyl)phthalate analysis:</u>

OC2-MW27A-W-0-20151216	OC2-MW27B-W-0-20151216
OC2-MW-27C-W-0-20151216	OC2-MW-27D-W-0-20151216
OC2-MW-25C-W-0-20151216	OC2-MW25B-W-0-20151216
OC2-MW20C-W-0-20151216	OC2-MW20B-W-0-20151216
OC2-MW25D-W-0-20151216	**OC2-MW23A-W-0-20151216**
OC2-MW23A-W-1-20151216	OC2-MW23A-W-2-20151216
OC2-MW20B-W-1-20151216	

OC2-MW23B-W-0-20151217	OC2-MW23C-W-0-20151217
OC2-MW23D-W-0-20151217	OC2-MW7-W-0-20151217
OC2-MW7-W-2-20151217	OC2-MW7-W-3-20151217
OC2-MW8D-W-0-20151217	OC2-MW8B-W-0-20151217
OC2-MW8C-W-0-20151217	OC2-MW16C-W-0-20151217
OC2-MW16B-W-0-20151217	OC2-MW15-W-0-20151217

Based on the validation effort, the following data qualifiers were applied:

- The results for 1,4-dioxane in all samples except OC2-MW27A-W-0-2015 were qualified as estimated (J-, UJ).
- The results for bis-(2-ethylhexyl) phthalate in all samples were qualified as estimated (J-, UJ).
- The result for 1,4-dioxane in OC2-MW27A-W-0-2015 was rejected (R).
- The results for bis-(2-ethylhexyl) phthalate in OC2-MW23D-W-0-20151217 and 1,4-dioxane in OC2-MW18B-W-0-20151221 and OC2-MW31-W-0-20151221 were qualified as not detected (U) at the reporting limit (RL).

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section

XIV). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section XIII.

This report should be considered part of the data package for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA SW846 Method 8270C (bis-(2-ethylhexyl) phthalate) and 8270C SIM (1,4-dioxane). These methodologies do not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Organic Data Review" (Rev. 06/08). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and December 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C).

The samples for bis-(2-ethylhexyl) phthalate were extract on December 17, 19 and 22, 2015, and analyzed on December 21, 24 and 29, 2015, all within hold times.

The samples for 1,4-dioxane analysis were extracted on December 15, 16, 18, 20, 22, 23, 25, 26, 27 and 30 2015, and analyzed on December 17, 21 through 24, and 29 through 31, 2015, all within hold times. OC2-MW7-W-0-20151217 and OC2-MW8B-W-0-20151217 were initially extracted on December 30, 2015 and were re-extracted outside hold due to low surrogate recoveries. The results for 1,4-dioxane in OC2-MW7-W-0-20151217 and OC2-MW8B-W-0-20151217 were qualified as estimated (J, UJ) based on surrogate and LCS recoveries (see Sections V and VI) and no further qualification was made based on extraction outside hold time.

II. GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) instrument performance checks are not applicable to SIM analysis, and none were performed. Six DFTPP instrument performance checks were reported with the bis-(2-ethylhexyl) phthalate analyses. All of the performance checks associated with samples receiving full validation were fully documented and were acceptable.

III. Calibration

A. Initial Calibration (IC)

Summary results for two initial calibrations (IC) were reported in support of the 1,4-dioxane sample analyses, and summary results for one IC were reported in support the bis-(2-ethylhexyl) phthalate analyses. Documentation of all of the individual IC standards was present in the data package and relative response factor (RRFs) as well as percent relative standard deviation (%RSD) values were accurately reported. The reported %RSD values were below the maximum acceptance limit of 15 percent as defined in the analytical method. The average RRFs value were acceptable.

B. Continuing Calibration (CC)

Fourteen continuing calibration (CC) standards were run in support of the 1,4-dioxane sample analyses. Documentation was present in the data package, and the percent differences (%Ds) were acceptable (<20%D).

Three CC standards were run in support of the bis-(2-Ethylhexyl) phthalate sample analyses. Documentation was present in the data package, and the percent differences (%Ds) were acceptable (<20%D).

IV. Blanks

A laboratory method blank was extracted and reported for each analytical batch. 1,4-Dioxane (0.193 ug/L) was detected in the method blank prepared on December 26, 2015. The results for 1,4-dioxane in OC2-MW18B-W-0-20151221 and OC2-MW31-W-0-20151221 were qualified as not detected (U) at the reporting limit (RL) because the concentration is less than five times the concentration in the associated method blank. Bis-(2-ethylhexyl) phthalate (3.52 ug/L) was detected in the method blank prepared on December 22, 2015. The result for bis-(2-ethylhexyl) phthalate in OC2-MW23D-W-0-20151217 was qualified as not detected (U) at the reporting limit (RL) because the concentration is less than five times the concentration in the associated method blank.

V. Surrogate Compound Recovery

Recoveries of 1,4-dioxane-d8 were correctly calculated and accurately reported. Although the percent recoveries met the laboratory acceptance criteria, the laboratory-generated acceptance window was excessively low (36-90%). Based on professional judgment, acceptance criteria of 70 – 130% was applied. The results for 1,4-dioxane in all samples were qualified as estimated (J-, UJ) due to low surrogate recovery. The result for 1,4-dioxane in OC2-MW27A-W-0-2015 was qualified as rejected (R) because the recovery of 1,4-dioxane-d8 (6%) was less than ten percent.

For the analysis of bis-(2-ethylhexyl) phthalate, three acid and three base neutral surrogate recoveries were reported for each sample. Only the recovery of terphenyl-d14 was used to evaluate the sample results. Recoveries of terphenyl-d14 were correctly calculated and accurately reported. Although the percent recoveries met the laboratory acceptance criteria, the laboratory- generated acceptance window was excessively low (52-121%). Based on professional judgement, acceptance criteria of 70-130% was applied. The results for bis-(2-ethylhexyl) phthalate in OC2-MW-27C-W-0-20151216 was qualified as estimated (J-) and may be biased low due to low surrogate (65%R) recovery. The recovery of Terphenyl-d14 (185%R) in OC2-MW20C-W-0-20151216 is biased high outside acceptance limits. All surrogate recoveries in this sample are approximately double, and it appears the sample may have been double spiked with surrogate standard. Based on professional judgement, no qualification of sample results was made.

VI. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses performed on the following samples for 1,4-dioxane analysis:

- OC2-MW23A-W-0-20151216
- OC2-MW24A-W-0-20151218
- OC2-MW18A-W-0-20151221

Although the percent recoveries of 1,4-dioxane met the laboratory acceptance criteria, the laboratory-generated acceptance window was excessively low (12-100%). Based on professional judgment, acceptance criteria of 70 – 130% was applied. The results for 1,4-dioxane in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216 , OC2-MW27C-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW-25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216, OC2-MW20B-W-1-20151216, OC2-MW04B-W-0-20151218, OC2-MW04C-W-0-20151218, OC2-MW04A-W-0-20151218, OC2-MW24A-W-0-20151218, OC2-MW24B-W-0-20151218, OC2-MW24C-W-0-20151218, OC2-MW24D-W-0-20151218, OC2-MW14-W-0-20151218, OC2-MW14-W-2-20151218, OC2-MW18A-W-0-20151221, OC2-MW18B-W-0-20151221, OC2-MW18C-W-0-20151221, OC2-MW13B-W-0-20151221, OC2-MW31-W-0-20151221, OC2-MW1A-W-0-20151221, OC2-MW1B-W-0-20151221, OC2-MW1B-W-1-20151221, OC2-MW2-W-0-20151221 and OC2-MW18C-W-2-20151221 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

MS/MSD analyses were performed on OC2-MW23A-W-0-20151216 for bis-(2-ethylhexyl) phthalate analysis. Percent recoveries and relative percent differences (RPD) were acceptable.

B. Blank Spike

A blank spike and/or blank spike duplicate were reported for each day of 1,4-dioxane sample analysis. Although the percent recoveries of 1,4-dioxane met the laboratory acceptance criteria, the laboratory- generated acceptance window was excessively low (36-120%). Based on professional judgment, acceptance criteria of 70 – 130% was applied and the results for 1,4-dioxane in all samples were qualified as estimated (J-, UJ) due to low LCS and/or LCSD recoveries.

A blank spike and/or blank spike duplicate were reported for each day of bis-(2-ethylhexyl) phthalate sample analysis. Percent recoveries and relative percent differences (RPD) were acceptable with the exception of bis-(2-ethylhexyl) phthalate [57

%R] in the LCSD associated with OC2-MW27A-W-0-20151216 and OC2-MW20B-W-1-20151216. The results for bis-(2-ethylhexyl) phthalate in OC2-MW27A-W-0-20151216 and OC2-MW20B-W-1-20151216 were qualified as estimated (J-, UJ) due low LCSD recovery.

VII. Field Duplicate

Seven sets of field duplicates were submitted for 1,4-dioxane analysis:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

Where 1,4-dioxane as detected, precision between paired samples, in all cases, was acceptable.

Two sets of field duplicates were submitted for bis-(2-ethylhexyl) phthlalate analysis:

- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

The results for bis-(2-ethylhexyl) phthalate in all samples were qualified as estimated (J, UJ) due to imprecision in both set of field duplicate pairs (96% and 67% RPD, respectively).

VIII. Internal Standard Performance

All internal standard areas and retention times were within quality control limits for the applicable analyses.

IX. Target Compound Identification

For SIM analysis, a positive identification is made based on both agreement in retention time (RT) of the primary and secondary ions as well as verifying that the ratio of the secondary ion to the primary is within an absolute percentage (generally 20-30%) of the ratio observed in a mid-range calibration standard. The secondary ion is necessary in evaluating the potential for false positive results and determining the presence of sample interferences. While the integration on the primary and secondary ions in the

samples was provided in the data package, ion ratios were not provided. The validation was performed under the assumption that the ion ratios were acceptable.

Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section III).

X. Compound Quantitation and Reporting Limits

Target compound concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort.

XI. Tentatively Identified Compounds (TIC)

Non-target compounds were not part of the analytical requirements.

XII. System Performance

The analytical system appears to have been working satisfactorily at the time of these analyses, based on evaluation of the available raw data.

