ENVIRONMENTAL REMEDIATION GROUP
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VIA: Geotracker

July 30, 2014

Mr. Dean Thomas, PG
Engineering Geologist
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

Subject: Second Quarter 2014 Groundwater Monitoring Report
Olin Site
425 Tennant Ave
Morgan Hill, California

Dear Mr. Thomas:

The Second Quarter 2014 Groundwater Monitoring Report (GMR) for the Olin Site in Morgan Hill, California is attached. The GMR is prepared pursuant to Monitoring and Reporting Program (MRP) R3-2008-0028 and Cleanup or Abatement Order (CAO) R3-2004-0101, as modified by the State Water Resources Control Board and other Central Coast Regional Water Quality Control Board letters.

With my signature below, as a duly authorized Olin representative, I certify under penalty of perjury that to the best of my knowledge the contents within this report are true, complete, and correct.

If you have any questions, please call me.

Sincerely,
O L I N C O R P O R A T I O N

David M. Share
Director
Environmental Remediation Group

cc (via e-mail):
Thea Tryon, Water Board
Karl Bjarke, City of Morgan Hill
Andria Ventura, PCAG
Behzad Ahmadi, Water District
Curt Richards, Rick McClure, Dane Grimshaw (Olin)
Michael Taraszki, Sean Culkin, Susan Panttaja, Mari Gilmore (AMEC)
Evan Cox, Jim Deitsch (Geosyntec)

July 30, 2014

Project 6107140012

Mr. Dean Thomas, PG
Engineering Geologist
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

Subject: Second Quarter 2014 Groundwater Monitoring Report
Monitoring and Reporting Program R3-2008-0028
Olin Site
425 Tennant Avenue
Morgan Hill, California

Dear Mr. Thomas:

This report has been prepared on behalf of Olin Corporation (Olin) by AMEC Environment & Infrastructure, Inc. (AMEC) to present the results of the Second Quarter 2014 (referred to herein as "2Q14") groundwater monitoring and remediation activities conducted for the Olin Site located at 425 Tennant Avenue, Morgan Hill, California (the "Site"); 2Q14 is the period from April through June 2014. This report describes the activities conducted pursuant to *Monitoring and Reporting Program (MRP) No. R3-2008-0028* (Water Board, 2014) and pursuant to Cleanup or Abatement Order R3-2004-0101, as modified by the Central Coast Regional Water Quality Control Board (the "Water Board"; Water Board, 2004) and the State Water Resources Control Board (the "State Board") Order WQ 2005-0007 ("State Board Order"; State Board, 2005), which established the Replacement Water Program (RWP). Remediation activities were conducted in compliance with Cleanup and Abatement Order R3-2007-0077, Ordering Paragraph D (the "CAO"; Water Board, 2007).

BACKGROUND

The Site is an approximately 13-acre parcel of land located in the City of Morgan Hill, California, within the Llagas Subbasin (the "Subbasin") of the Gilroy-Hollister Groundwater Basin in southern Santa Clara County (see Figure 1). The geologic and hydrogeologic features of the Subbasin are detailed in the *Llagas Subbasin Characterization – 2008* report (MACTEC, 2009), with refined descriptions included in the 2009, 2010, 2011, 2012, and 2013 Annual Cleanup Progress Status Reports (CPSRs; MACTEC, 2010a, 2011; AMEC, 2012, 2013, 2014a).

Groundwater flow occurs in three aquifers, as follows:

- Shallow aquifer – from surface to approximately 50 feet below ground surface (bgs)
- Intermediate aquifer – approximately 70–180 feet bgs
- Deep aquifer – approximately 200–400 feet bgs

These depth intervals vary with distance from the Site and are separated by aquitards that consist of silty material with discontinuous sand stringers. The intermediate and deep aquifers are each subdivided into three zones (upper, middle, and lower), based on hydraulic head profiles at depth-discrete monitoring wells. Most groundwater pumped by domestic and

agricultural wells in the Subbasin originates from the intermediate aquifer, whereas groundwater pumped by municipal supply wells is produced predominantly from the deep aquifer zones.

The perchlorate distribution in groundwater within the Subbasin is described in terms of three perchlorate concentration priority zones (MACTEC, 2007), as follows:

- PZA – concentrations above 24.5 micrograms per liter (µg/L)
- PZB – concentrations between 11 and 24.5 µg/L
- PZC – concentrations between 6 and 11 µg/L

California's perchlorate maximum contaminant level (MCL) is 6 µg/L. The CAO defines the perchlorate plume core as consisting of PZA and PZB in the intermediate aquifer and PZA in the deep aquifer (Water Board, 2007). The priority zones were first described in the *Llagas Subbasin Cleanup Work Plan* (MACTEC, 2007).

The on-site groundwater treatment system (GWTS) that operated from 2004 to February 2012 was replaced with an expanded GWTS constructed during 2012. The expanded GWTS began full-time operation on September 7, 2012. The GWTS now consists of the following systems:

- The groundwater extraction system (GES), which includes 2 extraction wells in the shallow aquifer (EW-01A and EW-02A) that are currently inactive, 2 extraction wells in the intermediate aquifer (EW-01B1 and IEW-1R), and 1 extraction well in the upper and middle deep aquifer zones (DEW-1).
- The ion exchange system (IES).
- The on-site recharge (OSR) system, which includes the injection of treated water via 6 injection wells screened in the shallow aquifer.

The GWTS is operated pursuant to Waste Discharge Requirements Order No. R3-2011-0209 (the "WDR"; Water Board, 2011) and the Santa Clara Valley Water District's approved Treated Groundwater Recharge and Reinjection agreement. Standard operations comply with the *Operations, Maintenance, and Monitoring Plan for the Groundwater Treatment System* (OMMP; Geosyntec, 2013).

CHARACTERIZATION ACTIVITIES

Activities conducted during 2Q14 included the installation of intermediate aquifer monitoring well couplets MW-74 and MW-75 and lower deep aquifer zone monitoring well couplet PMW-06. A well installation report for MW-74 and MW-75 is provided in Appendix A. Installation of PMW-06 is documented in the *PMW-06 Baseline Analytical Evaluation and GDR Well Recommendation Letter*, which was submitted to the Water Board on July 18, 2014 (AMEC, 2014c). An updated cross-section T-T', showing geologic and perchlorate concentration data for the newly installed MW-74, MW-75, and PMW-06 wells, is also provided in Appendix A.

Two additional AB Aquitard pore-water borings, SB-21 and SB-22, were advanced by Geosyntec during 2Q14. The results of this pore water sampling effort will be reported under separate cover.

GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring conducted during 2Q14 consisted of the following field activities:

- Measuring depths to groundwater at 140 monitoring wells and piezometers.
- Collecting groundwater samples from 10 domestic wells, 5 extraction wells, and 18 monitoring wells for perchlorate analysis
- Collecting groundwater samples from 5 extraction wells and 11 monitoring wells for nitrate analysis.
- Routinely operating and monitoring active domestic ion exchange (IX) systems, including collecting quarterly groundwater samples, inspecting each system monthly, and performing routine repairs and maintenance.
- Routinely operating and monitoring the GWTS, including collecting groundwater samples, inspecting the system monthly, and performing routine repairs and maintenance.

Sampling procedures, protocols, and purge methods for the monitoring wells are described in the revised *Quality Assurance Project Plan* (QAPP; MACTEC, 2010b) and *Sampling and Analysis Plan* (AMEC, 2011).

GROUNDWATER FLOW DIRECTIONS AND GRADIENTS

Groundwater elevations measured during 2Q14 (Table 1) were used to depict groundwater flow directions and calculate horizontal and vertical gradients. Groundwater elevation contours are shown on Figures 2 through 6 for the shallow and intermediate aquifers and for the upper, middle, and lower deep aquifer zones, respectively. The results of the groundwater elevation measurements are described briefly below:

- Relative to measurements taken in First Quarter 2014 (“1Q14”; AMEC, 2014b), groundwater elevations in 2Q14 increased slightly throughout the Subbasin, but less than is typically observed during second quarter monitoring events. Average groundwater elevation increased approximately 2 feet in the shallow aquifer, 1 foot in the intermediate aquifer, and 2 feet in the deep aquifer. This smaller than normal seasonal rebound in groundwater elevation reflects the ongoing drought during the winter and spring months of 2013 and 2014.
- A strong vertical downward gradient persists in the northern portion of the Subbasin (including beneath the Site) as a consequence of (1) the natural downward gradient in this part of the Subbasin flow system, (2) pumping from Morgan Hill municipal wells, and (3) imported water recharging the Subbasin.

- In most aquifers, groundwater flow directions, as well as horizontal and vertical gradients, are generally consistent with previous observations, allowing for seasonal variations and local effects of pumping from extraction wells EW-01B1, IEW-1R, and DEW-1. In the intermediate aquifer zone, ongoing drought conditions appear to have resulted in a more dominant eastward groundwater flow direction in the area south of the Site, compared to previous observations, although the regional-scale groundwater flow direction remains oriented toward the southeast.

Groundwater flow in the middle deep aquifer zone is influenced by ongoing drought conditions and pumping from Morgan Hill municipal wells. These influences appear to have enhanced the groundwater divide and resulted in its southward migration to the vicinity of Fisher Avenue (Figure 5).

As an extension of work being performed in response to Water Board comments to the 2013 CPSR (see Appendix G), and in recognition of the strong vertical downward gradient within the middle deep aquifer zone, the representation of two-dimensional groundwater elevation contours in this zone has been revised. The downward vertical gradient within the middle deep aquifer zone results in apparent horizontal gradients and variable lateral flow potentials that complicate depictions of groundwater flow conditions when data from the upper and lower portions of the middle deep aquifer zone are contoured together. Separately evaluating upper and lower middle deep aquifer zone groundwater elevations results in two similar distributions of lateral groundwater flow directions and gradients. Groundwater elevation contours presented on Figure 5 are based on data from the lower portion of the middle deep aquifer zone because this interval contains more monitoring wells than does the upper portion. This approach thus provides a more reliable and useful representation of groundwater flow conditions within the middle deep aquifer zone, including the depiction of the transient groundwater divide. Groundwater elevation data from monitoring wells screened in the upper portion of the middle deep aquifer zone are included on Figure 5 for reference purposes only; they are not used to construct the groundwater elevation contours. Additional data, to be collected during upcoming quarterly groundwater monitoring periods, including continuous measurements from pressure transducers and manual measurements from additional monitoring wells, will be used to further refine flow directions and gradients in the deep aquifer zones. The results of this assessment will be presented in the upcoming 2014 CPSR.

GROUNDWATER ANALYTICAL RESULTS

Groundwater samples collected in 2Q14 were analyzed for perchlorate using U.S. Environmental Protection Agency (EPA) Test Method 314.0 modified (monitoring wells and domestic wells with IX treatment systems) and EPA Method 331.0 (domestic wells without IX treatment systems), in accordance with the revised QAPP (MACTEC, 2010b). Perchlorate analytical results are provided in Tables 2 and 3, and the laboratory reports are provided in Appendix B. Field measurements associated with the purging of each monitoring well are provided in Appendix C, along with a well location map. An updated Microsoft Access database file of analytical results is provided in Appendix D.

Figures 7 through 11 illustrate the perchlorate distribution in the shallow and intermediate aquifers and the upper deep, middle deep, and lower deep aquifer zones, respectively, as summarized below. The perchlorate distribution and concentration decreases are consistent with the long-term trends observed throughout the Subbasin since basin-wide monitoring began in 2004 (AMEC, 2013).

- The shallow aquifer perchlorate distribution is consistent with 1Q14 observations (AMEC, 2014b; Figure 7).
- In the intermediate aquifer, perchlorate distribution is generally consistent with 1Q14 observations, with the following exceptions, including new data from recently installed monitoring well couplets MW-74 and MW-75:
  - Monitoring wells MW-75-085 and MW-75-120 were installed on May 22, 2014 (Appendix A). Perchlorate results at MW-75-085 indicate that PZA concentrations exist in the upper portion of the intermediate aquifer, which expands the perchlorate distribution eastward along Tennant Avenue (Figure 8). Perchlorate concentrations at MW-75-120 indicate that sub-PZC concentrations are present in the middle intermediate aquifer zone at this same location. Additional assessment of perchlorate in this area is planned.
  - Monitoring wells MW-74-084 and MW-74-142 were installed in the southeast portion of the site on May 19, 2014 (Appendix A). The 2Q14 perchlorate results from this well indicate sub-PZC concentrations in both the upper and middle intermediate aquifer zones (Figure 8).
  - At MW-60-082, in the upper intermediate aquifer zone, PZB perchlorate concentrations were observed for the first time since 2012. This result appears to be associated with drought-related changes to local groundwater flow directions.
- Perchlorate distributions in the upper, middle, and lower deep aquifer zones (Figures 9, 10, and 11, respectively) are generally consistent with 1Q14 observations. In the upper deep aquifer zone, concentrations remained below the PZA threshold in 2Q14. In the middle deep aquifer zone, the priority zone distributions are consistent with previous observations (Figure 10). The perchlorate distribution in the lower deep aquifer zone shown on Figure 11 is inclusive of well pair PMW-06-416 and PMW-06-445, which was installed on May 16, 2014. Perchlorate was observed at sub-PZC concentrations in samples collected from this well pair in 2Q14, which is consistent with historical perchlorate observations in proximal monitoring locations in the lower deep aquifer zone.

Perchlorate was detected above the MCL in 5 domestic wells at concentrations ranging from 6.4 to 51 µg/L (Table 3). The wells are in or adjacent to the plume core and within approximately 1 mile of the Site (Figures 8, 9, 10, respectively).

In accordance with the State Board Order, replacement water is provided for domestic wells with perchlorate concentrations above the MCL (Table 4). As required by the CAO (Water Board, 2007), IX treatment systems have been installed on domestic wells with perchlorate concentrations above 7.9 µg/L, except 1 well (09S03E34C002) where owner maintenance is required and 1 well (09S03E35N014) where bottled water is the owner's preference. Bottled water is provided to users of the remaining domestic wells with perchlorate concentrations above the MCL that do not have IX systems installed. During 2Q14, groundwater from 3 domestic wells was treated by active IX systems, and users of 5 domestic wells received bottled water.

Perchlorate concentration trends were calculated using the Mann Kendall nonparametric statistical trend test and procedures (Gilbert, 1987) for the most recent two years of analytical data, or using four data points, whichever data set is larger (Table 5). Of the 21 wells sampled in 2Q14 that meet the criteria for Mann Kendall analysis, the results are as follows:

- 17 domestic and monitoring wells (approximately 81 percent) exhibit either a *decreasing*, *probably decreasing*, or *stable* trend.
- 2 wells (approximately 9 percent) exhibit *no trend*.
- 2 wells exhibit *increasing* or *probably increasing* trends.

Of the 2 domestic wells with increasing or probably increasing trends (09S03E34G002 and 09S03E35N014), both had perchlorate concentrations above the MCL. Domestic well 09S03E34G002 is within the capture zone of extraction well IEW-1R, has an IX system installed, and is sampled quarterly pursuant to the RWP. Well 09S03E35N014 is also sampled quarterly and bottled water is provided to the well users.

Groundwater samples were analyzed for nitrate using EPA Test Method 300.0, in accordance with the MRP (Water Board, 2014). The analytical results are provided in Table 6 and are comparable to previously observed concentrations and expected concentration trends associated with GWTS operation.

TREATMENT SYSTEM OPERATIONS AND PERFORMANCE

The GWTS is operating as designed and provides hydraulic containment and remediation of perchlorate in the plume core areas of the intermediate aquifer and upper and middle deep aquifer zones; treated groundwater is recharged to the Llagas Subbasin. The monthly flow rates and flow volumes recorded by the GES and OSR system flowmeters are provided in Table 7.

Three GES extraction wells were operated during 2Q14, including off-site extraction wells IEW-1R and DEW-1 and on-site extraction well EW-01B1. Perchlorate concentration results for these extraction wells are presented in Table 2.

Off-site intermediate extraction well IEW-1R was operated at a calculated average flow rate of approximately 227 gpm during 2Q14, and the average influent perchlorate concentration was 8.4 µg/L (Table 7). Operational data from this well indicate generally decreasing flow rates from

the end of 1Q14 due to ongoing drought conditions, as well as an overall decline in influent perchlorate concentration since operation of the GWTS began in September 2012, when the influent concentration was 15 µg/L. As shown on Figure 3, perchlorate concentrations for wells upgradient of IEW-1R generally exhibited stable trends or had no trends in 2Q14, while most wells downgradient of IEW-1R exhibited stable or decreasing trends.

Off-site deep aquifer extraction well DEW-1 was operated at a calculated average flow rate of approximately 118 gpm, and the average perchlorate concentration was 17 µg/L (Table 7). The flow rate from DEW-1 has remained relatively stable.

On-site intermediate aquifer extraction well EW-01B1 was operated at an average flow rate of approximately 14 gpm, and perchlorate concentrations (96 µg/L) remained above the PZA threshold in 2Q14. Extraction wells EW-01A and EW-02A have not been operated since 2011 because perchlorate concentrations remain below threshold restart levels set forth in the OMMP (Geosyntec, 2013). A comprehensive capture zone analysis for the GWTS operations in 2014 will be presented in the 2014 CPSR.

Average injection well flow rates and associated mounding were similar to those observed during 1Q14, indicating that recharge patterns are consistent with those presented in the 2013 CPSR (AMEC, 2014a).

Monthly samples were collected from the IES at three sampling ports (influent [SV-100], midpoint [SV-200], and effluent [SV-300]) and analyzed for perchlorate, major anions, and field parameters. The results are presented in Table 8. Perchlorate was not detected in the IES effluent samples, which is in compliance with the WDR. Based on the treated volume of approximately 46.9 million gallons of groundwater and on perchlorate concentrations observed in samples from SV-100, approximately 2.66 kilograms (kg), or approximately 5.87 pounds of perchlorate were removed during 2Q14. The cumulative perchlorate mass removed by system operations since 2004 is approximately 74.36 kilograms, or approximately 162.42 pounds.

Three domestic IX systems are operated, maintained, and monitored in accordance with the *Operation and Maintenance Manual for Small Residential Ion Exchange Systems for the Removal of Perchlorate* (Siemens, 2007). Performance monitoring results indicate that the domestic IX systems are operating as designed. Analytical results are provided in Appendix B and summarized in Table 9. Field forms related to operation, maintenance, and monitoring of the IX systems are provided in Appendix E.

DATA ACCURACY AND PRECISION

Data validation and precision assessments were performed in accordance with the procedures specified in the *USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Superfund Data Review* (U.S. EPA, 2010); the QAPP (MACTEC, 2010b); and quality control criteria specified in the analytical methods and the MRP. Results of the data validation and precision assessment are included in Appendix F.

Based upon the data review, the 2Q14 results are considered valid and usable to support project decisions. Data completeness (the number of successful analyses relative to the number of requested analyses) was 100 percent for 2Q14 samples.

GRADIENT-DRIVEN REMEDIATION ACTIVITIES

On July 18, 2014, the *PMW-06 Baseline Analytical Evaluation and GDR Well Recommendation Letter* was submitted to the Water Board (AMEC, 2014c). The report concludes that additional intermediate aquifer data are required prior to proceeding with the Gradient Driven Remediation (GDR) pilot study.

RESPONSE TO WATER BOARD COMMENTS

In a letter dated May 14, 2014, the Water Board provided comments on the 2013 CPSR and the First Quarter 2014 Groundwater Monitoring Report ("1Q14 GMR"; AMEC, 2014b). On May 19, 2014, Olin submitted an email response to the Water Board's Comment #1 regarding the 1Q14 GMR. Responses to the remaining comments are provided in Appendix G of this report.

REPORT RELIANCE

This document was prepared for the sole use of the regulatory agencies for the Olin Site who are the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of Olin. This report and the interpretations, conclusions, and recommendations contained within are based in part on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.

Should you have any questions regarding this report, please contact Mr. Rick McClure, Olin Corporate, Environmental Remediation Group, at (423) 336-4576.

Sincerely,
AMEC Environment & Infrastructure, Inc.

Sean L. Culkin, PG, CHG
Senior Hydrogeologist

Mari Gilmore, PG
Project Manager

SLC/MMG/MDT/dc

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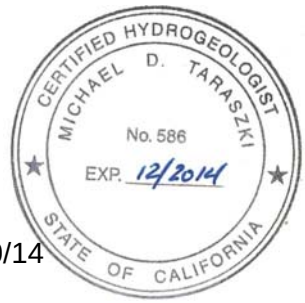
I certify under penalty of perjury that information contained within this document (Second Quarter 2014 Groundwater Monitoring Report) and all attachments, exclusive of work prepared by other consultants, is true and accurate, to the best of my knowledge. The services described in this document have been provided in a manner consistent with current standards of the profession, and to the best of my knowledge comply with all applicable federal, state, and local statutes, regulations, and ordinances.



Michael D. Taraszki, PG, CHG, PMP
Principal Hydrogeologist

7/30/14

Enclosures:

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Appendix A	Well Installation Report, Wells MW-74 and MW-75
Appendix B	Analytical Reports and Chain-of-Custody Records for Groundwater Samples [provided separately]
Appendix C	Field Sampling Data
Appendix D	Analytical Results, Microsoft Access Database [provided separately]
Appendix E	Domestic Ion Exchange Treatment System Inspection Forms
Appendix F	Data Validation and Precision Assessment Results
Appendix G	Response to Water Board Comments

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TABLES

TABLE 1

GROUNDWATER DEPTHS AND ELEVATIONS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Screen or BARCAD Interval (feet)[1]	Top of Casing Elevation (feet)[2]	Sample Date	Depth to Water (feet)[3]	Groundwater Surface Elevation (feet)[2]	Aquifer	Comments
EW-01A	11.7-51.7	326.24	04/01/2014	29.53	296.71	Shallow	
EW-02A	17.5-57.5	325.64	04/01/2014	28.95	296.69	Shallow	
MP-01-050	47-53	334.84	04/01/2014	36.42	298.42	Shallow	
MP-02-035	29-41	333.14	04/01/2014	37.92	295.22	Shallow	
MP-04-038	32-44	327.83	04/01/2014	30.98	296.85	Shallow	
MP-05-039	32-46	329.86	04/01/2014	37.34	292.52	Shallow	
MP-52-032	24-40	321.32	04/01/2014	30.71	290.61	Shallow	
MW-01	20.5-35	328.20	04/01/2014	31.17	297.03	Shallow	
MW-02	20-34.5	328.25	04/01/2014	31.55	296.70	Shallow	
MW-12A	31.5-56.5	328.37	04/01/2014	30.61	297.76	Shallow	
MW-13A	27-52	330.76	04/01/2014	30.82	299.94	Shallow	
MW-14A	28-53	330.22	04/01/2014	31.79	298.43	Shallow	
MW-15	10-25	329.54	04/01/2014	--	--	Shallow	Dry
MW-16	25-40	329.42	04/01/2014	32.01	297.41	Shallow	
MW-17	10-25	327.63	04/01/2014	--	--	Shallow	Dry
MW-17-025	15-35	319.28	04/01/2014	27.02	292.26	Shallow	
MW-53-044	42-47	320.96	04/01/2014	28.89	292.07	Shallow	
MW-61-047	45-50	325.13	04/01/2014	30.11	295.02	Shallow	
MW-62-041	39-44	321.47	04/01/2014	28.27	293.20	Shallow	
MW-63-035	30-40	316.81	04/01/2014	27.41	289.40	Shallow	
MW-64-027	22-32	313.53	04/01/2014	27.38	286.15	Shallow	
MW-65-027	22-32	307.78	04/01/2014	25.08	282.70	Shallow	
OW-01A	10.3-50.3	327.69	04/01/2014	30.90	296.79	Shallow	
PM-01A	25-50	327.75	04/01/2014	31.27	296.48	Shallow	
PM-02A	24.5-49.5	329.77	04/01/2014	33.54	296.23	Shallow	
PM-03A	25.7-50.7	326.62	04/01/2014	29.84	296.78	Shallow	
MW-61-056	54-59	325.13	04/01/2014	30.41	294.72	A/B Aquitard	
MW-62-055	53-58	321.48	04/01/2014	35.31	286.17	A/B Aquitard	
MW-63-057	52-62	316.84	04/01/2014	27.50	289.34	A/B Aquitard	
MW-64-060	55-65	313.76	04/01/2014	30.19	283.57	A/B Aquitard	
MW-65-052	47-57	307.86	04/01/2014	27.52	280.34	A/B Aquitard	
MP-26-140	132-148	275.38	04/01/2014	50.11	225.27	Intermediate	
MP-29-169	166-172	271.32	04/01/2014	63.64	207.68	Intermediate	
MP-35-162	159-165	240.29	04/01/2014	52.40	187.89	Intermediate	
MP-51-164	159-168	244.87	04/01/2014	45.43	199.44	Intermediate	

TABLE 1

GROUNDWATER DEPTHS AND ELEVATIONS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Screen or BARCAD Interval (feet)[1]	Top of Casing Elevation (feet)[2]	Sample Date	Depth to Water (feet)[3]	Groundwater Surface Elevation (feet)[2]	Aquifer	Comments
MP-01-090	87-93	334.84	04/01/2014	44.64	290.20	Intermediate-Upper	
MP-02-095	92-98	333.14	04/01/2014	46.40	286.74	Intermediate-Upper	
MP-03-086	85-88	342.78	04/01/2014	52.70	290.08	Intermediate-Upper	
MP-03-120	117-123	342.78	04/01/2014	54.02	288.76	Intermediate-Upper	
MP-04-088	85-91	327.83	04/01/2014	40.96	286.87	Intermediate-Upper	
MP-05-090	88-91	329.86	04/01/2014	44.93	284.93	Intermediate-Upper	
MP-17-110	105-114	319.66	04/01/2014	34.05	285.61	Intermediate-Upper	
MP-21-089	86-92	307.91	04/01/2014	33.15	274.76	Intermediate-Upper	
MP-52-095	88-102	321.32	04/01/2014	37.62	283.70	Intermediate-Upper	
MW-07SA2	89-92	327.78	04/01/2014	42.83	284.95	Intermediate-Upper	
MW-12B1	79.5-99.5	328.32	04/01/2014	39.41	288.91	Intermediate-Upper	
MW-13B1	85-105	330.20	04/01/2014	42.55	287.65	Intermediate-Upper	
MW-14B1	83-103	329.68	04/01/2014	42.21	287.47	Intermediate-Upper	
MW-17-085	80-90	319.28	04/01/2014	33.60	285.68	Intermediate-Upper	
MW-19	79-89	329.28	04/01/2014	41.84	287.44	Intermediate-Upper	
MW-53-078	73-83	320.91	04/01/2014	29.89	291.02	Intermediate-Upper	
MW-59-090	80-100	300.59	04/01/2014	29.66	270.93	Intermediate-Upper	
MW-60-082	72-92	312.39	04/01/2014	31.17	281.22	Intermediate-Upper	
MW-63-080	75-85	316.73	04/01/2014	31.47	285.26	Intermediate-Upper	
MW-64-082	77-87	313.89	04/01/2014	31.35	282.54	Intermediate-Upper	
MW-65-087	82-92	307.72	04/01/2014	30.34	277.38	Intermediate-Upper	
MW-65-114	109-119	307.89	04/01/2014	30.64	277.25	Intermediate-Upper	
MW-71-075	70-80	307.94	04/01/2014	30.52	277.42	Intermediate-Upper	
MW-72-070	60-80	314.39	04/01/2014	28.11	286.28	Intermediate-Upper	
OW-01B1	77.5-102.5	328.13	04/01/2014	45.26	282.87	Intermediate-Upper	
PM-01B1	80-100	327.49	04/01/2014	41.42	286.07	Intermediate-Upper	
PM-03B1	80-100	326.77	04/01/2014	40.10	286.67	Intermediate-Upper	
PMW-04-090	80-100	316.12	04/01/2014	35.20	280.92	Intermediate-Upper	
PMW-05-090	80-100	309.97	04/01/2014	30.25	279.72	Intermediate-Upper	
MW-65-153	148-158	307.93	04/01/2014	29.55	278.38	Intermediate-Middle	
MW-71-115	105-125	307.94	04/01/2014	31.16	276.78	Intermediate-Middle	
PMW-04-125	115-135	316.13	04/01/2014	35.15	280.98	Intermediate-Middle	
MW-60-180	172-187	312.38	04/01/2014	32.30	280.08	Intermediate-Lower	
MW-72-145	135-155	314.43	04/01/2014	32.22	282.21	Intermediate-Lower	
OW-01B3	179-199	327.82	04/01/2014	43.32	284.50	Intermediate-Lower	