XIII. Documentation

The following documentation issue was observed during the validation of these data:

- Documentation of primary and secondary ion ratios and their acceptance windows was not included in the data package.

XIV. Overall Assessment

Based on the validation effort, the following qualifiers were applied:

- The results for 1,4-dioxane in all samples except OC2-MW27A-W-0-2015 were qualified as estimated (J-, UJ) due low surrogate and LCS recoveries, and/or MS/MSD recoveries.

- The result for 1,4-dioxane in OC2-MW27A-W-0-20151216 was qualified as rejected (R) because the recovery of 1,4-dioxane-d8 (6%) was less than ten percent.

- The results for 1,4-dioxane in OC2-MW18B-W-0-20151221 and OC2-MW31-W-0-20151221 were qualified as not detected (U) at the reporting limit (RL) due to method blank contamination.

- The result for bis-(2-ethylhexyl) phthalate in OC2-MW23D-W-0-20151217 was qualified as not detected (U) at the reporting limit (RL) because the concentration is less than five times the concentration in the associated method blank.

- The results for bis-(2-ethylhexyl) phthalate in OC2-MW-27C-W-0-20151216 was qualified as estimated (J-) due to low surrogate (65%R) recovery.

- The results for bis-(2-ethylhexyl) phthalate in OC2-MW27A-W-0-20151216 and OC2-MW20B-W-1-20151216 were qualified as estimated (J-, UJ) due low LCSD recovery.

- The results for bis-(2-ethylhexyl) phthalate in all samples were qualified as estimated (J, UJ) due to imprecision in both set of field duplicate pairs.

All other results were determined to be valid as reported. Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Semi-Volatiles in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-130859-1		440-130859-1		440-130859-1		440-130859-1	
		Field Sample ID	OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214	
		Sample Date	12/14/2015		12/14/2015		12/14/2015		12/14/2015	
		Lab Sample ID	440-130859-1		440-130859-2		440-130859-3		440-130859-4	
		DF	1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ		UJ	0.82	J-	0.89	J-

		Lab SDG	440-130859-1		440-130859-1		440-130859-1		440-130859-1	
		Field Sample ID	OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214		OC2-HAWKINS-1C_3-W-0-20151214	
		Sample Date	12/14/2015		12/14/2015		12/14/2015		12/14/2015	
		Lab Sample ID	440-130859-5		440-130859-6		440-130859-7		440-130859-9	
		DF	1		1		1		1	
1,4-Dioxane	0.20	ug/l	0.82	J-	8.5	J-		UJ		UJ

		Lab SDG	440-130859-1		440-130859-1		440-130859-1		440-130859-1	
		Field Sample ID	OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214		OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214	
		Sample Date	12/14/2015		12/14/2015		12/14/2015		12/14/2015	
		Lab Sample ID	440-130859-10		440-130859-11		440-130859-12		440-130859-13	
		DF	1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ		UJ	4.0	J-		UJ

		Lab SDG	440-130859-1	
		Field Sample ID	OC2-HAWKINS-1A_1-W-0-20151214	
		Sample Date	12/14/2015	
		Lab Sample ID	440-130859-14	
		DF	1	
1,4-Dioxane	0.20	ug/l		UJ

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-1-20151215		OC2-MW26B-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-1		440-130989-2		440-130989-3		440-130989-4	
DF			1		1		1		1	
1,4-Dioxane	0.19	ug/l	1.1	J-	0.53	J-	0.43	J-	0.53	J-
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8	
DF			1		1		1		1	
1,4-Dioxane	0.19	ug/l	0.69	J-		UJ		UJ	0.22	J-
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW17C-W-0-20151215		OC2-MW32-W-1-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-9		440-130989-10		440-130989-12		440-130989-13	
DF			1		1		1		1	
1,4-Dioxane	0.19	ug/l	5.1	J-	5.6	J-		UJ	4.7	J-

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4		
DF			1		1		1		1		
bis(2-Ethylhexyl) phthalate	5.0	ug/l					3.6J				
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8		
DF			1		1		1		1		
bis(2-Ethylhexyl) phthalate	5.0	ug/l					6.6		6.8		
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12		
DF			1		1		1		1		
bis(2-Ethylhexyl) phthalate	5.0	ug/l		UJ	12	J-	24	J-		UJ	
Lab SDG			440-131235-1								
Field Sample ID			OC2-MW20B-W-1-20151216								
Sample Date			12/16/2015								
Lab Sample ID			440-131235-14								
DF			1								
bis(2-Ethylhexyl) phthalate	5.0	ug/l	2.4	J-							

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l	R		3.0	J-	0.61	J-	2.0	J-
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ	7.8	J-	1.9	J-	6.8	J-
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ	0.60	J-	0.58	J-		UJ
Lab SDG			440-131235-1							
Field Sample ID			OC2-MW20B-W-1-20151216							
Sample Date			12/16/2015							
Lab Sample ID			440-131235-14							
DF			1							
1,4-Dioxane	0.20	ug/l	6.6	J-						

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3		440-131363-4	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l	13	J-	1.5	J-	0.75	J-		UJ

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-5		440-131363-6		440-131363-8		440-131363-9	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ		UJ	0.28	J-	28	J-

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW8C-W-0-20151217		OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-10		440-131363-11		440-131363-12		440-131363-13	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l	16	J-		UJ	4.2	J-	0.42	J-

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131479-1		440-131479-1		440-131479-1		440-131479-1	
		Field Sample ID	OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
		Sample Date	12/18/2015		12/18/2015		12/18/2015		12/18/2015	
		Lab Sample ID	440-131479-1		440-131479-2		440-131479-3		440-131479-4	
		DF	1		1		1		1	
1,4-Dioxane	0.20	ug/l	0.22	J-	15	J-	0.40	J-	3.5	J-

		Lab SDG	440-131479-1		440-131479-1		440-131479-1		440-131479-1	
		Field Sample ID	OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-0-20151218	
		Sample Date	12/18/2015		12/18/2015		12/18/2015		12/18/2015	
		Lab Sample ID	440-131479-5		440-131479-6		440-131479-7		440-131479-8	
		DF	1		1		1		1	
1,4-Dioxane	0.20	ug/l	0.89	J-		UJ		UJ	0.68	J-

		Lab SDG	440-131479-1	
		Field Sample ID	OC2-MW14-W-2-20151218	
		Sample Date	12/18/2015	
		Lab Sample ID	440-131479-9	
		DF	1	
1,4-Dioxane	0.20	ug/l		UJ

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ		UJ		UJ		UJ

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221		OC2-MW1B-W-1-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-6		440-131654-7		440-131654-8		440-131654-9	
DF			1		1		1		1	
1,4-Dioxane	0.20	ug/l		UJ	10	J-	9.4	J-	7.9	J-

Lab SDG			440-131654-1		440-131654-1	
Field Sample ID			OC2-MW2-W-0-20151221		OC2-MW18C-W-2-20151221	
Sample Date			12/21/2015		12/21/2015	
Lab Sample ID			440-131654-10		440-131654-11	
DF			1		1	
1,4-Dioxane	0.20	ug/l	1.8	J-		UJ

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER CALIFORNIA

Dissolved Hexavalent Chromium
in Water

Laboratory Job Nos.
440-103859-1
440-103989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed
By:

Test America
Irvine, CA

For:

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Data Validation By:

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St. Paul, Minnesota 55108

March 16, 2016

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EXECUTIVE SUMMARY

Validation of the inorganic data prepared by Test America for 68 ground water samples from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on seven samples (**bolded below**), which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos, 440-103859-1, 440-103989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

OC2-KOONTZ-1A_1-W-0-20151214
OC2-KOONTZ -1B_2-W-0-20151214
OC2-KOONTZ -1C_3-W-0-20151214
OC2-KOONTZ -1C_4-W-0-20151214
OC2-KOONTZ -1C_4-W-1-20151214
OC2-KOONTZ -1C_5-W-0-20151214
OC2-KOONTZ -W-2-20151214
OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-1C_4-W-0-20151214
OC2-Hawkins-W-1-20151214
OC2-Hawkins-1C_5-W-0-20151214
OC2-Hawkins-1B_2-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214

OC2-MW28-W-0-20151215
OC2-MW30-W-0-20151215
OC2-MW26B-W-1-20151215
OC2-MW26B-W-0-20151215
OC2-MW26C-W-0-20151215
OC2-MW26D-W-0-20151215
OC2-MW26B-W-2-20151215
OC2-MW29-W-0-20151215
OC2-MW32-W-0-20151215
OC2-MW17B-W-0-20151215
OC2-MW17C-W-0-20151215
OC2-MW32-W-1-20151215

OC2-MW27A-W-0-20151216
OC2-MW27B-W-0-20151216
OC2-MW-27C-W-0-20151216
OC2-MW-27D-W-0-20151216
OC2-MW-25C-W-0-20151216
OC2-MW25B-W-0-20151216
OC2-MW20C-W-0-20151216
OC2-MW20B-W-0-20151216
OC2-MW25D-W-0-20151216
OC2-MW23A-W-0-20151216
OC2-MW23A-W-1-20151216
OC2-MW23A-W-2-20151216
OC2-MW20B-W-1-20151216

OC2-MW23B-W-0-20151217
OC2-MW23C-W-0-20151217
OC2-MW23D-W-0-20151217
OC2-MW7-W-0-20151217
OC2-MW7-W-2-20151217
OC2-MW7-W-3-20151217
OC2-MW8D-W-0-20151217
OC2-MW8B-W-0-20151217
OC2-MW8C-W-0-20151217
OC2-MW16C-W-0-20151217
OC2-MW16B-W-0-20151217

OC2-MW04B-W-0-20151218
OC2-MW04C-W-0-20151218
OC2-MW04A-W-0-20151218
OC2-MW24A-W-0-20151218
OC2-MW24B-W-0-20151218
OC2-MW24C-W-0-20151218
OC2-MW24D-W-0-20151218
OC2-MW14-W-0-20151218

OC2-MW14-W-2-20151218

OC2-MW18A-W-0-20151221	OC2-MW18B-W-0-20151221
OC2-MW18C-W-0-20151221	OC2-MW13B-W-0-20151221
OC2-MW31-W-0-20151221	OC2-MW1A-W-0-20151221
OC2-MW1B-W-0-20151221	**OC2-MW1B-W-1-20151221**
OC2-MW2-W-0-20151221	OC2-MW18C-W-2-20151221

Based on the validation effort, all of the results were determined to be valid as reported. Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section VII.