TABLE 1

GROUNDWATER DEPTHS AND ELEVATIONS
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Well ID	Screen or BARCAD Interval (feet)[1]	Top of Casing Elevation (feet)[2]	Sample Date	Depth to Water (feet)[3]	Groundwater Surface Elevation (feet)[2]	Aquifer	Comments
MP-01-210	204-216	334.84	04/01/2014	49.62	285.22	Deep-Upper	
MP-02-255	252-258	333.14	04/01/2014	55.54	277.60	Deep-Upper	
MP-03-255	252-258	342.78	04/01/2014	59.88	282.90	Deep-Upper	
MP-04-251	248-254	327.83	04/01/2014			Deep-Upper	Sounder does not beep in well.
MP-05-260	257-263	329.86	04/01/2014	60.17	269.69	Deep-Upper	
MP-21-230	222-238	307.91	04/01/2014	47.23	260.68	Deep-Upper	
MP-26-242	239-245	275.38	04/01/2014	52.16	223.22	Deep-Upper	Confirmed dtw = 52.16
MP-29-242	236-248	271.32	04/01/2014	66.90	204.42	Deep-Upper	
MP-51-213	208-217	244.87	04/01/2014	46.02	198.85	Deep-Upper	
MP-52-273	267-278	321.32	04/01/2014	53.15	268.17	Deep-Upper	
MW-04B	257-260	328.01	04/01/2014	58.72	269.29	Deep-Upper	
MW-05B	243-246	327.94	04/01/2014	20.28	307.66	Deep-Upper	Confirmed dtw = 20.55 @ 14:55
MW-53-195	185-205	320.93	04/01/2014	38.52	282.41	Deep-Upper	
MW-56-220	215-225	286.23	04/01/2014	70.56	215.67	Deep-Upper	
MW-60-220	215-225	312.51	04/01/2014	49.50	263.01	Deep-Upper	
MW-67-248	240-255	306.64	04/01/2014	47.45	259.19	Deep-Upper	
MW-70-240	235-245	320.20	04/01/2014	56.00	264.20	Deep-Upper	
PMW-04-225	215-235	315.99	04/01/2014	51.80	264.19	Deep-Upper	
PMW-04-255	245-265	315.97	04/01/2014	52.07	263.90	Deep-Upper	
MP-04-291	291.3-291.5	327.83	04/02/2014	92.26	235.57	Deep-Middle	Intermittent tone at ~87 ft. Tone solid at 92.26 ft.
MP-05-300	299.8-300	329.86	04/02/2014	64.71	265.15	Deep-Middle	
MP-21-278	275-281	307.91	04/01/2014	47.53	260.38	Deep-Middle	
MP-21-295	294.3-294.5	307.91	04/01/2014	50.00	257.91	Deep-Middle	
MP-29-292	291.9-292	271.32	04/01/2014	71.47	199.85	Deep-Middle	
MP-35-273	272.3-272.5	240.29	04/01/2014	52.77	187.52	Deep-Middle	
MP-51-272	271.8-272	244.87	04/01/2014	49.53	195.34	Deep-Middle	
MP-52-295	294.8-295	321.32	04/02/2014	58.92	262.40	Deep-Middle	
MP-57-260	257-262	277.08	04/01/2014	69.40	207.68	Deep-Middle	
MW-04C	335-338	327.59	04/01/2014	66.61	260.98	Deep-Middle	
MW-05C	322.5-325.5	327.31	04/01/2014	29.79	297.52	Deep-Middle	Remeasured dtw = 24.43 @ 14.55
MW-06C	338-341	329.06	04/01/2014	64.91	264.15	Deep-Middle	
MW-26-342	332-352	275.51	04/01/2014	71.03	204.48	Deep-Middle	
MW-29-352	342-362	271.30	04/01/2014	71.73	199.57	Deep-Middle	
MW-52-347	341.5-351.5	321.04	04/01/2014	60.71	260.33	Deep-Middle	
MW-53-264	254-274	320.93	04/01/2014	56.48	264.45	Deep-Middle	

TABLE 1

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Well ID	Screen or BARCAD Interval (feet)[1]	Top of Casing Elevation (feet)[2]	Sample Date	Depth to Water (feet)[3]	Groundwater Surface Elevation (feet)[2]	Aquifer	Comments
MW-54-260	250-270	287.31	04/01/2014	63.71	223.60	Deep-Middle	
MW-55-275	270-280	324.37	04/01/2014	58.40	265.97	Deep-Middle	
MW-55-339	330-348	324.72	04/02/2014	65.52	259.20	Deep-Middle	
MW-56-335	330-340	286.10	04/01/2014	80.36	205.74	Deep-Middle	
MW-59-250	240-260	300.63	04/01/2014	49.58	251.05	Deep-Middle	
MW-60-270	265-275	312.54	04/01/2014	50.05	262.49	Deep-Middle	
MW-66-245	240-250	288.63	04/01/2014	53.27	235.36	Deep-Middle	
MW-70-317	312-322	320.21	04/01/2014	62.21	258.00	Deep-Middle	
MW-70-355	350-360	320.26	04/01/2014	67.04	253.22	Deep-Middle	
MW-73-270	265-275	305.69	04/01/2014	47.61	258.08	Deep-Middle	
MW-73-315	310-320	305.68	04/01/2014	51.35	254.33	Deep-Middle	
PMW-04-282	277-287	315.77	04/01/2014	52.71	263.06	Deep-Middle	
PMW-04-312	307-317	315.73	04/01/2014	55.81	259.92	Deep-Middle	
PMW-05-305	295-315	310.03	04/01/2014	51.40	258.63	Deep-Middle	
PZ-01-333	328-338	334.66	04/01/2014	74.68	259.98	Deep-Middle	
PZ-02-315	310-320	333.17	04/01/2014	69.95	263.22	Deep-Middle	
PZ-03-325	320-330	342.31	04/01/2014	84.25	258.06	Deep-Middle	
PZ-04-335	330-340	327.93	04/01/2014	67.18	260.75	Deep-Middle	
PZ-04-375	370-380	327.92	04/01/2014			Deep-Middle	Obstructed at ~35'
PZ-05-339	334-344	330.43	04/01/2014	70.52	259.91	Deep-Middle	
MW-26-415	405-425	275.53	04/01/2014	70.93	204.60	Deep-Lower	
MW-52-403	398-408	321.06	04/01/2014	73.40	247.66	Deep-Lower	
MW-54-400	395-405	287.35	04/01/2014	76.96	210.39	Deep-Lower	
MW-55-410	407-413	324.68	04/01/2014	78.58	246.10	Deep-Lower	
MW-56-433	428-438	286.24	04/01/2014	79.61	206.63	Deep-Lower	
MW-59-386	376-396	300.32	04/01/2014	62.66	237.66	Deep-Lower	
MW-66-390	385-395	288.57	04/01/2014	73.67	214.90	Deep-Lower	
MW-67-485	480-490	306.64	04/01/2014	77.87	228.77	Deep-Lower	
MW-68-382	377-387	304.97	04/01/2014	83.16	221.81	Deep-Lower	
MW-69-360	335-365	291.89	04/01/2014	80.77	211.12	Deep-Lower	
MW-70-433	428-438	320.30	04/01/2014	75.08	245.22	Deep-Lower	
MW-73-395	390-400	305.69	04/01/2014	65.35	240.34	Deep-Lower	
PZ-02-415	410-420	333.17	04/01/2014	84.51	248.66	Deep-Lower	
PZ-03-427	422-432	342.32	04/01/2014	93.10	249.22	Deep-Lower	
PZ-05-390	386-393	330.51	04/01/2014	82.11	248.40	Deep-Lower	

TABLE 1

GROUNDWATER DEPTHS AND ELEVATIONS
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Olin Site
Morgan Hill, California

Notes
1. Depths measured in feet below ground surface.
2. Elevations are given in feet relative to the National Geodetic Vertical Datum of 1929 (NGVD 29).
3. Depth to water is measured from top of well casing.

Abbreviations
-- = not applicable
dtw = depth to water

TABLE 2

PERCHLORATE RESULTS - MONITORING AND EXTRACTION WELLS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Sample Type	Sample Date	Test Method	Perchlorate Concentration (µg/L)[1]	Lab MDL (µg/L)	Lab Qualifier	Validation Qualifier	Aquifer
EW-01A	Primary	04/02/2014	EPA314.0M	ND < 4.0	0.75	--	--	Shallow
EW-01A	Duplicate	04/02/2014	EPA314.0M	0.99	0.75	J	--	Shallow
EW-02A	Primary	04/02/2014	EPA314.0M	4.8	0.75	--	--	Shallow
EW-01B1	Primary	04/02/2014	EPA314.0M	**97**	7.5	--	--	Intermediate-Upper
EW-01B1	Primary	05/06/2014	EPA314.0M	**94**	7.5	--	--	Intermediate-Upper
EW-01B1	Primary	06/04/2014	EPA314.0M	**98**	7.5	--	--	Intermediate-Upper
EW-01B1	Duplicate	06/04/2014	EPA314.0M	**100**	7.5	--	--	Intermediate-Upper
IEW-1R	Primary	04/02/2014	EPA314.0M	**8.7**	0.75	--	--	Intermediate-Upper
IEW-1R	Primary	05/06/2014	EPA314.0M	**8.4**	0.75	--	--	Intermediate-Upper
IEW-1R	Primary	06/04/2014	EPA314.0M	**8.4**	0.75	--	--	Intermediate-Upper
MW-60-082	Primary	04/29/2014	EPA314.0M	**14**	0.75	--	--	Intermediate-Upper
MW-60-082	Pilot-HS[2]	04/29/2014	EPA314.0M	**7.8**	0.75	--	--	Intermediate-Upper
MW-71-075	Primary	04/30/2014	EPA314.0M	**19**	0.75	--	--	Intermediate-Upper
MW-71-075	Pilot-HS	04/30/2014	EPA314.0M	**20**	0.75	--	--	Intermediate-Upper
MW-72-070	Primary	04/29/2014	EPA314.0M	**8.8**	0.75	--	--	Intermediate-Upper
MW-72-070	Pilot-HS	04/29/2014	EPA314.0M	**9.1**	0.75	--	--	Intermediate-Upper
MW-74-084	Primary	06/03/2014	EPA314.0M	3.9	0.75	J	--	Intermediate-Upper
MW-74-084	Primary	06/03/2014	EPA314.0M	3.8	0.75	J	--	Intermediate-Upper
MW-75-085	Primary	06/03/2014	EPA314.0M	**63**	0.75	--	--	Intermediate-Upper
MW-75-085	Primary	06/03/2014	EPA314.0M	**63**	3.8	--	--	Intermediate-Upper
MW-75-085	Primary	6/13/2014	EPA314.0M	**62**	3.8	--	--	Intermediate-Upper
PM-01B1	Primary	04/01/2014	EPA314.0M	**25**	3.8	--	--	Intermediate-Upper
PM-03B1	Primary	04/01/2014	EPA314.0M	2.2	0.75	J	--	Intermediate-Upper
PMW-04-090	Primary	05/01/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate-Upper
PMW-04-090	Pilot-HS	05/01/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate-Upper
PMW-05-090	Primary	04/30/2014	EPA314.0M	**9.0**	0.75	--	--	Intermediate-Upper
PMW-05-090	Pilot-HS	04/30/2014	EPA314.0M	**8.6**	0.75	--	--	Intermediate-Upper
MW-71-115	Primary	04/30/2014	EPA314.0M	**7.1**	0.75	--	--	Intermediate-Middle
MW-71-115	Pilot-HS	04/30/2014	EPA314.0M	5.4	0.75	--	--	Intermediate-Middle
MW-74-142	Primary	06/03/2014	EPA314.0M	1.6	0.75	J	--	Intermediate-Middle
MW-74-142	Primary	06/03/2014	EPA314.0M	1.7	0.75	J	--	Intermediate-Middle
MW-75-120	Primary	06/03/2014	EPA314.0M	2.5	0.75	J	--	Intermediate-Middle
MW-75-120	Primary	06/03/2014	EPA314.0M	2.4	0.75	J	--	Intermediate-Middle
MW-72-145	Primary	04/29/2014	EPA314.0M	1.8	0.75	J	--	Intermediate-Lower
MW-72-145	Pilot-HS	04/29/2014	EPA314.0M	1.7	0.75	J	--	Intermediate-Lower
DEW-01	Primary	04/02/2014	EPA314.0M	**17**	0.75	--	--	Deep-Upper-Middle
DEW-01	Primary	05/06/2014	EPA314.0M	**16**	0.75	--	--	Deep-Upper-Middle
DEW-01	Primary	06/04/2014	EPA314.0M	**17**	0.75	--	--	Deep-Upper-Middle
MP-04-291	Primary	05/02/2014	EPA314.0M	ND < 4.0	0.75	--	--	Deep-Middle
PMW-05-305	Primary	04/30/2014	EPA314.0M	**29**	3.8	--	--	Deep-Middle
PMW-05-305	Pilot-HS	04/30/2014	EPA314.0M	2.8	0.75	J	--	Deep-Middle
MW-73-395	Primary	05/01/2014	EPA314.0M	**36**	3.8	--	--	Deep-Lower
MW-73-395	Pilot-HS	05/01/2014	EPA314.0M	**38**	3.8	--	--	Deep-Lower
PMW-06-416	Primary	5/27/2014	EPA331.0	4.8	0.08609			Deep-Lower
PMW-06-445	Primary	5/27/2014	EPA331.0	5.3	0.08609	--	--	Deep-Lower

Notes
1. **Bold face type** denotes concentration that exceeds the Maximum Contaminant Level (6 µg/L).
2. Pilot-HS denotes a HydraSleeve pilot study sample.

Abbreviations
-- = not applicable
µg/L = micrograms per liter; equivalent to parts per billion
MDL = Method Detection Limit
ND < = Not Detected at or above the reporting limit shown

Laboratory Qualifiers
J = Perchlorate detected between the MDL and reporting limit. The reported value is estimated.

TABLE 3

PERCHLORATE RESULTS - DOMESTIC AND IRRIGATION WELLS

Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID[1]	Sample Type	Sample Date	Test Method	Perchlorate Concentration (µg/L)[2]	Lab MDL (µg/L)	Lab Qualifier	Validation Qualifier	Aquifer
09S03E34C002	Primary	04/29/2014	EPA331.0	3.0	0.082	--	--	Intermediate (Unk)
09S03E34C003	Primary	04/09/2014	EPA314.0M	**51**	3.8	--	--	Intermediate (Unk)
09S03E34C003	Duplicate	04/09/2014	EPA314.0M	**50**	3.8	--	--	Intermediate (Unk)
09S03E34G001	Primary	04/09/2014	EPA314.0M	**14**	0.75	--	--	Intermediate (Unk)
09S03E34G002	Primary	04/09/2014	EPA314.0M	**20**	0.75	--	--	Intermediate (Unk)
09S03E34J003	Primary	04/29/2014	EPA331.0	2.6	0.082	--	--	Intermediate (Unk)
09S03E34R007	Primary	04/29/2014	EPA331.0	**6.4**	0.082	--	--	Intermediate
09S03E35N013	Primary	04/29/2014	EPA331.0	3.6	0.082	--	--	Intermediate
09S03E35N014	Primary	04/29/2014	EPA331.0	**23**	0.41	--	--	Deep-Middle
10S03E13G011[3]	Primary	4/29/2014	EPA331.0	3.6	0.082	--	--	Deep-Upper-Middle
10S04E29F007	Primary	5/13/2014	EPA331.0	5.0	0.082	--	--	Deep
10S04E29F007	Duplicate	5/13/2014	EPA331.0	5.0	0.082	--	--	Deep

Notes
1. See Table 4 for replacement water status.
2. **Bold face type** denotes concentration that exceeds the Maximum Contaminant Level (6 µg/L).
3. Well 10S03E13G011 is a new domestic well sampled for the first time in second quarter 2014.

Abbreviations
-- = not applicable
µg/L = micrograms per liter; equivalent to parts per billion
Intermediate (Unk) = Screen interval unknown; assigned to intermediate aquifer based on production rate and local domestic wells
MDL = Method Detection Limit

TABLE 4

REPLACEMENT WATER PROGRAM WELL STATUS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Replacement Water Method	RWP Approved Sampling Frequency	MRP Sampling Frequency	Most Recent Perchlorate Concentration (µg/L)[1]	Most Recent Quarter Sampled
09S03E34C002	BW	QTR	--	3	2Q14
09S03E34C003	IX	QTR	SEMI	**51**	2Q14
09S03E34G001	IX	QTR	--	**14**	2Q14
09S03E34G002	IX	QTR	--	**20**	2Q14
09S03E34J003	BW	QTR	SEMI	2.6	2Q14
09S03E34R007	BW	QTR	SEMI	**6.4**	2Q14
09S03E35M006	--	ANN	ANN	2.3	1Q14
09S03E35N008	--	SEMI	SEMI	2.8	1Q14
09S03E35N013	BW	QTR	SEMI	3.6	2Q14
09S03E35N014	BW	QTR	--	**23**	2Q14
10S03E01M002	--	ANN	--	5.1	3Q13
10S03E12A015	--	ANN	--	5	3Q13
10S04E29F007	BW	QTR	--	5	2Q14
10S04E33R007	--	ANN	--	5.5	1Q14

Note
1. **Bold face type** denotes concentration that exceeds the Maximum Contaminant Level (6 µg/L).

Abbreviations
-- = Not required
µg/L = micrograms per liter
1Q14 = First Quarter 2014
2Q14 = Second Quarter 2014
3Q13 = Third Quarter 2013
ANN = annual
BW = well receiving bottled water
IX = well with ion exchange system installed
MRP = Monitoring and Reporting Program
QTR = quarterly
RWP = Replacement Water Program
SEMI = semiannual

TABLE 5

MANN KENDALL TREND ANALYSIS - DOMESTIC AND MONITORING WELLS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Aquifer	Number of Samples[1] 3Q12-2Q14	Number of Detects[1] 3Q12-2Q14	Perchlorate Concentration (µg/L)			Mann Kendall Evaluation[2]			
				Historic Minimum	Historic Maximum	Second Quarter 2014 Maximum[3]	Coefficient of Variation	Mann Kendall Statistic	Confidence in Trend	Concentration Trend
09S03E34G001	Intermediate (Unk)	8	8	14	32	**14**	0.33	-25	100.0%	D
09S03E34J003	Intermediate (Unk)	8	8	1	12	2.6	0.72	-16	96.9%	D
09S03E34R007	Intermediate	8	8	6.4	8.4	**6.4**	0.1	-18	98.4%	D
09S03E35N013	Intermediate	9	9	2.5	8.8	3.6	0.36	-17	95.1%	D
DEW-01	Deep-Upper-Middle	24	23	-4	29	**17**	0.27	-190	100.0%	D
EW-01A	Shallow	8	6	-4	4.3	0.99	0.46	-15	95.8%	D
IEW-1R	Intermediate-Upper	24	24	7.9	15	**8.7**	0.21	-216	100.0%	D
MW-71-075	Intermediate-Upper	8	8	20	23	**20**	0.05	-21	99.6%	D
PM-03B1	Intermediate-Upper	8	8	2.2	10	2.2	0.33	-16	96.9%	D
09S03E34G002	Intermediate (Unk)	9	9	12	20	**20**	0.19	24	99.4%	I
09S03E34C003	Intermediate (Unk)	8	8	35	52	**51**	0.14	1	50.0%	NT
PM-01B1	Intermediate-Upper	8	8	8.3	25	**25**	0.34	11	88.7%	NT
09S03E34C002	Intermediate (Unk)	8	8	2.7	60	3	0.87	-14	94.6%	PD
09S03E35N014	Deep-Middle	6	6	6.7	23	**23**	0.43	9	93.2%	PI
EW-02A	Shallow	8	7	ND < 4.0	10	4.8	0.59	-2	54.8%	S
MW-60-082	Intermediate-Upper	8	8	5	22	**14**	0.53	-8	80.1%	S
MW-71-115	Intermediate-Middle	8	8	7.1	14	**7.1**	0.18	-6	72.6%	S
MW-72-070	Intermediate-Upper	7	7	9.1	11	**9.1**	0.07	-7	80.9%	S
MW-73-395	Deep-Lower	8	8	36	40	**38**	0.04	-1	50.0%	S
PMW-05-090	Intermediate-Upper	8	8	1.4	14	**9**	0.73	-4	64.0%	S
PMW-05-305	Deep-Middle	8	8	23	32	**29**	0.12	-9	83.2%	S

TABLE 5

MANN KENDALL TREND ANALYSIS - DOMESTIC AND MONITORING WELLS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Notes
1. The Number of Samples and Number of Detects shown above are for the past two years or four samples, whichever dataset is larger. Where duplicate samples were collected, the greater concentration value is used.
2. Calculated using MAROS Software Version 2, 2003, AFCEE.
3. **Bold face type** denotes highest concentration detected in the current quarter that exceeds the Maximum Contaminant Level (6 µg/L).

Abbreviations
µg/L = micrograms per liter
3Q12 = Third Quarter 2012
2Q14 = Second Quarter 2014
D = Decreasing
I = Increasing
Intermediate (Unk) = Screen interval unknown; assigned to intermediate aquifer based on production rate and local domestic wells.
ND < = Not Detected at or above the reporting limit shown
NT = No Trend
PD = Probably Decreasing
PI = Probably Increasing
S = Stable

TABLE 6

NITRATE RESULTS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Sample Type	Sample Date	Nitrate Concentration (mg/L)	Lab MDL (mg/L)	Lab Qualifier	Validation Qualifier	Aquifer
EW-01A	Primary	04/02/2014	29	2.6	B	--	Shallow
EW-01A	Duplicate	04/02/2014	29	2.6	B	--	Shallow
EW-02A	Primary	04/02/2014	31	2.6	B	--	Shallow
MP-04-038	Primary	05/02/2014	27	2.6	--	--	Shallow
MW-01	Primary	04/01/2014	18	0.26	--	--	Shallow
MW-13A	Primary	04/01/2014	29	2.6	--	--	Shallow
PM-01A	Primary	04/01/2014	30	2.6	--	--	Shallow
PM-02A	Primary	04/01/2014	28	2.6	--	--	Shallow
PM-02A	Duplicate	04/01/2014	29	2.6	--	--	Shallow
EW-01B1	Primary	04/02/2014	32	2.6	B	--	Intermediate-Upper
EW-01B1	Primary	05/06/2014	30	2.6	--	--	Intermediate-Upper
EW-01B1	Primary	06/04/2014	32	2.6	--	--	Intermediate-Upper
EW-01B1	Duplicate	06/04/2014	31	2.6	--	--	Intermediate-Upper
IEW-1R	Primary	04/02/2014	30	2.6	B	--	Intermediate-Upper
IEW-1R	Primary	05/06/2014	31	2.6	--	--	Intermediate-Upper
IEW-1R	Primary	06/04/2014	31	2.6	--	--	Intermediate-Upper
MW-74-084	Primary	06/03/2014	20	2.6	--	--	Intermediate-Upper
MW-75-085	Primary	06/03/2014	61	2.6	--	--	Intermediate-Upper
MW-75-085	Primary	06/13/2014	65	2.6	--	--	Intermediate-Upper
MW-74-142	Primary	06/03/2014	26	2.6	--	--	Intermediate-Middle
MW-75-120	Primary	06/03/2014	14	0.26	--	--	Intermediate-Middle
DEW-01	Primary	04/02/2014	30	2.6	B	--	Deep-Upper-Middle
DEW-01	Primary	05/06/2014	31	2.6	--	--	Deep-Upper-Middle
DEW-01	Primary	05/06/2014	31	2.6	--	--	Deep-Upper-Middle
PMW-06-416	Primary	05/27/2014	21	0.044	--	--	Deep-Lower
PMW-06-445	Primary	05/27/2014	23	0.044	--	--	Deep-Lower

Abbreviations
-- = not applicable
MDL = Method Detection Limit
mg/L = milligrams per liter; equivalent to parts per million

Laboratory Qualifiers
B = Compound was found in the blank and sample.

TABLE 7

QUARTERLY AVERAGE FLOW RATES AND VOLUMES EXTRACTED
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Monitoring Period	Extraction System			Injection System		
	Wells	Average Flow Rate (gpm)[2]	Total Monthly Flow (gallons)	Wells	Average Flow Rate (gpm)[2]	Total Monthly Flow (gallons)
April (3/31/14 - 4/30/14)	EW-01A	0	707	INJ-001	57	2,470,092
	EW-02A	0	303	INJ-002	30	1,308,300
	EW-01B1	14	621,761	INJ-003	108	4,663,957
	IEW-1R [1]	254	10,986,728	INJ-004	119	5,163,400
	DEW-1	117	5,048,744	INJ-005	56	2,399,880
				INJ-006	14	585,901
May (4/30/14 - 5/31/14)	EW-01A	0	76	INJ-001	53	2,357,392
	EW-02A	0	316	INJ-002	27	1,218,172
	EW-01B1	13	596,759	INJ-003	101	4,488,987
	IEW-1R [1]	229	10,212,320	INJ-004	113	5,059,408
	DEW-1	116	5,191,344	INJ-005	52	2,313,784
				INJ-006	13	573,865
June (5/31/14 - 6/30/14)	EW-01A	0	0	INJ-001	48	2,087,404
	EW-02A	0	385	INJ-002	24	1,045,872
	EW-01B1	13	556,687	INJ-003	92	3,983,616
	IEW-1R [1]	197	8,499,928	INJ-004	107	4,609,552
	DEW-1	122	5,247,560	INJ-005	47	2,042,556
				INJ-006	13	548,153
Total Flow - 2Q14 (gallons)			**46,963,618**			**46,920,291**
Percent Reinjected[3]:			**100%**			

Notes

1. In October 2013, the magnetic flow meter used for process control on well IEW-1R (FE-200) was not accurately representing the flow rate. The meter was recalibrated on 10/15/13. The 2Q14 IEW-1R flow rates and flow volumes were calculated based on the main off-site influent flow meter (FE-400), which measures the combined flow from IEW-1R and DEW-1, and the DEW-1 process control flow meter (FE-100).
2. Average flow rates were calculated over the period of operation. Average monthly flow rates less than 0.5 gpm are rounded to 0.
3. All extracted groundwater is reinjected to the Llagas Subbasin per design of the GWTS. Differences between recorded extraction and injection volumes originate either from groundwater in temporary storage within the treatment system or slight differences in meter tolerances. Additional differences may arise from treatment and injection of water originating from monitoring well purging activities or other investigation-derived water.

Abbreviation

gpm = gallons per minute

TABLE 8

GROUNDWATER TREATMENT SYSTEM ANALYTICAL RESULTS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Parameters	Date	SV-100 (Influent)	SV-200 (Midpoint)[1]	SV-300 (Effluent)	Lab MDL	Reporting Limit	Test Method
Critical Parameters							
Perchlorate, µg/L	4/2/2014	14	ND < 4.0	ND < 4.0	0.75	4	EPA 314.0M
	5/6/2014	14	ND < 4.0 / ND < 4.0[2]	ND < 4.0	0.75	4	EPA 314.0M
	6/4/2014	15	ND < 4.0	ND < 4.0	0.75	4	EPA 314.0M
pH (field)	4/2/2014	6.79	6.57	6.84	--	--	--
	5/6/2014	6.79	6.78	6.85	--	--	--
	6/4/2014	6.86	6.92	6.99	--	--	--
Additional Analytical Data							
Chloride, mg/L	4/2/2014	36	--	36	5	10	EPA 300.0
	5/6/2014	37	--	38	5	10	EPA 300.0
	6/4/2014	37	--	37	5	10	EPA 300.0
Nitrate (as NO_3), mg/L	4/2/2014	30	31	30	2.6	10	EPA 300.0
	5/6/2014	31	31 / 31[2]	32	2.6	10	EPA 300.0
	6/4/2014	31	32	31	2.6	10	EPA 300.0
Sulfate, mg/L	4/2/2014	26	--	26	4	10	EPA 300.0
	5/6/2014	27	--	27	4	10	EPA 300.0
	6/4/2014	27	--	27	4	10	EPA 300.0
Field Data							
Specific Conductivity, µS/cm	4/2/2014	399	398	399	--	--	--
	5/6/2014	455	452	457	--	--	--
	6/4/2014	441	443	446	--	--	--
Temperature, °C	4/2/2014	18.44	18.95	17.37	--	--	--
	5/6/2014	18.60	18.81	18.71	--	--	--
	6/4/2014	18.23	17.88	18.27	--	--	--
Total Dissolved Solids, mg/L	4/2/2014	259	259	258	--	--	--
	5/6/2014	296	296	298	--	--	--
	6/4/2014	287	288	292	--	--	--

TABLE 8

GROUNDWATER TREATMENT SYSTEM ANALYTICAL RESULTS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Notes
1. Midpoint refers to the effluent of the lead IX resin vessel prior to entering the lag IX resin vessel.
2. Duplicate sample results are separated by a forward slash.