This report should be considered <u>part of the data package</u> for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA Method 218.6. The methodology does not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Inorganic Data Review" (2014). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The samples were analyzed on December 14 through 19 and 21, 2015, within method specified hold time.

II. Calibration

A. Initial Calibration (IC)

Initial calibrations were performed each day of analysis and an acceptable correlation coefficient (>0.99) was reported.

B. Continuing Calibration (CCV)

Continuing calibration (CCV) standards were run at the appropriate frequencies and the percent differences (%Ds) were acceptable (<10%D).

III. Blanks

Initial and continuing calibration blanks (CCB) were run at the appropriate frequency. Hexavalent chromium was not detected in any blanks.

IV. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on the following samples:

- OC2-KOONTZ-1A_1-W-0-20151214
- OC2-MW17B-W-0-20151215
- OC2-MW23A-W-0-20151216
- OC2-MW23D-W-0-20151217
- OC2-MW24A-W-0-20151218
- OC2-MW18A-W-0-20151221

All percent recoveries and relative percent differences (RPD) were acceptable.

B. Laboratory Control Sample (LCS)

An LCS was reported for each day of sample analysis. All percent recoveries were acceptable.

V. Field Duplicate

Seven sets of field duplicates were submitted:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

Where target analytes were detected, precision between paired samples was acceptable.

VI. Sample Results

Target analyte concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort. Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section II).

There were significant retention time (RT) shifts (>1 minute) of hexavalent chromium from initial calibration to the daily continuing calibration standards. In the chromatography method, the RT is used for positive identification of an analyte. The laboratory was contacted regarding the excessive RT shift and replied: '*Retention time is determined based on the average ICAL RT and the window is set at ±5%. However, because the method relies on a post-column reactor and spectrophotometric detection (530nm) the laboratory did not give much weight to RT shifts. The lab did not check the daily CCV RT against that of the ICAL. However, sample detects outside the daily CCV RT window were confirmed by post-spikes, as necessary. The latest version of the laboratory's 218.6/7199 SOP has been updated to include more rigorous RT criteria, including the requirement to run RT window studies and to evaluate the daily CCV RT against the ICV RT from the latest ICAL (must be within ±5% or maintenance and recalibration required.'* Although no qualification of sample results was made, the data user is cautioned that this may be problematic if the data were to go to litigation.

VII. Documentation

No documentation issues were observed during the validation effort.

VIII. Overall Assessment

Based on the validation effort, the results were determined to be valid as reported. Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered part of the data package for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Dissolved Hexavalent Chromium in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-1		440-130859-2		440-130859-3		440-130859-4	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l								

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214		OC2-HAWKINS-1C_3-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-5		440-130859-6		440-130859-7		440-130859-9	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l								

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214		OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-10		440-130859-11		440-130859-12		440-130859-13	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l								

Lab SDG			440-130859-1	
Field Sample ID			OC2-HAWKINS-1A_1-W-0-20151214	
Sample Date			12/14/2015	
Lab Sample ID			440-130859-14	
DF			1	
Chromium, Hexavalent	1.0	ug/l		

DTA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-0-20151215		OC2-MW26B-W-1-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-1		440-130989-2		440-130989-4		440-130989-3			
DF			1		1		1		1			
Chromium, Hexavalent	1.0	ug/l	0.46 J				7.4		5.7			

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8			
DF			1		1		1		1			
Chromium, Hexavalent	1.0	ug/l	7.8						1.7			

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW17C-W-0-20151215		OC2-MW32-W-1-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-9		440-130989-10		440-130989-12		440-130989-13			
DF			1		1		1		1			
Chromium, Hexavalent	1.0	ug/l	4.0		19		0.89 J		4.1			

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l								

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	0.52 J		15				15	

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	7.7		6.0		5.9			

Lab SDG			440-131235-1	
Field Sample ID			OC2-MW20B-W-1-20151216	
Sample Date			12/16/2015	
Lab Sample ID			440-131235-14	
DF			1	
Chromium, Hexavalent	1.0	ug/l	16	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1		
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217		
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015		
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3		440-131363-4		
DF			1		1		1		1		
Chromium, Hexavalent	1.0	ug/l	16		6.2		13		3.8		
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1		
Field Sample ID			OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217		
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015		
Lab Sample ID			440-131363-5		440-131363-6		440-131363-8		440-131363-9		
DF			1		1		1		1		
Chromium, Hexavalent	1.0	ug/l					5.2		21		
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1		
Field Sample ID			OC2-MW8C-W-0-20151217		OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217		
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015		
Lab Sample ID			440-131363-10		440-131363-11		440-131363-12		440-131363-13		
DF			1		1		1		1		
Chromium, Hexavalent	1.0	ug/l	22		3.0		12		8.2		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-1		440-131479-2		440-131479-3		440-131479-4	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	6.6		33		5.2		5.2	

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-5		440-131479-6		440-131479-7		440-131479-8	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	3.9		2.7				4.0	

Lab SDG			440-131479-1	
Field Sample ID			OC2-MW14-W-2-20151218	
Sample Date			12/18/2015	
Lab Sample ID			440-131479-9	
DF			1	
Chromium, Hexavalent	1.0	ug/l		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	5.8		5.7		0.56 J		3.7	
Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221		OC2-MW1B-W-1-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-6		440-131654-7		440-131654-8		440-131654-9	
DF			1		1		1		1	
Chromium, Hexavalent	1.0	ug/l	7.4		9.0		19		15	
Lab SDG			440-131654-1		440-131654-1					
Field Sample ID			OC2-MW2-W-0-20151221		OC2-MW18C-W-2-20151221					
Sample Date			12/21/2015		12/21/2015					
Lab Sample ID			440-131654-10		440-131654-11					
DF			1		1					
Chromium, Hexavalent	1.0	ug/l	6.0							

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER CALIFORNIA

Perchlorate in Water

Laboratory Job Nos.
440-103859-1
440-103989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed
By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

1547-3139-1/jlr
Omega\Perchlorate.docx

EXECUTIVE SUMMARY

Validation of the inorganic data prepared by Test America for 67 ground water samples from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on seven samples (**bolded below**), which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos, 440-103859-1, 440-103989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

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OC2-KOONTZ -1C_3-W-0-20151214
OC2-KOONTZ -1C_4-W-0-20151214
OC2-KOONTZ -1C_4-W-1-20151214
OC2-KOONTZ -1C_5-W-0-20151214
OC2-KOONTZ -W-2-20151214
OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-1C_4-W-0-20151214
OC2-Hawkins-W-1-20151214
OC2-Hawkins-1C_5-W-0-20151214
OC2-Hawkins-1B_2-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214

OC2-MW28-W-0-20151215
OC2-MW30-W-0-20151215
OC2-MW26B-W-1-20151215
OC2-MW26B-W-0-20151215
OC2-MW26C-W-0-20151215
OC2-MW26D-W-0-20151215
OC2-MW26B-W-2-20151215
OC2-MW29-W-0-20151215
OC2-MW32-W-0-20151215
OC2-MW17B-W-0-20151215
OC2-MW17C-W-0-20151215
OC2-MW32-W-1-20151215

OC2-MW27A-W-0-20151216
OC2-MW27B-W-0-20151216
OC2-MW27-D-W-0-20151216
OC2-MW-25C-W-0-20151216
OC2-MW25B-W-0-20151216
OC2-MW20C-W-0-20151216
OC2-MW20B-W-0-20151216
OC2-MW25D-W-0-20151216
OC2-MW23A-W-0-20151216
OC2-MW23A-W-1-20151216
OC2-MW23A-W-2-20151216
OC2-MW23A-W-4-20151216

OC2-MW23B-W-0-20151217
OC2-MW23C-W-0-20151217
OC2-MW23D-W-0-20151217
OC2-MW7-W-0-20151217
OC2-MW7-W-2-20151217
OC2-MW7-W-3-20151217
OC2-MW8D-W-0-20151217
OC2-MW8B-W-0-20151217
OC2-MW8C-W-0-20151217
OC2-MW16C-W-0-20151217
OC2-MW16B-W-0-20151217

OC2-MW04B-W-0-20151218
OC2-MW04C-W-0-20151218
OC2-MW04A-W-0-20151218
OC2-MW24A-W-0-20151218
OC2-MW24B-W-0-20151218
OC2-MW24C-W-0-20151218
OC2-MW24D-W-0-20151218
OC2-MW14-W-0-20151218

OC2-MW14-W-2-20151218

OC2-MW18A-W-0-20151221	OC2-MW18B-W-0-20151221
OC2-MW18C-W-0-20151221	OC2-MW13B-W-0-20151221
OC2-MW31-W-0-20151221	OC2-MW1A-W-0-20151221
OC2-MW1B-W-0-20151221	OC2-MW1B-W-1-20151221
OC2-MW2-W-0-20151221	OC2-MW18C-W-2-20151221

Based on the validation effort, the following data qualifiers were applied:

- The results for perchlorate in Hawkins-1C-3-W-0-20151214, Hawkins-1B-2-W-0-20151214, OC2-MW28-W-0-20151215, OC2-MW26D-W-0-20151215, OC2-MW26B-W-2-20151215, OC2-MW29-W-0-20151215, OC2-MW32-W-0-201215, OC2-MW17B-W-0-20151215, OC2-MW17C-W-0-20151215 and OC2-MW32-W-1-20151215 were qualified as estimated (UJ).

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section VIII). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section VII.

This report should be considered <u>part of the data package</u> for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA Method 314.0. The methodology does not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Organic Data Review" (2014). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The samples were analyzed on December 18, 21 through 24 and 28, 2015, within method specified hold time.

II. Calibration

A. Initial Calibration (IC)

Initial calibrations were performed each day of analysis and an acceptable correlation coefficient (>0.99) was reported.

B. Continuing Calibration (CCV)

Continuing calibration (CCV) standards were run at the appropriate frequencies and the percent differences (%Ds) were acceptable (<10%D) with the exception of the closing CCV (291%D) run on instrument IC-25 on December 21, 2015. The response in the closing CCV is biased high and perchlorate was not detected in the associated samples, therefore, no qualification of sample results was warranted.