Abbreviations
-- = Not analyzed or not applicable
°C = degrees Celsius
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter
EPA = United States Environmental Protection Agency
IX = treatment
MDL = method detection limit
mg/L = milligrams per liter
mV = millivolts
ND < = Not Detected at or above the laboratory reporting limit shown

TABLE 9

PERCHLORATE RESULTS - DOMESTIC ION EXCHANGE SYSTEMS

Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Station	Sample Type	Sample Date	Test Method	Perchlorate Concentration (µg/L)[1]	Lab MDL (µg/L)	Lab Qualifier	Validation Qualifier	Aquifer
09S03E34C003	Primary	04/09/2014	EPA314.0M	**51**	3.8	--	--	Intermediate (Unk)
09S03E34C003-DUP	Duplicate	04/09/2014	EPA314.0M	**50**	3.8	--	--	Intermediate (Unk)
09S03E34C003-MID	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)
09S03E34C003-EFF	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)
09S03E34G001	Primary	04/09/2014	EPA314.0M	**14**	0.75	--	--	Intermediate (Unk)
09S03E34G001-MID	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)
09S03E34G001-EFF	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)
09S03E34G002	Primary	04/09/2014	EPA314.0M	**20**	0.75	--	--	Intermediate (Unk)
09S03E34G002-B-MID	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)
09S03E34G002-B-EFF	Primary	04/09/2014	EPA314.0M	ND < 4.0	0.75	--	--	Intermediate (Unk)

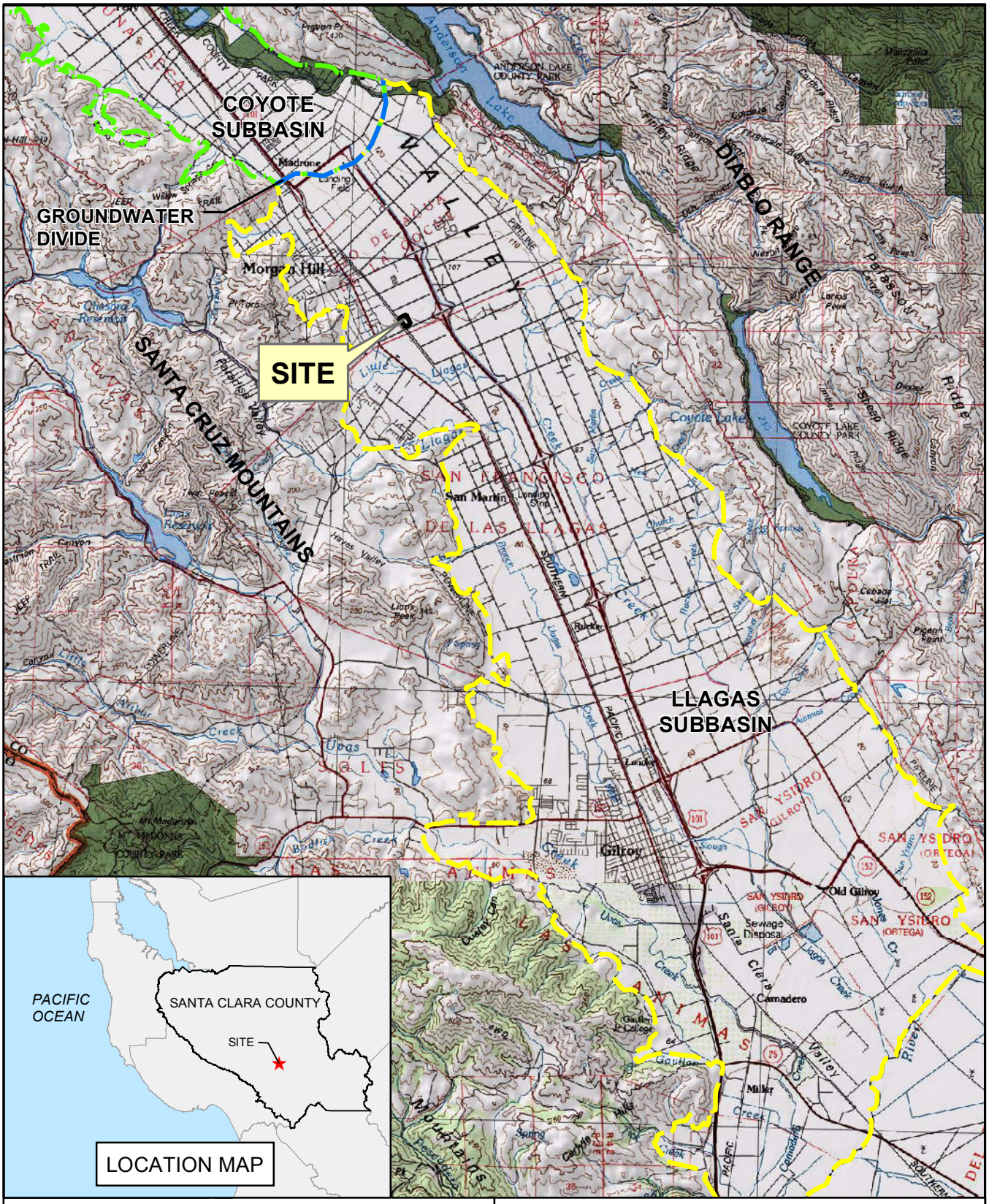
Note

1. **Bold face type** denotes concentration that exceeds the Maximum Contaminant Level (6 µg/L)

Abbreviations

-- = not applicable
µg/L = micrograms per liter; equivalent to parts per billion
EFF = Treated effluent sample, collected downstream of the lag ion exchange vessel
Intermediate (Unk) = Screen interval unknown; assigned to intermediate aquifer based on production rate and local domestic wells
MID = Midpoint sample, collected between the lead and lag ion exchange vessels
MDL = Method Detection Limit
ND < = Not Detected at or above the reporting limit shown

FIGURES



N

2 1 0 2

Miles

Source: San Jose and Monterey Quadrangles
(USGS 1:100,000 sheets)

SITE LOCATION MAP
First Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 03/06/2014	Project No. 6107140012
amec		Figure 1

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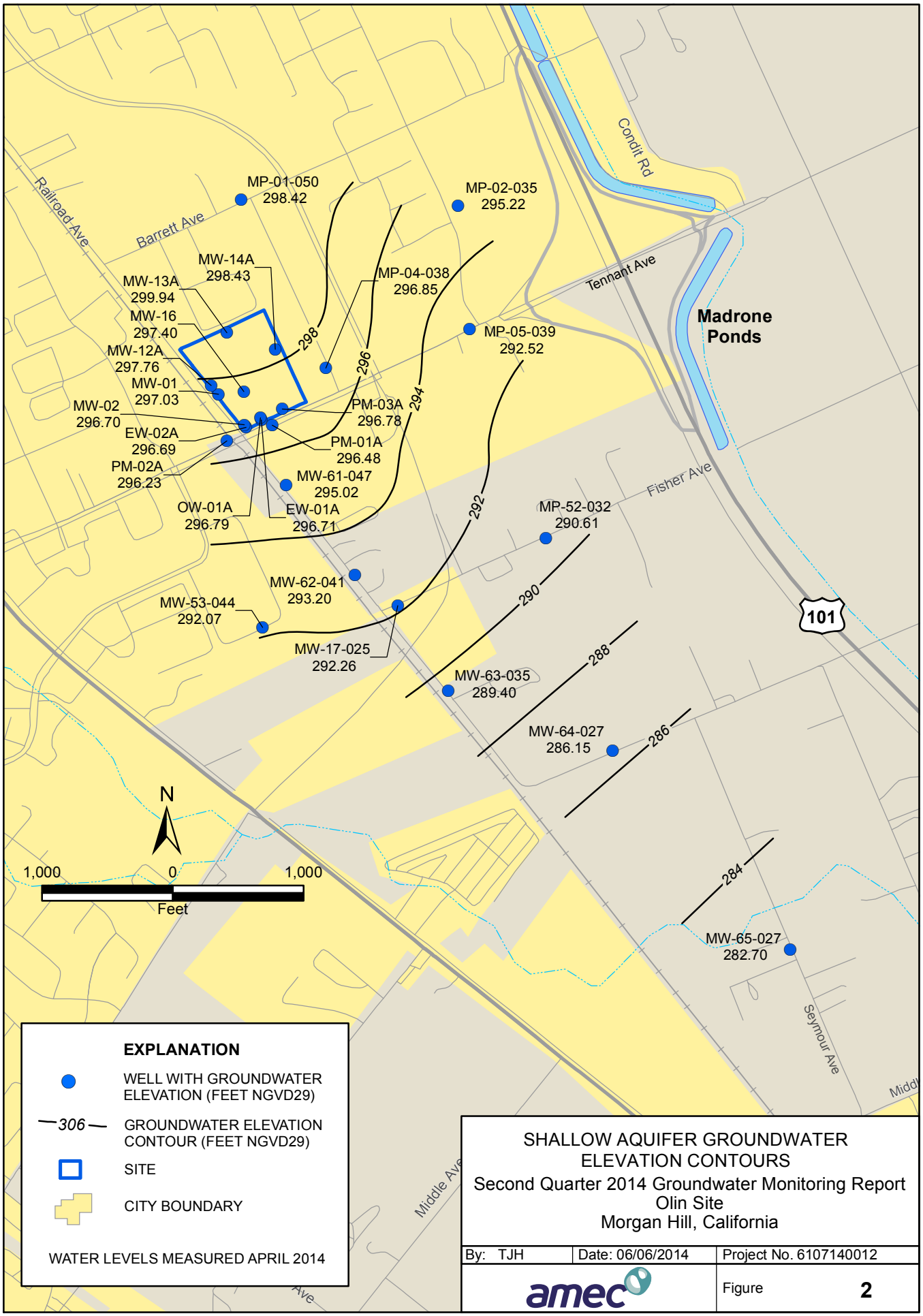

SHALLOW AQUIFER GROUNDWATER ELEVATION CONTOURS

Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/06/2014	Project No. 6107140012
amec		Figure 2

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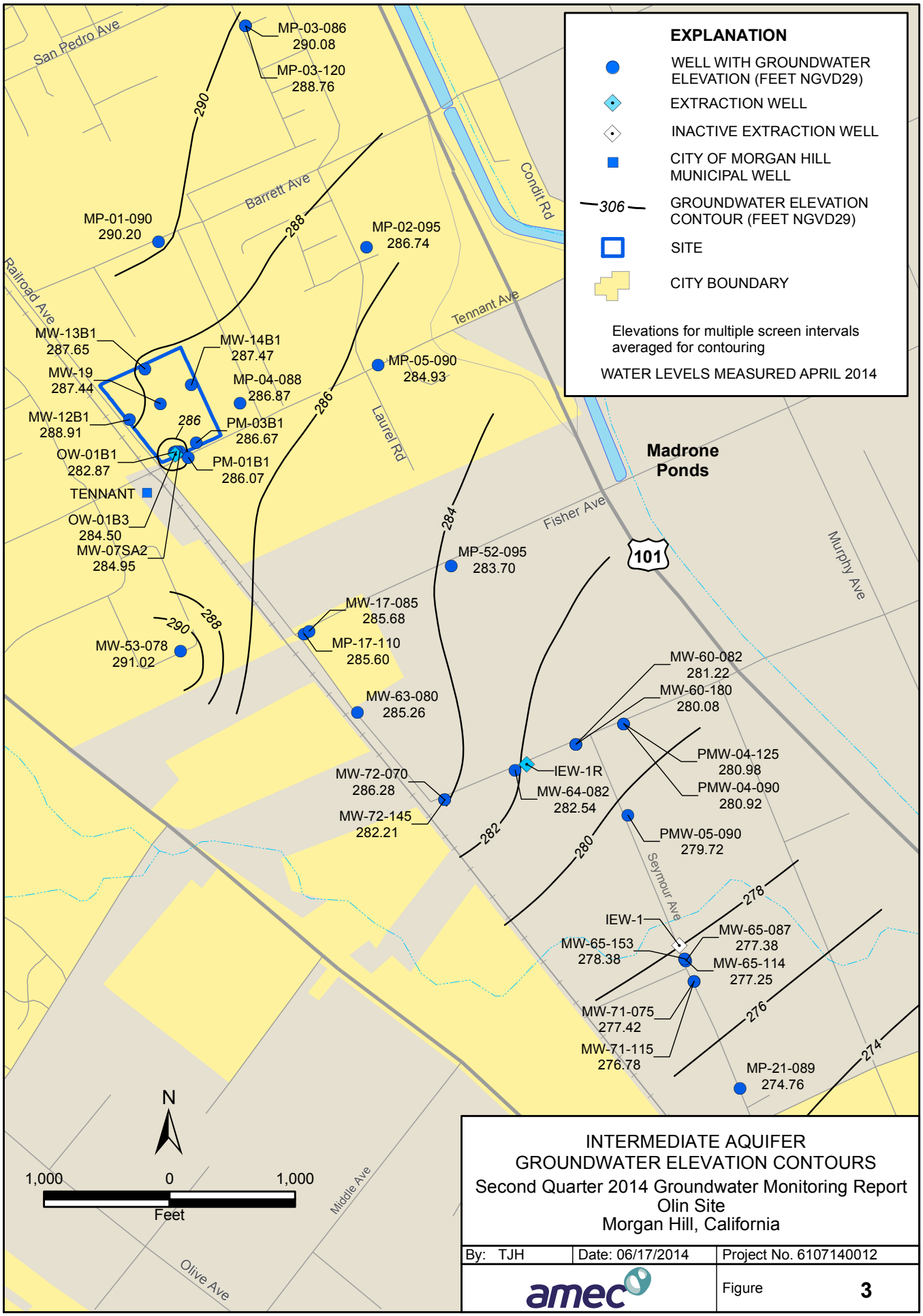