III. Blanks

Initial and continuing calibration blanks (CCB) were run at the appropriate frequency. Perchlorate was not detected in any blanks.

IV. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on the following samples:

- OC2-KOONTZ-1A_1-W-0-20151214
- OC2-MW30-W-0-20151215
- OC2-MW28A-W-0-20151215
- OC2-MW23A-W-0-20151216
- OC2-MW27A-W-0-20151216
- OC2-MW23B-W-0-20151217

- OC2-MW24A-W-0-20151218
- OC2-MW18A-W-0-20151221

All percent recoveries and relative percent differences (RPD) were acceptable with the exception of perchlorate in the MS/MSD (59 / 63 %R) performed on OC2-MW28-W-0-20151215. The results for perchlorate in Hawkins-1C-3-W-0-20151214, Hawkins-1B-2-W-0-20151214, OC2-MW28-W-0-20151215, OC2-MW26D-W-0-20151215, OC2-MW26B-W-2-20151215, OC2-MW29-W-0-20151215, OC2-MW32-W-0-201215, OC2-MW17B-W-0-20151215, OC2-MW17C-W-0-20151215 and OC2-MW32-W-1-20151215 were qualified as estimated (UJ) due to low MS/MSD recoveries.

B. Laboratory Control Sample (LCS)

An LCS was reported for each day of sample analysis. All percent recoveries were acceptable.

V. Field Duplicate

Seven sets of field duplicates were submitted:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

Where perchlorate was detected, precision between paired samples was acceptable.

VI. Sample Results

Target analyte concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort. Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section II).

VII. Documentation

No documentation issues were observed during the validation effort.

VIII. Overall Assessment

Based on the validation effort, the following data qualifiers were applied:

- The results for perchlorate in Hawkins-1C-3-W-0-20151214, Hawkins-1B-2-W-0-20151214, OC2-MW28-W-0-20151215, OC2-MW26D-W-0-20151215, OC2-MW26B-W-2-20151215, OC2-MW29-W-0-20151215, OC2-MW32-W-0-201215, OC2-MW17B-W-0-20151215, OC2-MW17C-W-0-20151215 and OC2-MW32-W-1-20151215 were qualified as estimated (UJ) due to low MS/MSD recoveries.

All other results were determined to be valid as reported. Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Perchlorate in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-1		440-130859-2		440-130859-3		440-130859-4	
DF			1		1		1		1	
Perchlorate	1.0	ug/l				UJ		UJ		

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214		OC2-HAWKINS-1C_3-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-5		440-130859-6		440-130859-7		440-130859-9	
DF			1		1		1		1	
Perchlorate	1.0	ug/l								UJ

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1	
Field Sample ID			OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214		OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214	
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015	
Lab Sample ID			440-130859-10		440-130859-11		440-130859-12		440-130859-13	
DF			1		1		5		1	
Perchlorate	1.0	ug/l					12			

Lab SDG			440-130859-1	
Field Sample ID			OC2-HAWKINS-1A_1-W-0-20151214	
Sample Date			12/14/2015	
Lab Sample ID			440-130859-14	
DF			1	
Perchlorate	1.0	ug/l		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-1-20151215		OC2-MW26B-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-1		440-130989-2		440-130989-3		440-130989-4	
DF			1		1		1		1	
Perchlorate	1.0	ug/l		UJ			2.4		2.0	
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8	
DF			1		1		1		1	
Perchlorate	1.0	ug/l	2.0			UJ		UJ		UJ
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1	
Field Sample ID			OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW17C-W-0-20151215		OC2-MW32-W-1-20151215	
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015	
Lab Sample ID			440-130989-9		440-130989-10		440-130989-12		440-130989-13	
DF			1		1		1		1	
Perchlorate	1.0	ug/l		UJ		UJ		UJ		UJ

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUDNWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27D-W-0-20151216		OC2-MW-25C-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-1		440-131235-2		440-131235-4		440-131235-5	
DF			1		1		1		1	
Perchlorate	1.0	ug/l								

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216		OC2-MW25D-W-0-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-6		440-131235-7		440-131235-8		440-131235-9	
DF			1		1		1		1	
Perchlorate	1.0	ug/l	1.4				1.5			

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1	
Field Sample ID			OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216		OC2-MW20B-W-1-20151216	
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015	
Lab Sample ID			440-131235-10		440-131235-11		440-131235-12		440-131235-14	
DF			1		1		1		1	
Perchlorate	1.0	ug/l	0.98 J		1.1				1.5	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3		440-131363-4	
DF			1		1		1		1	
Perchlorate	1.0	ug/l	1.6		1.6		2.1		1.9	
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-5		440-131363-6		440-131363-8		440-131363-9	
DF			1		1		1		1	
Perchlorate	1.0	ug/l					1.4		1.9	
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW8C-W-0-20151217		OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-10		440-131363-11		440-131363-12		440-131363-13	
DF			1		1		1		1	
Perchlorate	1.0	ug/l	1.4		0.59 J		1.6		1.7	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-1		440-131479-2		440-131479-3		440-131479-4	
DF			1		1		1		1	
Perchlorate	1.0	ug/l			1.6					

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-5		440-131479-6		440-131479-7		440-131479-8	
DF			1		1		1		1	
Perchlorate	1.0	ug/l								

Lab SDG			440-131479-1	
Field Sample ID			OC2-MW14-W-2-20151218	
Sample Date			12/18/2015	
Lab Sample ID			440-131479-9	
DF			1	
Perchlorate	1.0	ug/l		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			1		1		1		1	
Perchlorate	1.0	ug/l								

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221		OC2-MW1B-W-1-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-6		440-131654-7		440-131654-8		440-131654-9	
DF			1		1		1		1	
Perchlorate	1.0	ug/l								

Lab SDG			440-131654-1		440-131654-1	
Field Sample ID			OC2-MW2-W-0-20151221		OC2-MW18C-W-2-20151221	
Sample Date			12/21/2015		12/21/2015	
Lab Sample ID			440-131654-10		440-131654-11	
DF			1		1	
Perchlorate	1.0	ug/l				

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER, CALIFORNIA

Dissolved Metals in Water
Laboratory Job Nos.
440-131235-1
440-131363-1

Analyses Performed
By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

1547-3139-1/jlr
Omega\Metals.docx

EXECUTIVE SUMMARY

Validation of the inorganic data prepared by Test America for 12 ground water samples from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on two samples (**bolded below**), which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos 440-1301235-1 and 440-131363-1. The following samples were reported:

OC2-MW27B-W-0-20151216	OC2-MW-27D-W-0-20151216
OC2-MW25B-W-0-20151216	OC2-MW20C-W-0-20151216
OC2-MW20B-W-0-20151216	OC2-MW25D-W-0-20151216
OC2-MW23A-W-0-20151216	OC2-MW23A-W-1-20151216
OC2-MW20B-W-1-20151216	
OC2-MW23B-W-0-20151217	OC2-MW23C-W-0-20151217
OC2-MW23D-W-0-20151217	

Based on the validation effort, the following data qualifiers were applied:

- The results for antimony in OC2-MW23C-W-0-20151217 and iron in OC2-MW23B-W-0-20151217 and OC2-MW23D-W-0-20151217 were qualified as not detected (U) at the RL or reported value, whichever is greater.

- The results for zinc in OC2-MW27B-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216 and OC2-MW20B-W-1-20151216 were qualified as estimated (J-, UJ).

- The results for aluminum in OC2-MW23A-W-0-20151216 and OC2-MW23A-W-1-20151216 and arsenic in OC2-MW23A-W-0-20151216 were qualified as not detected (U) at the reporting limit.

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section IX). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section X.

This report should be considered part of the data package for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA Methods 200.7 Rev 4.4, 200.8 and 245.1. These methodologies do not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Inorganic Data Review" (2014). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 16 and 17, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The samples were analyzed on December 22, 23, 24 and 30, 2015, within method specified hold times.

II. Calibration

A. Initial Calibration (IC)

Initial calibrations were performed each day of analysis and an acceptable correlation coefficient (>0.99) was reported:

- ICP Metals Method 200.7 – December 23 and 24, 2015
- ICPMS Metals Method 200.8- December 24 and 30, 2015
- Mercury Method 245.1 – December 22 and 24, 2015

B. Continuing Calibration (CCV)

Continuing calibration (CCV) standards were run at the appropriate frequencies. Documentation was present in the data package, and the percent differences (%Ds) were acceptable (<10%D).

III. Blanks

Initial and continuing calibration blanks (CCB) were run at the appropriate frequency. Antimony (0.807 ug/L) and iron (9.30 ug/L) were detected in the continuing calibration blanks run on December 30, 2015. The results for antimony in OC2-MW23C-W-0-20151217 and iron in OC2-MW23B-w-0-20151217 and OC2-MW23D-W-0-20151217 were qualified as not detected (U) at the reporting limit (RL) or reported value, whichever is greater because the sample concentration was less than five time concentration in the associated CCB. No target analytes were reported in the method blanks.

IV. Interference Check Samples

Interference check standards were acceptable.

V. Serial Dilutions

Serial dilutions were not performed on these samples.

VI. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on OC2-MW23A-W-0-20151216 for all analytes and OC2-MW23B-W-0-20151217 for all analytes except mercury. MS/MSD analyses were performed on OC2-MW23D-W-0-20151217 for mercury. All percent recoveries and relative percent differences (RPD) were acceptable with the exception of zinc (66 / 66%R), calcium (431 / -451 %R), magnesium (2 / -27 %R) and sodium (138 / -68 %R) in the MS/MSD performed on OC2-MW23A-W-0-20151216. The concentrations of calcium, magnesium and sodium were greater than four times the concentration spiked and a meaningful recovery is not expected and no qualification of sample results was warranted. The results for zinc in OC2-MW27B-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216 and OC2-MW20B-W-1-20151216 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

B. Laboratory Control Sample (LCS)

An LCS and LCS duplicate (LCSD) were reported for each day of sample analysis. All percent recoveries and relative percent differences (RPD) were acceptable.