INTERMEDIATE AQUIFER
GROUNDWATER ELEVATION CONTOURS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/17/2014	Project No. 6107140012
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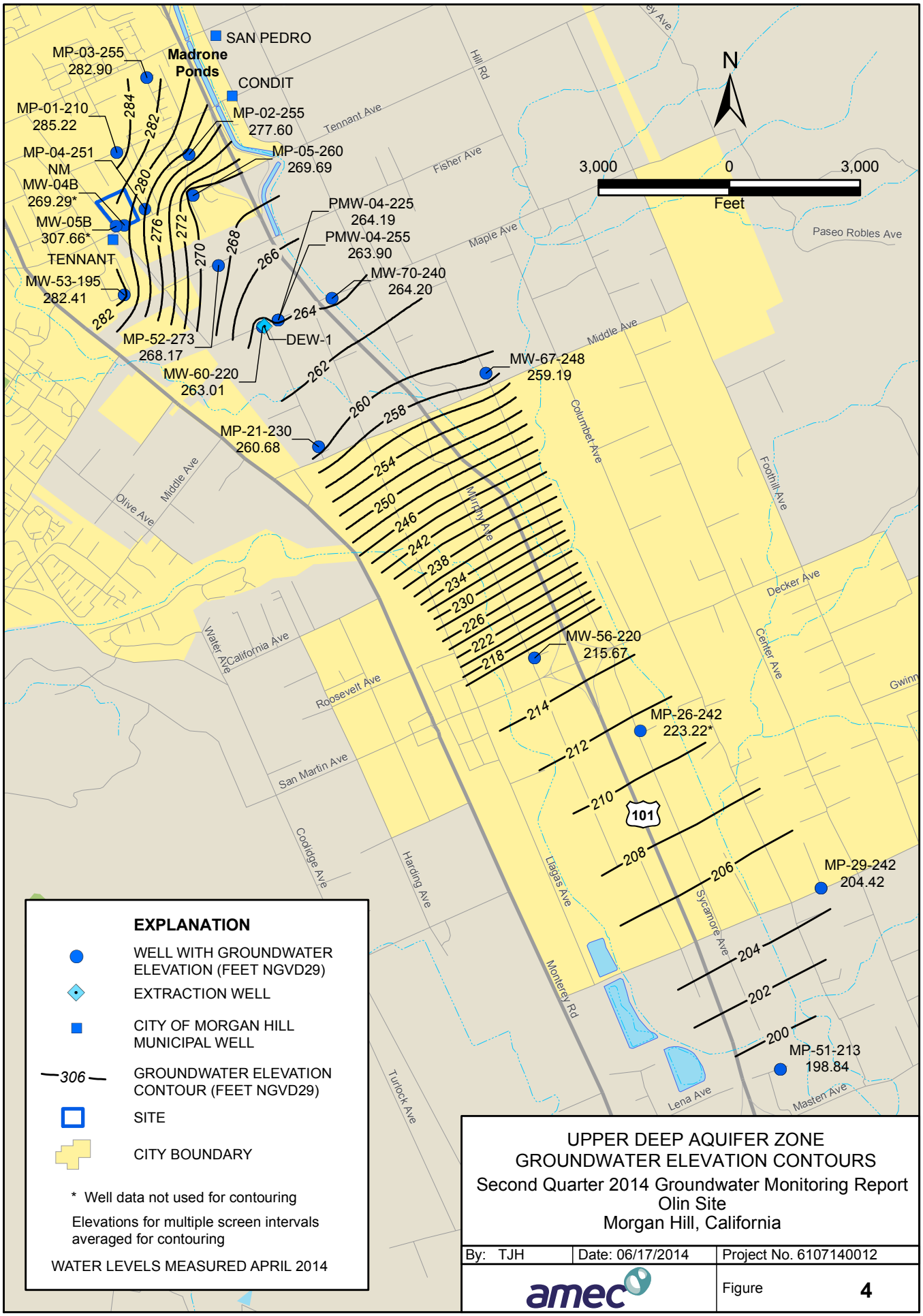

UPPER DEEP AQUIFER ZONE
GROUNDWATER ELEVATION CONTOURS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/17/2014	Project No. 6107140012
amec		Figure 4

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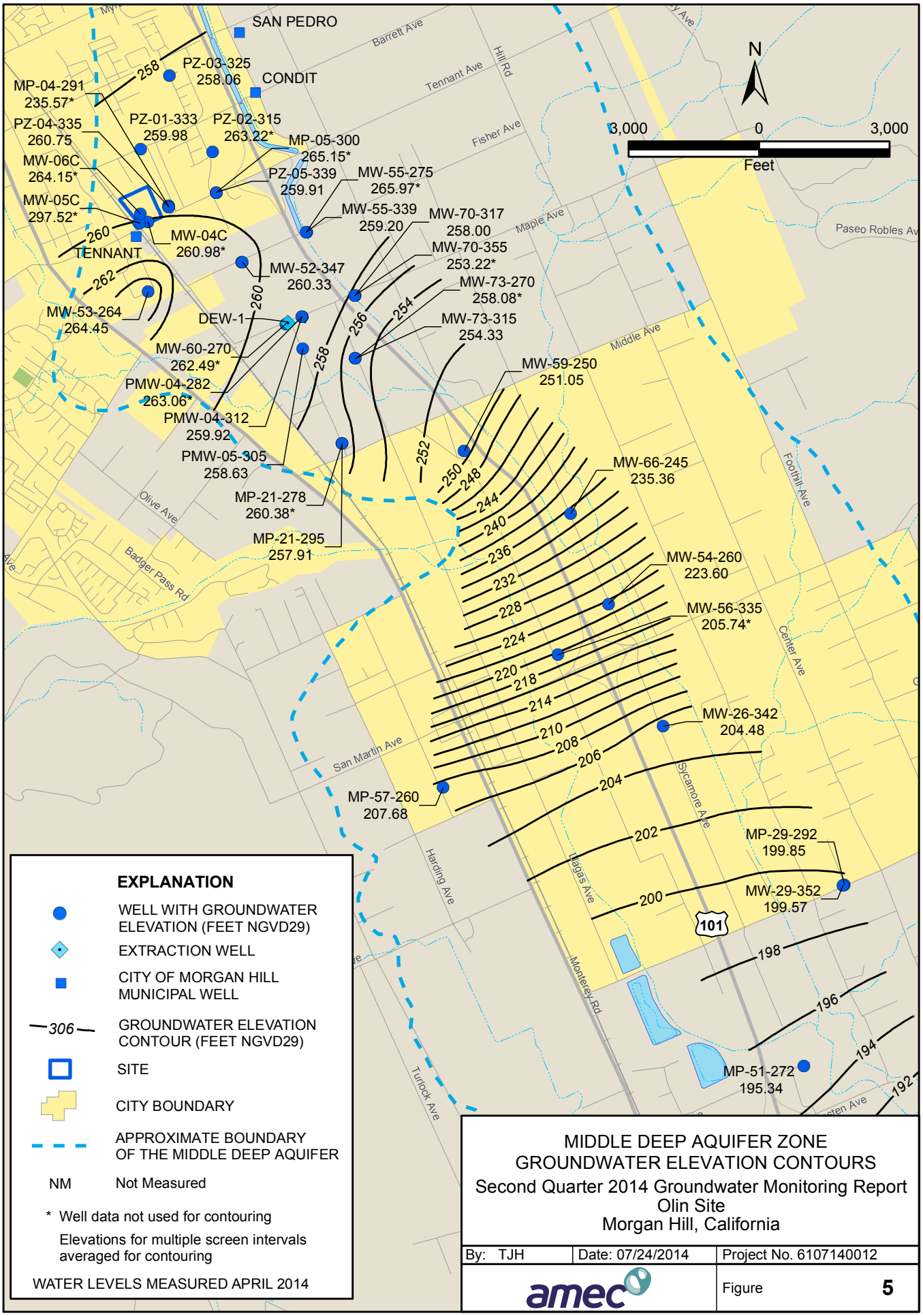

MIDDLE DEEP AQUIFER ZONE
GROUNDWATER ELEVATION CONTOURS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 07/24/2014	Project No. 6107140012
amec		Figure 5

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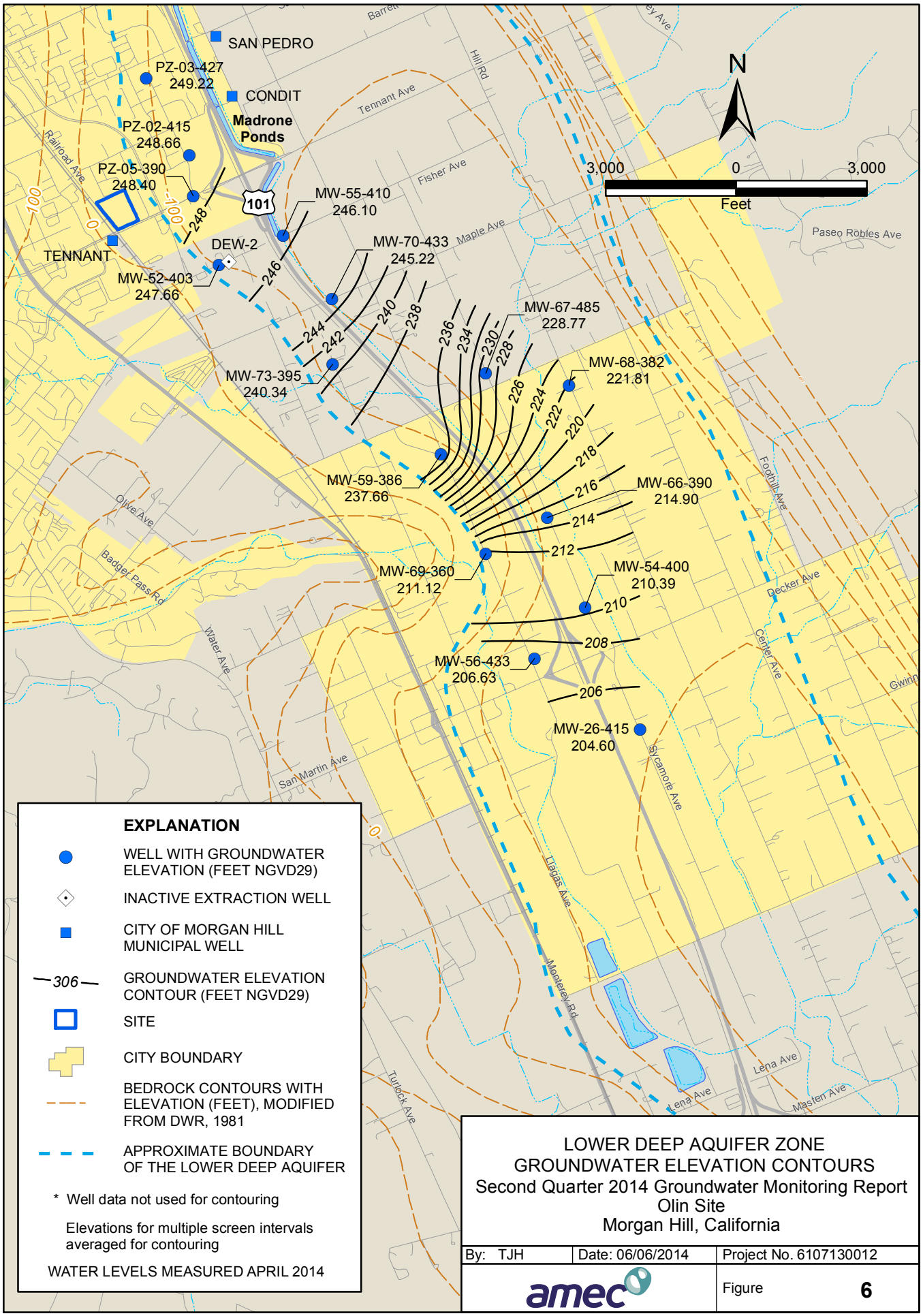

LOWER DEEP AQUIFER ZONE
GROUNDWATER ELEVATION CONTOURS
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/06/2014	Project No. 6107130012
amec		Figure 6

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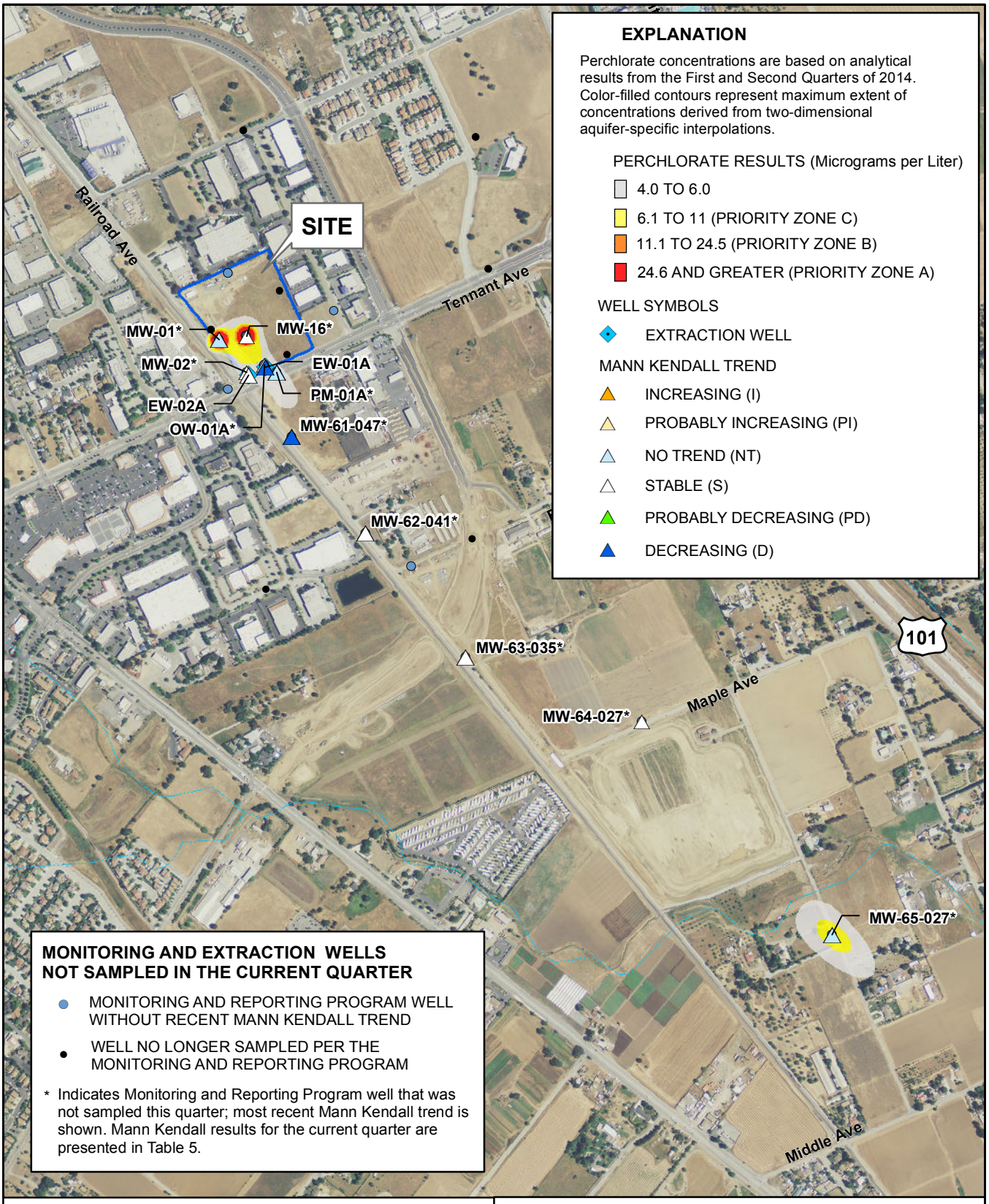

EXPLANATION

Perchlorate concentrations are based on analytical results from the First and Second Quarters of 2014. Color-filled contours represent maximum extent of concentrations derived from two-dimensional aquifer-specific interpolations.