VII. Field Duplicate

Two sets of field duplicates were submitted:

- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216

The result for aluminum in OC2-MW23A-W-0-20151216 was qualified as not detected (U) at the reporting limit because it was not detected in the parent sample. The result for aluminum in OC2-MW23A-W-1-20151216 and arsenic in OC2-MW23A-W-0-20151216 were qualified as not detected (U) at the reporting limit because they were not detected in the paired sample. Following these qualifications, precision between the two sets of paired duplicates was acceptable.

VIII. Quantitation and Reporting Limits

Target analyte concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort. Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section II).

IX. Documentation

No documentation issues were observed during the validation effort.

X. Overall Assessment

Based on the validation effort, the following qualifiers were applied:

- The results for antimony in OC2-MW23C-W-0-20151217 and iron in OC2-MW23B-w-0-20151217 AND OC2-MW23D-W-0-20151217 were qualified as not detected (U) at the RL or reported value, whichever is greater due to associated blank contamination.

- The results for zinc in OC2-MW27B-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216 and OC2-MW20B-W-1-20151216 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

- The result for aluminum in OC2-MW23A-W-0-20151216 was qualified as not detected (U) at the reporting limit because it was not detected in the parent sample. The results for aluminum in OC2-MW23A-W-1-20151216 and arsenic in OC2-MW23A-W-0-20151216 were qualified as not detected (U) at the reporting limit because they were not detected in the paired sample.

All other results were determined to be valid as reported. Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Dissolved Metals in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW27B-W-0-20151216		OC2-MW-27D-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-2		440-131235-4		440-131235-6		440-131235-7	
		DF	1		1		1		1	
Calcium	0.10	mg/l	170		85		240		88	
Magnesium	0.020	mg/l	55		18		58		17	
Potassium	0.50	mg/l	5.3		4.4		5.6		3.8	
Sodium	0.50	mg/l	110		110		130		72	

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW20B-W-0-20151216		OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-8		440-131235-9		440-131235-10		440-131235-11	
		DF	1		1		1		1	
Calcium	0.10	mg/l	180		43		280		310	
Magnesium	0.020	mg/l	39		11		75		76	
Potassium	0.50	mg/l	4.6		2.2		4.5		4.4	
Sodium	0.50	mg/l	79		31		160		160	

		Lab SDG	440-131235-1	
		Field Sample ID	OC2-MW20B-W-1-20151216	
		Sample Date	12/16/2015	
		Lab Sample ID	440-131235-14	
		DF	1	
Calcium	0.10	mg/l	200	
Magnesium	0.020	mg/l	40	
Potassium	0.50	mg/l	4.8	
Sodium	0.50	mg/l	82	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW27B-W-0-20151216		OC2-MW-27D-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-2		440-131235-4		440-131235-6		440-131235-7	
		DF	1		1		1		1	
Aluminum	10	ug/l					5.3	J	5.7	J
Antimony	2.0	ug/l								
Arsenic	1.0	ug/l	0.52	J			0.96	J	0.58	J
Barium	1.0	ug/l	68		220		40		150	
Beryllium	0.50	ug/l								
Cadmium	1.0	ug/l								
Chromium	2.0	ug/l					14			
Cobalt	1.0	ug/l								
Copper	2.0	ug/l	1.5	J	0.86	J	1.8	J	1.1	
Iron	20	ug/l	250		170		26		72	
Lead	1.0	ug/l								
Manganese	1.0	ug/l	290		100				75	
Molybdenum	2.0	ug/l	1.1	J			1.5		2.0	
Nickel	2.0	ug/l	1.8	J	1.2	J	2.5		1.2	J
Selenium	2.0	ug/l	0.75	J			14			
Silver	1.0	ug/l								
Thallium	1.0	ug/l								
Vanadium	2.0	ug/l					2.8			
Zinc	20	ug/l		UJ		UJ		UJ	35	J-
Mercury	0.00020	mg/l								

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131235-1		440-131235-1		440-131235-1		440-131235-1		440-131235-1	
		Field Sample ID	OC2-MW20B-W-0-20151216		OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW20B-W-1-20151216	
		Sample Date	12/16/2015		12/16/2015		12/16/2015		12/16/2015		12/16/2015	
		Lab Sample ID	440-131235-8		440-131235-9		440-131235-10		440-131235-11		440-131235-14	
		DF	1		1		1		1		1	
Aluminum	10	ug/l			7.2	J		U		U	19	
Antimony	2.0	ug/l										
Arsenic	1.0	ug/l	0.71	J	0.91	J				U	0.67	J
Barium	1.0	ug/l	36		100		37		36		35	
Beryllium	0.50	ug/l										
Cadmium	1.0	ug/l										
Chromium	2.0	ug/l	16		7.5		6.4		6.1		16	
Cobalt	1.0	ug/l										
Copper	2.0	ug/l	1.3	J	0.52	J	2.5		2.0		1.4	J
Iron	20	ug/l	16	J			24		17	J	11	J
Lead	1.0	ug/l										
Manganese	1.0	ug/l					0.59	J	0.87	J		
Molybdenum	2.0	ug/l	1.6	J	3.4		3.9		3.5		5.8	
Nickel	2.0	ug/l	1.9 J	J	0.61	J	3.8		3.4		2.4	
Selenium	2.0	ug/l	16		8.9		15		15		16	
Silver	1.0	ug/l										
Thallium	1.0	ug/l										
Vanadium	2.0	ug/l	2.6		5.9		3.1		2.9		2.6	
Zinc	20	ug/l		UJ	12	J-	10	J-	8.7	J-		UJ
Mercury	0.00020	mg/l										

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

		Lab SDG	440-131363-1		440-131363-1		440-131363-1	
		Field Sample ID	OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217	
		Sample Date	12/17/2015		12/17/2015		12/17/2015	
		Lab Sample ID	440-131363-1		440-131363-2		440-131363-3	
		DF	1		1		1	
Aluminum	10	ug/l					6.5 J	
Antimony	2.0	ug/l				U		
Arsenic	1.0	ug/l	1.5		1.4		1.1	
Barium	1.0	ug/l	49		53		28	
Beryllium	0.50	ug/l						
Cadmium	1.0	ug/l						
Chromium	2.0	ug/l	14		6.4		12	
Cobalt	1.0	ug/l			0.73 J		0.50 J	
Copper	2.0	ug/l	2.6		4.7		3.2	
Iron	20	ug/l		U	170			U
Lead	1.0	ug/l						
Manganese	1.0	ug/l	16		6.0			
Molybdenum	2.0	ug/l	4.5		2.8		3.9	
Nickel	2.0	ug/l	1.5 J		2.8		1.2 J	
Selenium	2.0	ug/l	8.7		18		27	
Silver	1.0	ug/l						
Thallium	1.0	ug/l						
Vanadium	2.0	ug/l	3.0		2.9		3.4	
Zinc	20	ug/l	3.0 J					
Mercury	0.0002	mg/l						

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER CALIFORNIA

Anions (Nitrate, Sulfate, Chloride, Fluoride)
in Water

Laboratory Job Nos.
440-103859-1
440-103989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed
By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

1547-3139-1/jlr
Omega\Anions.docx

EXECUTIVE SUMMARY

Validation of the inorganic data prepared by Test America for 69 ground water samples for nitrate and sulfate analysis and 16 samples for chloride and fluoride analysis from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on the samples (**bolded below**), which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos, 440-103859-1, 440-103989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

OC2-KOONTZ-1A_1-W-0-20151214
OC2-KOONTZ-1C_3-W-0-20151214
OC2-KOONTZ-1C_4-W-1-20151214
OC2-KOONTZ-W-2-20151214
OC2-Hawkins-1C_4-W-0-20151214
OC2-Hawkins-1C_5-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214
OC2- KOONTZ -1B_2-W-0-20151214
OC2- KOONTZ -1C_4-W-0-20151214
OC2- KOONTZ -1C_5-W-0-20151214
OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-W-1-20151214
OC2-Hawkins-1B_2-W-0-20151214

OC2-MW28-W-0-20151215
OC2-MW26B-W-1-20151215
OC2-MW26C-W-0-20151215
OC2-MW26B-W-2-20151215
OC2-MW32-W-0-20151215
OC2-MW17C-W-0-20151215
OC2-MW30-W-0-20151215
OC2-MW26B-W-0-20151215
OC2-MW26D-W-0-20151215
OC2-MW29-W-0-20151215
OC2-MW17B-W-0-20151215
OC2-MW32-W-1-20151215

OC2-MW27A-W-0-20151216
OC2-MW-27C-W-0-20151216
OC2-MW-25C-W-0-20151216
OC2-MW20C-W-0-20151216
OC2-MW25D-W-0-20151216
OC2-MW23A-W-1-20151216
OC2-MW20B-W-1-20151216
OC2-MW27B-W-0-20151216
OC2-MW-27D-W-0-20151216
OC2-MW25B-W-0-20151216
OC2-MW20B-W-0-20151216
OC2-MW23A-W-0-20151216
OC2-MW23A-W-2-20151216

OC2-MW23B-W-0-20151217
OC2-MW23D-W-0-20151217
OC2-MW7-W-2-20151217
OC2-MW8D-W-0-20151217
OC2-MW8C-W-0-20151217
OC2-MW16B-W-0-20151217
OC2-MW23C-W-0-20151217
OC2-MW7-W-0-20151217
OC2-MW7-W-3-20151217
OC2-MW8B-W-0-20151217
OC2-MW16C-W-0-20151217
OC2-MW15-W-0-20151217

OC2-MW04B-W-0-20151218
OC2-MW04A-W-0-20151218
OC2-MW24B-W-0-20151218
OC2-MW04C-W-0-20151218
OC2-MW24A-W-0-20151218
OC2-MW24C-W-0-20151218

OC2-MW24D-W-0-20151218 OC2-MW14-W-0-20151218
OC2-MW14-W-2-20151218

OC2-MW18A-W-0-20151221 **OC2-MW18B-W-0-20151221**
OC2-MW18C-W-0-20151221 OC2-MW13B-W-0-20151221
OC2-MW31-W-0-20151221 OC2-MW1A-W-0-20151221
OC2-MW1B-W-0-20151221 OC2-MW1B-W-1-20151221
OC2-MW2-W-0-20151221 OC2-MW18C-W-2-20151221

Based on the validation effort, the following data qualifiers were applied:

- The results for nitrate in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW27C-W-0-20151216, OC2-MW27D-W-0-20151216, OC2-MW25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216, OC2-MW20B-W-1-20151216, OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217, OC2-MW15-W-0-20151217, OC2-MW04B-W-0-20151218, OC2-MW04C-W-0-20151218, OC2-MW04A-W-0-20151218, OC2-MW24A-W-0-20151218, OC2-MW24B-W-0-20151218, OC2-MW24C-W-0-20151218, OC2-MW24D-W-0-20151218, OC2-MW14-W-0-20151218 and OC2-MW14-W-2-20151218, were qualified as estimated (J-, UJ).