PERCHLORATE RESULTS (Micrograms per Liter)

- 4.0 TO 6.0
- 6.1 TO 11 (PRIORITY ZONE C)
- 11.1 TO 24.5 (PRIORITY ZONE B)
- 24.6 AND GREATER (PRIORITY ZONE A)

WELL SYMBOLS

- EXTRACTION WELL

MANN KENDALL TREND

- INCREASING (I)
- PROBABLY INCREASING (PI)
- NO TREND (NT)
- STABLE (S)
- PROBABLY DECREASING (PD)
- DECREASING (D)

MONITORING AND EXTRACTION WELLS NOT SAMPLED IN THE CURRENT QUARTER

- MONITORING AND REPORTING PROGRAM WELL WITHOUT RECENT MANN KENDALL TREND
- WELL NO LONGER SAMPLED PER THE MONITORING AND REPORTING PROGRAM

* Indicates Monitoring and Reporting Program well that was not sampled this quarter; most recent Mann Kendall trend is shown. Mann Kendall results for the current quarter are presented in Table 5.

N

1,000 0 1,000

Feet

PERCHLORATE RESULTS
SHALLOW AQUIFER
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/06/2014	Project No. 6107140012
amec		Figure 7

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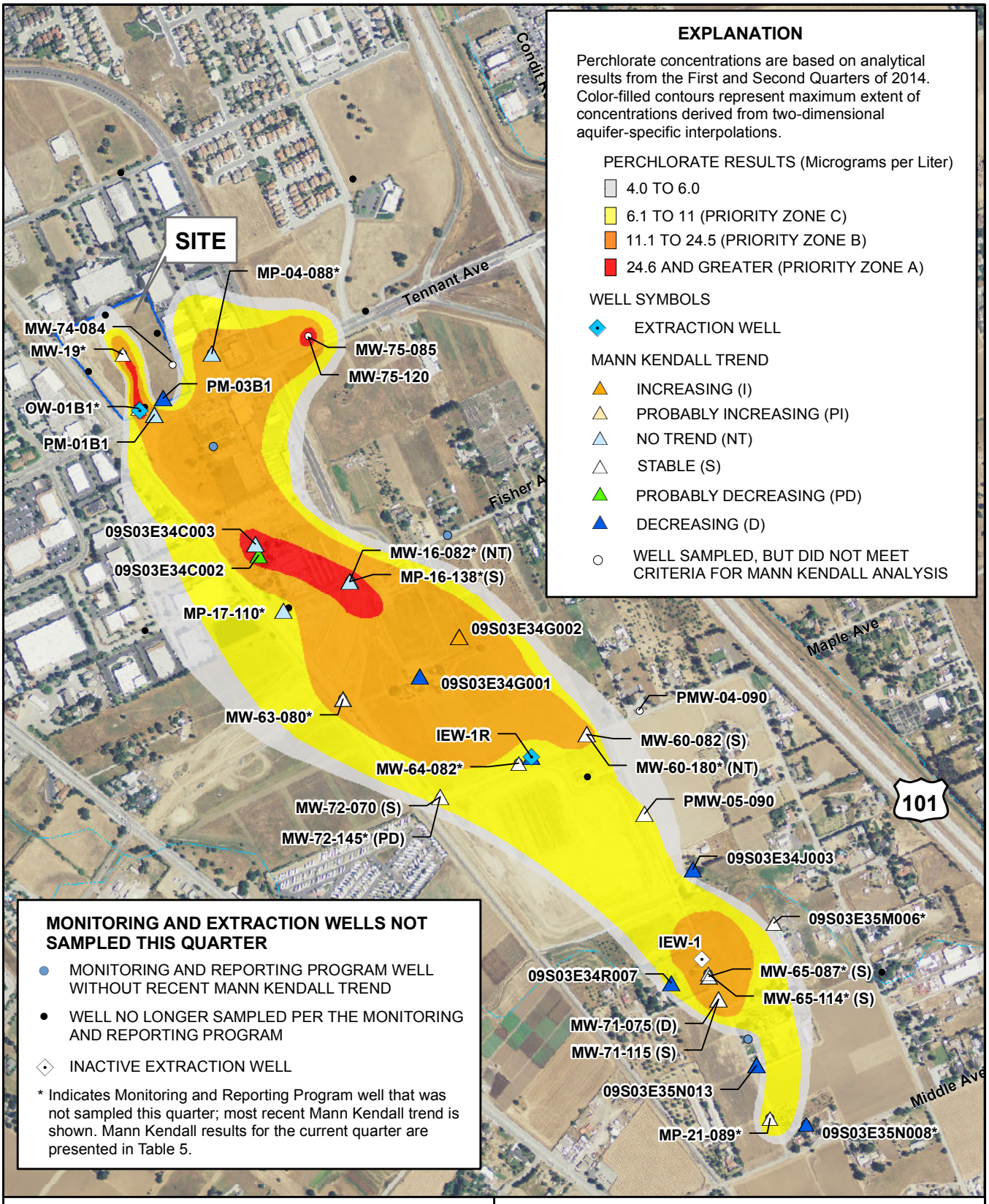

N

1,000 0 1,000

Feet

PERCHLORATE RESULTS
INTERMEDIATE AQUIFER
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/20/2014	Project No. 6107140012
amec		Figure 8

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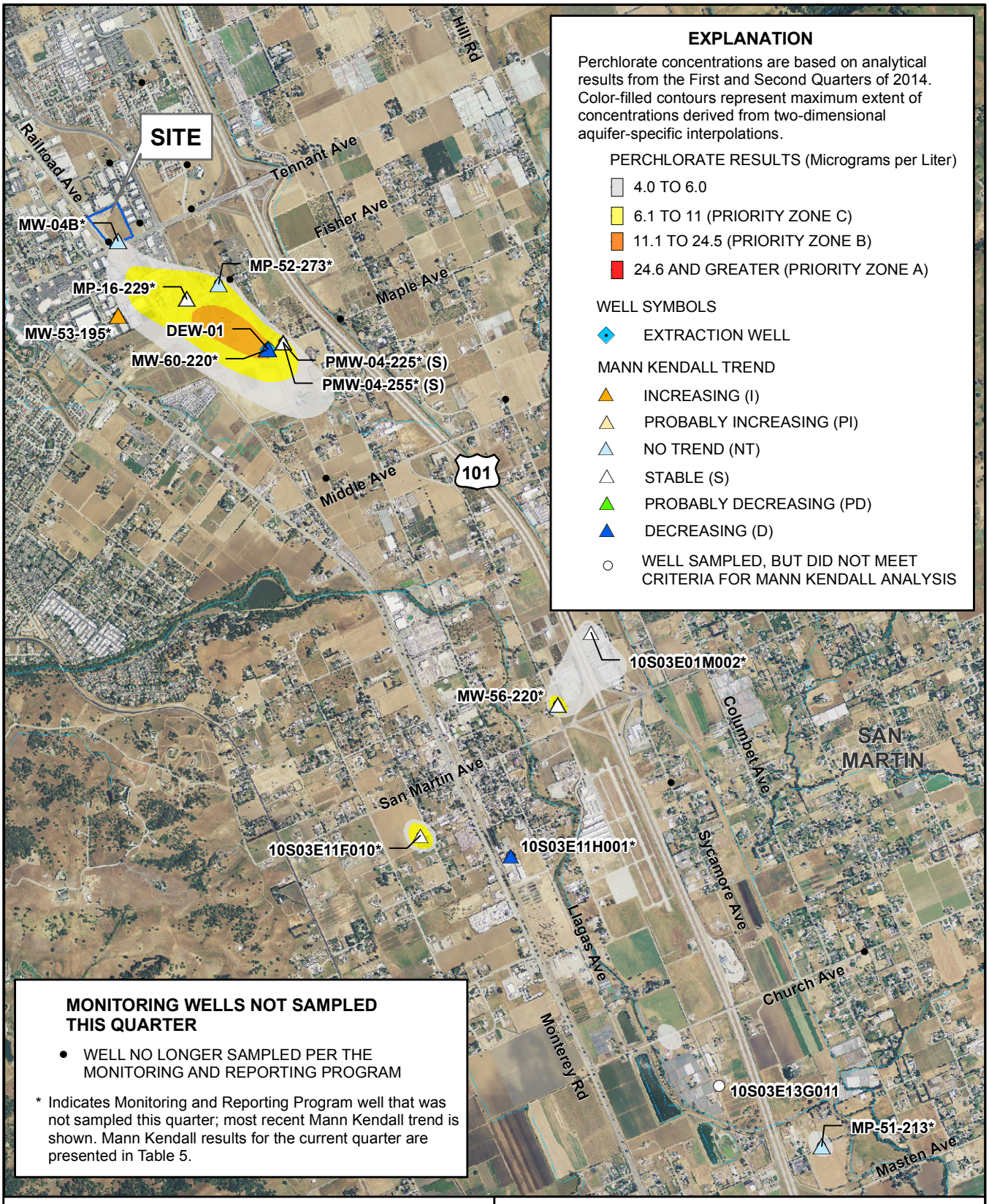

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3,000 0 3,000

Feet

PERCHLORATE RESULTS
UPPER DEEP AQUIFER ZONE
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/06/2014	Project No. 6107130012
amec		Figure 9

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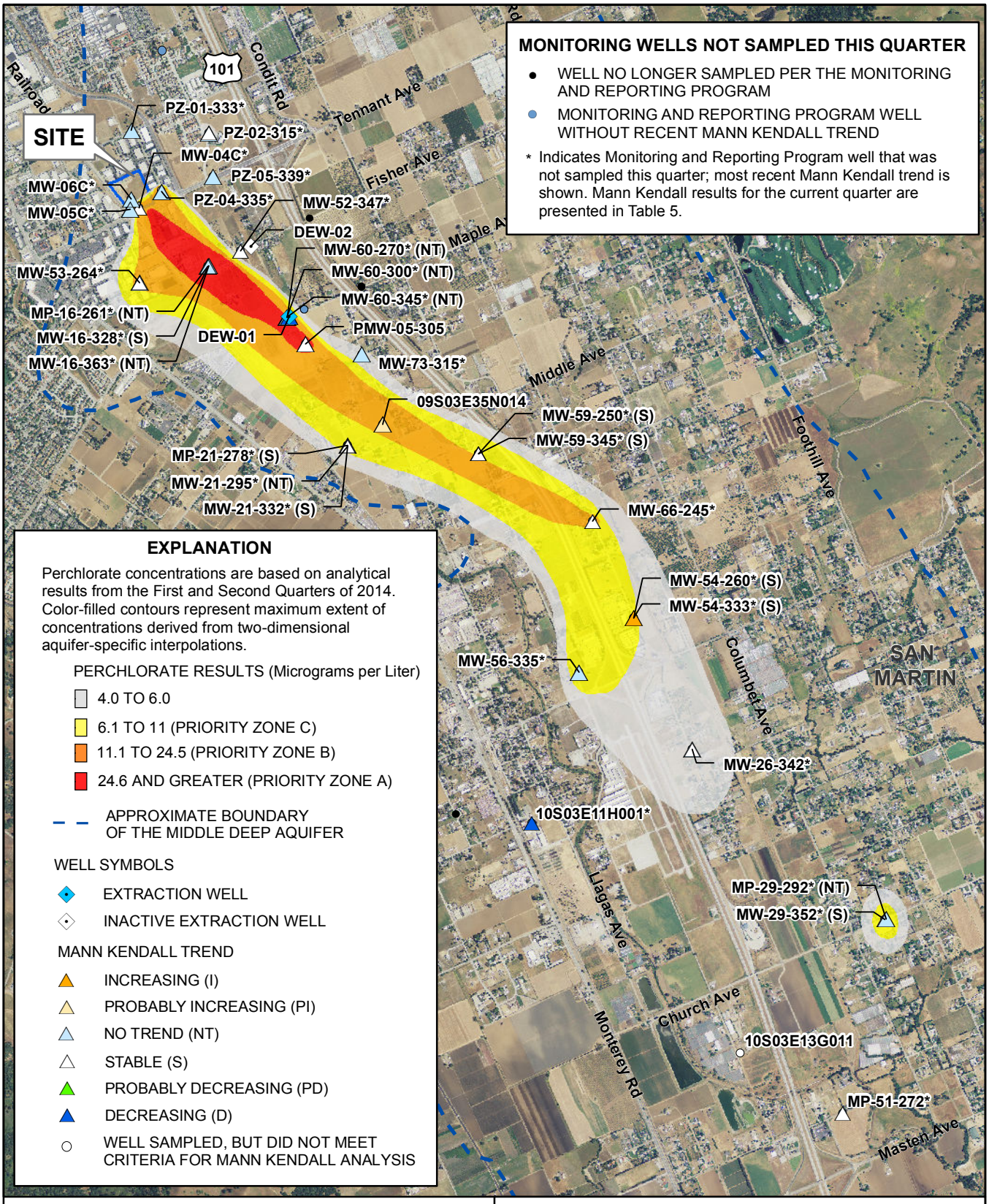

N

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Feet

PERCHLORATE RESULTS
MIDDLE DEEP AQUIFER ZONE
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/06/2014	Project No. 6107140012
amec		Figure 10