- The results for chloride and fluoride in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW27C-W-0-20151216, OC2-MW27D-W-0-20151216, OC2-MW25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216 and OC2-MW20B-W-1-20151216, and only chloride in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217 and OC2-MW23D-W-0-20151217 were qualified as estimated (J-, UJ).

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section VII). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section VIII.

This report should be considered <u>part of the data package</u> for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with USEPA Method 300.0. The methodology does not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms' validation was performed, to the extent possible, in conformance with the "Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014" and with EPA's "National Functional Guidelines for Inorganic Data Review" (2014). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The samples were analyzed on December 15, 17, 18 and 22, 2015, within method specified hold times.

II. Calibration

A. Initial Calibration (IC)

Initial calibrations were performed each day of analysis and an acceptable correlation coefficient (>0.99) was reported.

B. Continuing Calibration (CCV)

Continuing calibration (CCV) standards were run at the appropriate frequencies and the percent differences (%Ds) were acceptable (<10%D).

III. Blanks

A method blank was performed each day of analysis. No target analytes were detected in the method blanks.

Initial and continuing calibration blanks (CCB) were run at the appropriate frequency. Chloride (0.300 and 03147 ug/L) was detected in two CCBs but the concentration of chloride in the associated samples was such that the concentration in the blanks had no impact on sample results.

IV. Spike Analysis

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on the following samples:

- OC2-KOONTZ-1A_1-W-0-20151214
- OC2-Hawkins-1A-W-0-20151214
- OC2-MW32A-W-1-20151215
- OC2-MW23A-W-0-20151216

- OC2-MW20B-W-1-20151216
- OC2-MW7-W-0-20151217
- OC2-MW24A-W-0-20151218
- OC2-MW18A-W-0-20151221

All percent recoveries and relative percent differences (RPD) were acceptable with the following exceptions:

- Sulfate (62 / 65 %R) in the MS/MSD performed on OC2-Hawkins-1A-W-0-20151214.
- Sulfate (66 / 67 %R) in the MS/MSD performed on OC2-MW32A-W-1-20151215.
- Chloride (42 / 41 %R), fluoride (65 / 64 %R), nitrate (48 / 50 %R) and sulfate (32 / 23 %R) in the MS/MSD performed on OC2-MW23A-W-0-20151216.
- Chloride (36 / 39 %R), fluoride (64/64 %R), nitrate (47 / 40 %R) and sulfate (38 / 38 %R) in the MS/MSD performed on OC2-MW20B-W-1-20151216.
- Chloride (66 %R in MSD), nitrate (66 %R in MSD) and sulfate (33 / 14 %R) in the MS/MSD performed on OC2-MW7-W-0-20151217.
- Nitrate (44 / 45 %R) and sulfate (275 / 264 %R) in the MS/MSD performed on OC2-MW24A-W-0-20151218.
- Sulfate (33 / 36 %R) in the MS/MSD performed on OC2-MW18A-W-0-20151221.

In all cases, the concentration of sulfate in the parent sample was more than four times the concentration spiked in the MS/MSD and a meaningful recovery is not expected. No qualification of sample results was made based on the recoveries of sulfate in the MS/MSDs.

The results for nitrate in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW-27C-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW-25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216, OC2-MW20B-W-1-20151216, OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217, OC2-MW15-W-0-20151217, OC2-MW04B-W-0-20151218, OC2-MW04C-W-0-20151218, OC2-MW04A-W-0-20151218, OC2-MW24A-W-0-20151218, OC2-MW24B-W-0-20151218, OC2-MW24C-W-0-20151218, OC2-MW24D-W-0-20151218, OC2-MW14-W-0-20151218 and OC2-MW14-W-2-20151218, were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

The results for chloride and fluoride in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW-27C-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW-25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216 and OC2-MW20B-W-1-20151216, and chloride in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217 and OC2-MW23D-W-0-20151217 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

B. Laboratory Control Sample (LCS)

An LCS was reported for each day of sample analysis. All percent recoveries were acceptable.

V. Field Duplicate

Seven sets of field duplicates were submitted:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

Where target were detected, precision between paired samples was acceptable.

VI. Sample Results

Target analyte concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort. Analyte-specific reporting limits are equal to the lowest standard in the calibration range and are well supported by the IC (see Section II).

VII. Documentation

No documentation issues were observed during the validation effort.

VIII. Overall Assessment

Based on the data review and validation efforts, the following data qualifiers were applied:

- The results for nitrate in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW-27C-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW-25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216, OC2-MW20B-W-1-20151216, OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217, OC2-MW23D-W-0-20151217, OC2-MW7-W-0-20151217, OC2-MW7-W-2-20151217, OC2-MW7-W-3-20151217, OC2-MW8D-W-0-20151217, OC2-MW8B-W-0-20151217, OC2-MW8C-W-0-20151217, OC2-MW16C-W-0-20151217, OC2-MW16B-W-0-20151217, OC2-MW15-W-0-20151217, OC2-MW04B-W-0-20151218, OC2-MW04C-W-0-20151218, OC2-MW04A-W-0-20151218, OC2-MW24A-W-0-20151218, OC2-MW24B-W-0-20151218, OC2-MW24C-W-0-20151218, OC2-MW24D-W-0-20151218, OC2-MW14-W-0-20151218 and OC2-MW14-W-2-20151218 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

- The results for chloride and fluoride in OC2-MW27A-W-0-20151216, OC2-MW27B-W-0-20151216, OC2-MW-27C-W-0-20151216, OC2-MW-27D-W-0-20151216, OC2-MW-25C-W-0-20151216, OC2-MW25B-W-0-20151216, OC2-MW20C-W-0-20151216, OC2-MW20B-W-0-20151216, OC2-MW25D-W-0-20151216, OC2-MW23A-W-0-20151216, OC2-MW23A-W-1-20151216, OC2-MW23A-W-2-20151216 and OC2-MW20B-W-1-20151216, and chloride in OC2-MW23B-W-0-20151217, OC2-MW23C-W-0-20151217 and OC2-MW23D-W-0-20151217 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

All other results were determined to be valid as reported.

Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
Anions in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1		
Field Sample ID			OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214		
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015		
Lab Sample ID			440-130859-1		440-130859-2		440-130859-3		440-130859-4		
DF			1,10		1		1,10		1, 10		
Nitrate (as N)	0.11	mg/l									
Sulfate	0.50	mg/l	59		0.59		120		120		

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1		
Field Sample ID			OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214		OC2-HAWKINS-1C_3-W-0-20151214		
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015		
Lab Sample ID			440-130859-5		440-130859-6		440-130859-7		440-130859-9		
DF			1,10		1, 50		1		1		
Nitrate (as N)	0.11	mg/l									
Sulfate	0.50	mg/l	120		420				7.5		

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1		
Field Sample ID			OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214		OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214		
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015		
Lab Sample ID			440-130859-10		440-130859-11		440-130859-12		440-130859-13		
DF			1		1		1, 50		1,5		
Nitrate (as N)	0.11	mg/l									
Sulfate	0.50	mg/l	2.5		2.5		440		33		

Lab SDG			440-130859-1	
Field Sample ID			OC2-HAWKINS-1A_1-W-0-20151214	
Sample Date			12/14/2015	
Lab Sample ID			440-130859-14	
DF			1,20	
Nitrate (as N)	0.11	mg/l		
Sulfate	0.50	mg/l	230	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-1-20151215		OC2-MW26B-W-0-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-1		440-130989-2		440-130989-3		440-130989-4			
DF			50		1,50		50		50			
Nitrate (as N)	0.11	mg/l	9.6		0.11		15		15			
Sulfate	0.50	mg/l	290		110		610		620			
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8			
DF			50		1,5		1		1,50			
Nitrate (as N)	0.11	mg/l	14						1.2			
Sulfate	0.50	mg/l	530		72				300			
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW17C-W-0-20151215		OC2-MW32-W-1-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-9		440-130989-10		440-130989-12		440-130989-13			
DF			50		50		1,5		50			
Nitrate (as N)	0.11	mg/l	10		12		0.44		11			
Sulfate	0.50	mg/l	350		420		55		340			

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4		
DF			1,50		1,50		1,10		1,20		
Chloride	0.50	mg/l	110	J-	120	J-	65	J-	78	J-	
Fluoride	0.50	mg/l	0.34	J-	0.32	J-	0.43	J-	0.37	J-	
Nitrate (as N)	0.11	mg/l		UJ		UJ	0.19	J-		UJ	
Sulfate	0.50	mg/l	520		400		34		160		

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8		
DF			1,5		1,50		1,20		1,50		
Chloride	0.50	mg/l	110	J-	96	J-	53	J-	92	J-	
Fluoride	0.50	mg/l	0.59	J-	0.37	J-	0.36	J-	0.39	J-	
Nitrate (as N)	0.11	mg/l	0.30	J-	14	J-		UJ	9.2	J-	
Sulfate	0.50	mg/l	33		430		170		290		

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1		
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216		
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015		
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12		
DF			1,5		1,50		1,50		1,25		
Chloride	0.50	mg/l	33	J-	100	J-	110	J-	96	J-	
Fluoride	0.50	mg/l	0.49	J-	0.39	J-	0.37	J-	0.39	J-	
Nitrate (as N)	0.11	mg/l	2.1	J-	13	J-	13	J-	9.6	J-	
Sulfate	0.50	mg/l	40		630		640		300		

Lab SDG			440-131235-1	
Field Sample ID			OC2-MW20B-W-1-20151216	
Sample Date			12/16/2015	
Lab Sample ID			440-131235-14	
DF			1,50	
Chloride	0.50	mg/l	96	J-
Fluoride	0.50	mg/l	0.39	J-
Nitrate (as N)	0.11	mg/l	9.6	J-
Sulfate	0.50	mg/l	300	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217	
Sample Date			42355.43611		42355.43611		42355.43611		42355.43611	
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3		440-131363-4	
DF			1,50		1,50		1,50		50	
Chloride	25	mg/l	83	J-	85	J-	64	J-		
Fluoride	0.50	mg/l	0.43	J-	0.42	J-	0.41	J-		
Nitrate (as N)	0.11	mg/l	13	J-	15	J-	11	J-	12	J-
Sulfate	0.50	mg/l	330		660		430		610	

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-5		440-131363-6		440-131363-8		440-131363-9	
DF			1		1		50		50	
Chloride	25	mg/l								
Fluoride	0.50	mg/l								
Nitrate (as N)	0.11	mg/l		UJ		UJ	9.3	J-	12	J-
Sulfate	0.50	mg/l					270		350	

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW8C-W-0-20151217		OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-10		440-131363-11		440-131363-12		440-131363-13	
DF			50		1,20		50		50	
Chloride	25	mg/l								
Fluoride	0.50	mg/l								
Nitrate (as N)	0.11	mg/l	12	J-	2.4	J-	14	J-	15	J-
Sulfate	0.50	mg/l	340		220		500		630	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-1		440-131479-2		440-131479-3		440-131479-4	
DF			50		50		50		50	
Nitrate (as N)	0.11	mg/l	13	J-	11	J-	18	J-	18	J-
Sulfate	0.50	mg/l	1100		180		280		280	

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-5		440-131479-6		440-131479-7		440-131479-8	
DF			50		50		1,20		50	
Nitrate (as N)	0.11	mg/l	6.7	J-	7.1	J-		UJ	6.8	J-
Sulfate	0.50	mg/l	320		350		260		680	

Lab SDG			440-131479-1	
Field Sample ID			OC2-MW14-W-2-20151218	
Sample Date			12/18/2015	
Lab Sample ID			440-131479-9	
DF			1	
Nitrate (as N)	0.11	mg/l		UJ
Sulfate	0.50	mg/l		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			50		50		5,50		5,50	
Nitrate (as N)	0.11	mg/l	15		16		11		9.0	
Sulfate	25	mg/l	490		680		410		300	

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221		OC2-MW1B-W-1-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-6		440-131654-7		440-131654-8		440-131654-9	
DF			20		50		20		20	
Nitrate (as N)	0.11	mg/l	11		12		9.4		9.3	
Sulfate	25	mg/l	220		370		180		180	

Lab SDG			440-131654-1		440-131654-1	
Field Sample ID			OC2-MW2-W-0-20151221		OC2-MW18C-W-2-20151221	
Sample Date			12/21/2015		12/21/2015	
Lab Sample ID			440-131654-10		440-131654-11	
DF			50		1	
Nitrate (as N)	0.11	mg/l	11			
Sulfate	25	mg/l	650			

DATA VALIDATION

FOR

GROUND WATER MONITORING
OMEGA CHEMICAL SITE
WHITTIER, CALIFORNIA

Total Dissolved Solids (TDS) and Alkalinity in Water

Laboratory Job Nos.
440-103859-1
440-103989-1
440-131235-1
440-131363-1
440-131479-1
440-131654-1

Analyses Performed By:

Test America
Irvine, CA

For:

de maximis, inc.
1322 Scott Street
Suite 104
San Diego, CA 92106

Data Validation By:

ddms, inc.
St. Paul, Minnesota 55108

March 16, 2016

1547-3139-1/jlr
Omega\TDS-Alk.docx

EXECUTIVE SUMMARY

Validation of the inorganic data prepared by Test America for 69 ground water samples for TDS and 16 samples for alkalinity from the Omega Chemical Site has been completed by de maximis Data Management Solutions, Inc. (ddms). Full validation was performed on the samples **bolded below**, which represent 10% of the total number of ground water samples received and analyzed by Test America. The data were reported by the laboratory under Laboratory Job Nos, 440-103859-1, 440-103989-1, 440-131235-1, 440-131363-1, 440-131479-1 and 440-131654-1. The following samples were reported:

OC2-KOONTZ-1A_1-W-0-20151214	OC2-KOONTZ-1B_2-W-0-20151214
OC2-KOONTZ-1C_3-W-0-20151214	OC2-KOONTZ-1C_4-W-0-20151214
OC2-KOONTZ-1C_4-W-1-20151214	OC2-KOONTZ-1C_5-W-0-20151214
OC2-KOONTZ-W-2-20151214	OC2-Hawkins-1C_3-W-0-20151214
OC2-Hawkins-1C_4-W-0-20151214	OC2-Hawkins-W-1-20151214
OC2-Hawkins-1C_5-W-0-20151214	OC2-Hawkins-1B_2-W-0-20151214
OC2-Hawkins-1A_1-W-0-20151214	
OC2-MW28-W-0-20151215	OC2-MW30-W-0-20151215
OC2-MW26B-W-1-20151215	OC2-MW26B-W-0-20151215
OC2-MW26C-W-0-20151215	OC2-MW26D-W-0-20151215
OC2-MW26B-W-2-20151215	OC2-MW29-W-0-20151215
OC2-MW32-W-0-20151215	OC2-MW17B-W-0-20151215
OC2-MW17C-W-0-20151215	OC2-MW32-W-1-20151215
OC2-MW27A-W-0-20151216	**OC2-MW27B-W-0-20151216**
OC2-MW-27C-W-0-20151216	OC2-MW-27D-W-0-20151216
OC2-MW-25C-W-0-20151216	OC2-MW25B-W-0-20151216
OC2-MW20C-W-0-20151216	OC2-MW20B-W-0-20151216
OC2-MW25D-W-0-20151216	OC2-MW23A-W-0-20151216
OC2-MW23A-W-1-20151216	OC2-MW23A-W-2-20151216
OC2-MW20B-W-1-20151216	
OC2-MW23B-W-0-20151217	OC2-MW23C-W-0-20151217
OC2-MW23D-W-0-20151217	OC2-MW7-W-0-20151217
OC2-MW7-W-2-20151217	OC2-MW7-W-3-20151217
OC2-MW8D-W-0-20151217	OC2-MW8B-W-0-20151217
OC2-MW8C-W-0-20151217	OC2-MW16C-W-0-20151217
OC2-MW16B-W-0-20151217	OC2-MW15-W-0-20151217
OC2-MW04B-W-0-20151218	**OC2-MW04C-W-0-20151218**
OC2-MW04A-W-0-20151218	OC2-MW24A-W-0-20151218
OC2-MW24B-W-0-20151218	OC2-MW24C-W-0-20151218

OC2-MW24D-W-0-20151218	OC2-MW14-W-0-20151218
OC2-MW14-W-2-20151218	
OC2-MW18A-W-0-20151221	OC2-MW18B-W-0-20151221
OC2-MW18C-W-0-20151221	OC2-MW13B-W-0-20151221
OC2-MW31-W-0-20151221	OC2-MW1A-W-0-20151221
OC2-MW1B-W-0-20151221	OC2-MW1B-W-1-20151221
OC2-MW2-W-0-20151221	OC2-MW18C-W-2-20151221

Based on the validation effort, the following data qualifiers were applied:

- The results for TDS in all samples except OC2-MW1B-W-1-20151221, OC2-MW1B-W-0-20151221, OC2-MW23A-W-1-20151216, OC2-MW23A-W-0-20151216, OC2-Hawkins-W-1-20151214, OC2-Hawkins-1C_4-W-0-20151214, OC2-KOONTZ-1C_4-W-1-20151214, OC2-KOONTZ -1C_4-W-0-20151214, OC2-MW26B-W-1-20151215 and OC2-MW26B-W-0-20151215 were qualified as estimated (J, UJ).

All other results were determined to be valid as reported. A brief explanation of the reason for the actions taken above may be found in the Overall Assessment (Section VI). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section VII.

This report should be considered <u>part of the data package</u> for all future distributions of the volatile data.

INTRODUCTION

Analyses were performed in accordance with “Standard Methods for the Examination of Water and Wastewater”, Methods 2320B and 2540C. The methodology does not stipulate a reporting format; however, the laboratory provided a "CLP-type" data package for review.

ddms’ validation and review were performed, to the extent possible, in conformance with the “Quality Assurance Project Plan for Groundwater Monitoring at Omega Chemical Corporation Superfund Site Operable Unit 2 (OU2), June 2014” and with EPA's "National Functional Guidelines for Inorganic Data Review" (2014). Professional judgment was applied as necessary and appropriate. Where discrepancies were found, the specifications of the analytical method took precedence.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the referenced methods. An initial assumption is that the data package is presented in accordance with the CLP requirements (or "CLP-like," as in this case). It is also assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of the evaluation, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

NJ The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

All data users should note two facts. First, the "R" qualifier means that the laboratory-reported value is unusable. In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, no concentration is guaranteed to be accurate even if all associated quality control is acceptable. Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

Copies of the applicable chain of custody (COC) records were included in the data packages documenting sample collection dates of December 14 through 18 and 21, 2015. The samples were hand delivered to the laboratory on the same day as sample collection. The cooler temperatures upon receipt at the laboratory were acceptable (6 °C ± 2 °C). The samples were analyzed on December 16, 17, 18, 21 and 22, 2015, within method specified hold times.

II. Blanks

A method blank was performed each day of analysis. No target analytes were detected in the method blanks.

III. Spike Analysis

A. Laboratory Control Sample (LCS)

An LCS was reported for each day of sample analysis. All percent recoveries were acceptable.

IV. Duplicate Analyses

A. Laboratory Duplicates

A laboratory duplicate analysis was performed each day of analysis for TDS and alkalinity. Precision between duplicates was acceptable.

B. Field Duplicates

Seven sets of field duplicates were submitted:

- OC2-MW1B-W-1-20151221 / OC2-MW1B-W-0-20151221
- OC2-MW23A-W-1-20151216 / OC2-MW23A-W-0-20151216
- OC2-Hawkins-W-1-20151214 / OC2-Hawkins-1C_4-W-0-20151214
- OC2-KOONTZ-1C_4-W-1-20151214 / OC2-KOONTZ-1C_4-W-0-20151214
- OC2-MW26B-W-1-20151215 / OC2-MW26B-W-0-20151215
- OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

Precision between paired samples was acceptable with the following exceptions:

- TDS (34% RPD) in OC2-MW32-W-1-20151215 / OC2-MW32-W-0-20151215
- TDS (38% RPD) in OC2-MW20B-W-1-20151216 / OC2-MW20B-W-0-20151216

The results for TDS in all samples except OC2-MW1B-W-1-20151221, OC2-MW1B-W-0-20151221, OC2-MW23A-W-1-20151216, OC2-MW23A-W-0-20151216, OC2-Hawkins-W-1-20151214, OC2-Hawkins-1C_4-W-0-20151214, OC2-KOONTZ-1C_4-W-1-20151214, OC2-KOONTZ-1C_4-W-0-20151214, OC2-MW26B-W-1-20151215 and OC2-MW26B-W-0-20151215 were qualified as estimated (J, UJ) due to imprecision between field duplicate samples.

V. Sample Results

Target analyte concentrations and reporting limits (RLs) were correctly calculated and accurately reported for the samples and spike samples associated with the full validation effort.

VI. Documentation

No documentation issues were observed during the validation effort.

VII. Overall Assessment

Based on the validation effort, the following data qualifiers were applied:

- The results for TDS in all samples except OC2-MW1B-W-1-20151221, OC2-MW1B-W-0-20151221, OC2-MW23A-W-1-20151216, OC2-MW23A-W-0-20151216, OC2-Hawkins-W-1-20151214, OC2-Hawkins-1C_4-W-0-20151214, OC2-KOONTZ-1C_4-W-1-20151214, OC2-KOONTZ-1C_4-W-0-20151214, OC2-MW26B-W-1-20151215 and OC2-MW26B-W-0-20151215 were qualified as estimated (J, UJ) due to imprecision between field duplicate samples.

All other results were determined to be valid as reported. Documentation issues observed in the data package are described in Section XIII.

This validation report should be considered <u>part of the data package</u> for all future distributions of the volatiles data.

ATTACHMENT A

DATA SUMMARY FORMS
TDS and Alkalinity in Water

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNWATERS

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1			
Field Sample ID			OC2-KOONTZ-1A_1-W-0-20151214		OC2-KOONTZ-1B_2-W-0-20151214		OC2-KOONTZ-1C_3-W-0-20151214		OC2-KOONTZ-1C_4-W-0-20151214			
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015			
Lab Sample ID			440-130859-1		440-130859-2		440-130859-3		440-130859-4			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	370	J	350	J	520	J	510			

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1			
Field Sample ID			OC2-KOONTZ-1C_4-W-1-20151214		OC2-KOONTZ-1C_5-W-0-20151214		OC2-KOONTZ-W-2-20151214		OC2-HAWKINS-1C_3-W-0-20151214			
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015			
Lab Sample ID			440-130859-5		440-130859-6		440-130859-7		440-130859-9			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	510		1200	J	12	J	500	J		

Lab SDG			440-130859-1		440-130859-1		440-130859-1		440-130859-1			
Field Sample ID			OC2-HAWKINS-1C_4-W-0-20151214		OC2-HAWKINS-W-1-20151214		OC2-HAWKINS-1C_5-W-0-20151214		OC2-HAWKINS-1B_2-W-0-20151214			
Sample Date			12/14/2015		12/14/2015		12/14/2015		12/14/2015			
Lab Sample ID			440-130859-10		440-130859-11		440-130859-12		440-130859-13			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	310		310		1200	J	260	J		

Lab SDG			440-130859-1	
Field Sample ID			OC2-HAWKINS-1A_1-W-0-20151214	
Sample Date			12/14/2015	
Lab Sample ID			440-130859-14	
DF			1	
Total Dissolved Solids	10	mg/l	630	J

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW28-W-0-20151215		OC2-MW30-W-0-20151215		OC2-MW26B-W-1-20151215		OC2-MW26B-W-0-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-1		440-130989-2		440-130989-3		440-130989-4			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	1200	J	1100	J	1500		1500			
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW26C-W-0-20151215		OC2-MW26D-W-0-20151215		OC2-MW26B-W-2-20151215		OC2-MW29-W-0-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-5		440-130989-6		440-130989-7		440-130989-8			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	1200	J	310	J		UJ	1200	J		
Lab SDG			440-130989-1		440-130989-1		440-130989-1		440-130989-1			
Field Sample ID			OC2-MW32-W-0-20151215		OC2-MW17B-W-0-20151215		OC2-MW17C-W-0-20151215		OC2-MW32-W-1-20151215			
Sample Date			12/15/2015		12/15/2015		12/15/2015		12/15/2015			
Lab Sample ID			440-130989-9		440-130989-10		440-130989-12		440-130989-13			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	780	J	1100	J	290	J	1100	J		

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4			
DF			1		1		1		1			
Bicarbonate as HCO3, Calculated	4.8	mg/l	580		430		320		310			
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8			
DF			1		1		1		1			
Bicarbonate as HCO3, Calculated	4.8	mg/l	160		500		290		350			
Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12			
DF			1		1		1		1			
Bicarbonate as HCO3, Calculated	4.8	mg/l	160		570		590					
Lab SDG			440-131235-1									
Field Sample ID			OC2-MW20B-W-1-20151216									
Sample Date			12/16/2015									
Lab Sample ID			440-131235-14									
DF			1									
Bicarbonate as HCO3, Calculated	4.8	mg/l	360									

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW27A-W-0-20151216		OC2-MW27B-W-0-20151216		OC2-MW-27C-W-0-20151216		OC2-MW-27D-W-0-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-1		440-131235-2		440-131235-3		440-131235-4			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	1500	J	1200	J	450	J	660	J		

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW-25C-W-0-20151216		OC2-MW25B-W-0-20151216		OC2-MW20C-W-0-20151216		OC2-MW20B-W-0-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-5		440-131235-6		440-131235-7		440-131235-8			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	230	J	1300	J	610	J	1000	J		

Lab SDG			440-131235-1		440-131235-1		440-131235-1		440-131235-1			
Field Sample ID			OC2-MW25D-W-0-20151216		OC2-MW23A-W-0-20151216		OC2-MW23A-W-1-20151216		OC2-MW23A-W-2-20151216			
Sample Date			12/16/2015		12/16/2015		12/16/2015		12/16/2015			
Lab Sample ID			440-131235-9		440-131235-10		440-131235-11		440-131235-12			
DF			1		1		1		1			
Total Dissolved Solids	10	mg/l	280		1700		1800	J		J		

Lab SDG			440-131235-1	
Field Sample ID			OC2-MW20B-W-1-20151216	
Sample Date			12/16/2015	
Lab Sample ID			440-131235-14	
DF			1	
Total Dissolved Solids	10	mg/l	1000	J

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3	
DF			1		1		1	
Bicarbonate as HCO3, Calculated	4.8	mg/l	510		530		350	

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW23B-W-0-20151217		OC2-MW23C-W-0-20151217		OC2-MW23D-W-0-20151217		OC2-MW7-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-1		440-131363-2		440-131363-3		440-131363-4	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	1200	J	1800	J	1200	J	1700	J
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW7-W-2-20151217		OC2-MW7-W-3-20151217		OC2-MW8D-W-0-20151217		OC2-MW8B-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-5		440-131363-6		440-131363-8		440-131363-9	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l		UJ		UJ	920	J	1300	J
Lab SDG			440-131363-1		440-131363-1		440-131363-1		440-131363-1	
Field Sample ID			OC2-MW8C-W-0-20151217		OC2-MW16C-W-0-20151217		OC2-MW16B-W-0-20151217		OC2-MW15-W-0-20151217	
Sample Date			12/17/2015		12/17/2015		12/17/2015		12/17/2015	
Lab Sample ID			440-131363-10		440-131363-11		440-131363-12		440-131363-13	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	1200	J	720	J	1500	J	1700	J

DATA SUMMARY FORM
OMEGA CHEMICAL OU2
GROUNDWATERS

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW04B-W-0-20151218		OC2-MW04C-W-0-20151218		OC2-MW04A-W-0-20151218		OC2-MW24A-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-1		440-131479-2		440-131479-3		440-131479-4	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	2300	J	900	J	1300	J	1600	J

Lab SDG			440-131479-1		440-131479-1		440-131479-1		440-131479-1	
Field Sample ID			OC2-MW24B-W-0-20151218		OC2-MW24C-W-0-20151218		OC2-MW24D-W-0-20151218		OC2-MW14-W-0-20151218	
Sample Date			12/18/2015		12/18/2015		12/18/2015		12/18/2015	
Lab Sample ID			440-131479-5		440-131479-6		440-131479-7		440-131479-8	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	1100	J	1100	J	790	J	2000	J

Lab SDG			440-131479-1	
Field Sample ID			OC2-MW14-W-2-20151218	
Sample Date			12/18/2015	
Lab Sample ID			440-131479-9	
DF			1	
Total Dissolved Solids	10	mg/l		UJ

DATA SUMMARY FORM
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GROUNDWATERS

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW18A-W-0-20151221		OC2-MW18B-W-0-20151221		OC2-MW18C-W-0-20151221		OC2-MW13B-W-0-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-1		440-131654-2		440-131654-3		440-131654-4	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	1300	J	1700	J	1100	J	990	J

Lab SDG			440-131654-1		440-131654-1		440-131654-1		440-131654-1	
Field Sample ID			OC2-MW31-W-0-20151221		OC2-MW1A-W-0-20151221		OC2-MW1B-W-0-20151221		OC2-MW1B-W-1-20151221	
Sample Date			12/21/2015		12/21/2015		12/21/2015		12/21/2015	
Lab Sample ID			440-131654-6		440-131654-7		440-131654-8		440-131654-9	
DF			1		1		1		1	
Total Dissolved Solids	10	mg/l	940	J	1200	J	850		780	

Lab SDG			440-131654-1		440-131654-1	
Field Sample ID			OC2-MW2-W-0-20151221		OC2-MW18C-W-2-20151221	
Sample Date			12/21/2015		12/21/2015	
Lab Sample ID			440-131654-10		440-131654-11	
DF			1		1	
Total Dissolved Solids	10	mg/l	1700	J		UJ