Friday, June 06, 2014 1:43:49 PM
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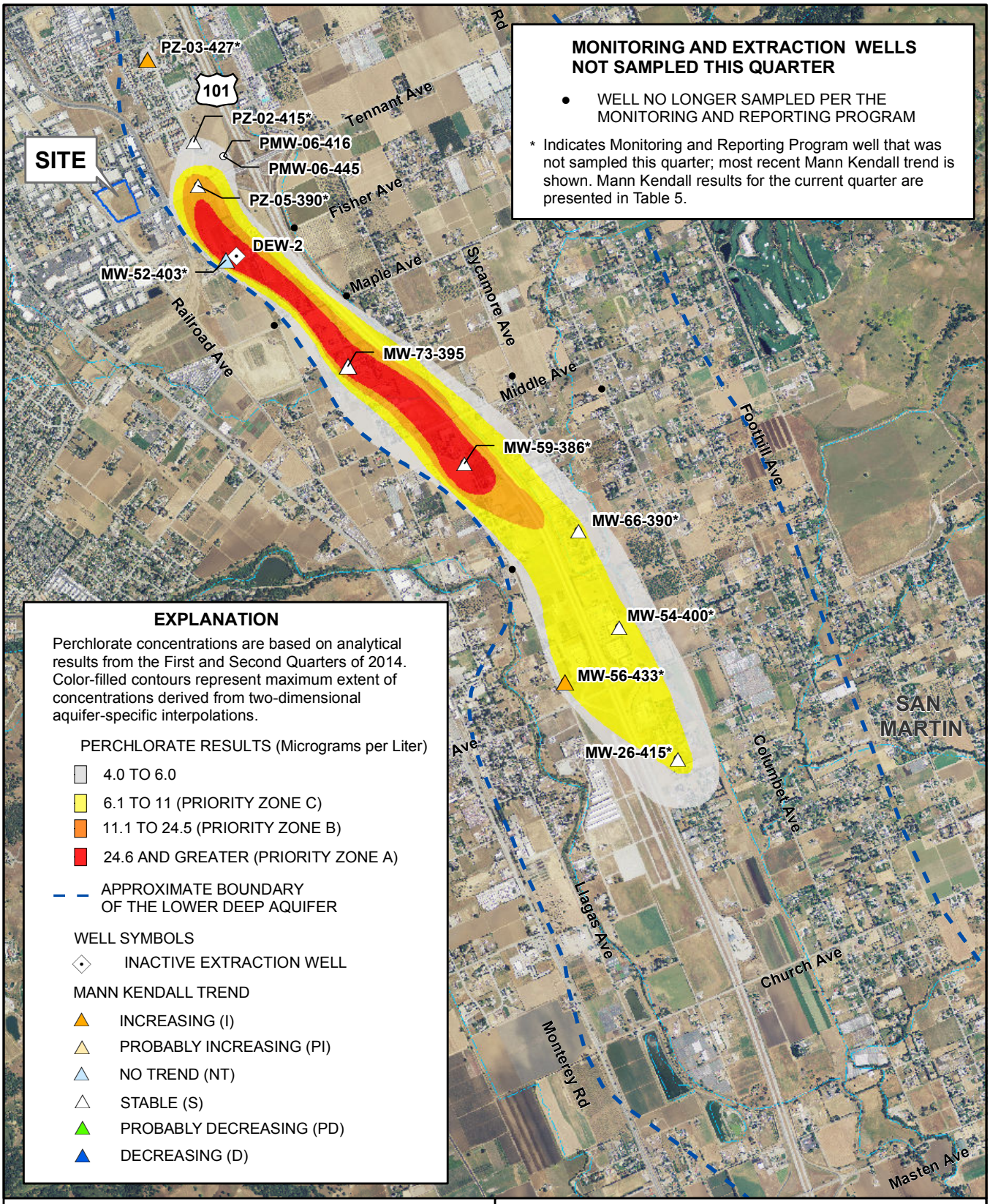

N

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Feet

PERCHLORATE RESULTS
LOWER DEEP AQUIFER ZONE
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

By: TJH	Date: 06/20/2014	Project No. 6107140012
amec		Figure 11

Friday, June 20, 2014 2:23:33 PM
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APPENDIX A

Well Installation Report, Wells MW-74 and MW-75

Well Installation Report
Wells MW-74 and MW 75

Olin Site
Morgan Hill, California

Prepared for:

Olin Corporation
Cleveland, Tennessee

Prepared by:

AMEC Environment & Infrastructure, Inc.
180 Grand Avenue, Suite 1100
Oakland, California 94612

July 2014

Project No.6107140012

Well Installation Report
Wells MW-74 and MW-75
Olin Site
Morgan Hill, California

July 2014
Project 6107140012

This report was prepared by the staff of AMEC under the supervision of the Engineer(s) and/or Geologist(s) whose seal(s) and signature(s) appear hereon.

The findings, recommendations, specifications, or professional opinions are presented within the limits described by the client, in accordance with generally accepted professional engineering and geologic practice. No warranty is expressed or implied.

Haely Young
Environmental Scientist

PROFESSIONAL GEOLOGIST
MARI GILMORE
No. 8492
EXP. 12/31/15
STATE OF CALIFORNIA

Mari Gilmore, PG
Project Manager
7/30/14

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- 2.2 MONITORING WELL INSTALLATION A-2
- 2.3 MONITORING WELL DEVELOPMENT A-3
- 2.4 INVESTIGATION DERIVED MATERIALS MANAGEMENT A-3
- 2.5 MONITORING WELL SURVEYING A-4

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Table 1 Monitoring Well Construction Details

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Figure 1 Monitoring Well Locations
Figure 2 Cross Section T-T'

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Appendix A Permits
Appendix B Lithological Logs and Well Construction Details
Appendix C Monitoring Well Development Forms
Appendix D Investigation-Derived Materials Management Analytical Data/Chains-of-Custody
Appendix E Well Survey Report

WELL INSTALLATION REPORT
WELLS MW-74 AND MW-75
Olin Site
Morgan Hill, California

1.0 INTRODUCTION

This report has been prepared by AMEC Environment & Infrastructure, Inc. (AMEC), to provide a summary of groundwater monitoring well installation activities conducted in May 2014.

1.1 BACKGROUND

Four monitoring wells were installed at two locations (MW-74 and MW-75), see Figure 1. This work was conducted as proposed in the *MW-74 and MW-75 Installation Work Plan* ("Work Plan," AMEC, 2014a) dated April 24, 2014. The Central Coast Regional Water Quality Control Board (the "Water Board") concurred with the Work plan on April 30, 2014. This report summarizes the permitting information, observed lithology, well construction details, records of well screen development and surveying data associated with wells MW-74 and MW-75. Analytical results for groundwater samples collected from these wells are reported in the main text of the Second Quarter 2014 Groundwater Monitoring Report.

Wells MW-74 and MW-75 were installed in conjunction with installation of performance monitoring well PMW-06. Well installation and testing information for well PMW-06 was reported in the *PMW-06 Baseline Analytical Evaluation and GDR Well Recommendation Letter* (AMEC, 2014b), which was submitted to the Water Board on July 18, 2014.

1.2 PERMITTING

Access to each monitoring well location was preceded by acquiring access agreements and installation permits, and clearing each location for buried utilities.

Monitoring well location MW-75 is located within the City of Morgan Hill right-of-way, and required a city encroachment permit. In addition, an access agreement was established with the owner of the property adjacent to MW-75 to provide a staging area. Monitoring well location MW-74 is located on the Olin property at 16210 Railroad Avenue, Morgan Hill, California ("the Site"), and did not require an encroachment permit. Well installation permits were obtained from the Santa Clara Valley Water District (SCVWD) for each well casing installed and Underground Service Alert (USA) was notified at least 48 hours prior to breaking ground at each location. The approved permits are included in Appendix A within this document.

2.0 FIELD PROGRAM

Well drilling activities began on May 17, 2014, and ended on May 23, 2014. The start of drilling and completion of well construction dates for each borehole are included in Table 1. Following well installation, well development was completed on May 21, 2014 for the MW-74 wells and May 28, 2014 for the MW-75 wells, and the investigation-derived solids (IDS) and fluids (IDF) from well installation and development were properly managed according to the *Materials Management Plan* (Geosyntec, 2012) and the *Operations, Maintenance, and Monitoring Plan, Groundwater Treatment System* (Geosyntec, 2014). Surveying of each well was completed on June 3, 2014. The following sections summarize the drilling methods for advancing each borehole, collecting groundwater samples, the installation and development procedures followed for each monitoring well, and surveying measurements.

2.1 BOREHOLE LOGGING

The wells installed at locations MW-74 and MW-75 were set in boreholes drilled using a truck-mounted sonic drilling rig by Cascade Drilling, L.P. of Richmond, California. The boreholes were drilled with a 7-inch-diameter drive casing and 6-inch diameter core barrel. The continuous core provided by the sonic drilling technique was laid out at the drill site in consecutive order such that the entire borehole could be easily viewed and soil characteristics logged in detail. The lithologic contacts of the core were photo logged prior to being transferred to soil bins.

An AMEC geologist working under the supervision of a California Professional Geologist recorded lithologic data including color, consistency, moisture content, and estimated grain size percentages from each borehole using the American Society for Testing and Materials (ASTM) Standard D2488-90, *Standard Practice for Description and Identification of Soils (*Visual-Manual Procedure*)*, which is based on the Unified Soil Classification System (USCS). The lithologic logs are included in Appendix B within this document. An updated cross-section T-T', showing geologic and perchlorate concentration data for the newly installed MW-74, MW-75, and lower deep PMW-06 wells is provided in Figure 2; the location of cross-section T-T' along Tennant Avenue is shown on Figure 1.

2.2 MONITORING WELL INSTALLATION

A pair of 1-inch PVC monitoring wells (referred to as a well couplet) was installed at well locations MW-74 and MW-75 in order to monitor the upper intermediate and middle intermediate water-bearing zones at each location. The monitoring wells were installed in accordance with State of California (DWR, 1991) and SCVWD Well Standards (SCVWD, 1989). Monitoring well construction information is summarized in Table 1, and in Appendix B within this document. Well materials were installed from within the sonic drive casing.

The wells were constructed of flush-threaded PVC casing and screens in which the screens consisted of 0.020-inch slots and were 10 feet long. Installation of the wells consisted of suspending the casing/screen pipe from the drilling mast and backfilling the annulus to create a filter pack around the screen with #3 Monterey sand. After the filter pack was installed around the lower well screen, an intervening bentonite chip seal was installed, followed by another sand filter pack around the shallower well screen. A minimum of three feet of bentonite chips was applied above the top of the final sand filter pack. Portland neat cement mixed with 5% bentonite gel was installed within the annulus to create a sanitary seal from the top of the bentonite seal to ground surface.

Annular material was installed in lifts within the sonic rig drive casing to maintain a controlled environment for well construction. The sand filter packs and bentonite chip seals were applied directly to the borehole and gravity fed to the desired depth. The depth to the top of each sand filter pack and bentonite chip seal was measured with a weighted vinyl tape to confirm the proper placement of material before the next lift was installed. The neat cement sanitary seal was applied by pumping through a tremie pipe in the presence of a SCVWD inspector.

Each monitoring well was completed within a traffic-rated steel well box, set flush with grade in a concrete pad.

2.3 MONITORING WELL DEVELOPMENT

Development of each monitoring well screen was conducted to remove fine grain material from the sand filter pack and/or screen interval to facilitate future sampling and ensure hydraulic communication with the surrounding formation. Well development records are included in Appendix C within this document.

In order to develop the wells, a minimum of 10 well casing volumes of groundwater was removed using airlifting techniques. Development criteria parameters including pH, temperature, and specific conductance were recorded after each well volume was removed. Development was considered complete when three consecutive readings varied less than 10 percent. Turbidity, in nephelometric turbidity units (NTU), was also recorded, but the measurements were not used as a criterion for determining completion of development.

2.4 INVESTIGATION DERIVED MATERIALS MANAGEMENT

Materials produced during the monitoring well installations consisted of soil cuttings (core and slough). The sonic drilling technique requires the removal of soil slough created between the core barrel and the larger diameter drive casing. This was achieved by utilizing additional lengths of core barrel during the next coring run, which produced solid cuttings. Twenty cubic-yard capacity covered roll-off bins were used to collect IDS at each drilling location. IDF generated during well development was transported by portable tank to the former Olin site, where it was transferred to a 5,000-gallon holding tank. IDF and IDS from MW-74 and MW-75

were managed with materials produced during installation of well PMW-06. The IDS was characterized and managed in accordance with the *Material Management Plan* (Geosyntec, 2012). The IDF was characterized and managed in accordance with the *Operations, Maintenance, and Monitoring Plan* (Geosyntec, 2014). Analytical results for IDF and IDS composite samples and associated chains-of-custody are presented in Appendix D within this document.

2.5 MONITORING WELL SURVEYING

Virgil Chavez Land Surveying of Vallejo, California, surveyed the coordinate location and vertical datum (top of casing elevation) for each monitoring well. The survey was conducted using a global positioning survey (GPS) instrument, referenced to a recognized survey marker. The top of casing elevation (north face) and top of well box rim elevation were surveyed to 0.01 foot accuracy, and the longitude and latitude of each monitoring well was surveyed. Horizontal coordinates for each monitoring well are provided using the North American Datum 1983 (NAD83).

Depth-to-groundwater measurements will be taken from the top of casing elevation for each well, which were measured relative to the National Geodetic Vertical Datum 1929 (NGVD29). Pertinent surveying information is summarized in Table 1; the survey report is presented in Appendix E within this document.

3.0 REFERENCES

AMEC, 2014a, MW-74 and MW-75 Installation Work Plan, Olin Site, 425 Tennant Avenue, Morgan Hill, CA. April 24.

AMEC, 2014b, PMW-06 Baseline Analytical Evaluation and GDR Well Recommendation Letter, Gradient Driven Remediation Pilot Study, Olin Site, Morgan Hill, California. July 18.

Department of Water Resources (DWR), 1991: California Well Standards, Bulletin 74-90. June 1991.

Geosyntec, 2012. Material Management Plan for the Installation of the Aquifer Containment & Cleanup System, Olin Site, Morgan Hill, California. February.

_____, 2014. Operations, Maintenance and Monitoring Plan, Groundwater Treatment System (GWTS), Olin Site, Morgan Hill, California. July.

Santa Clara Valley Water District (SCVWD), 1989: Standards for the Construction and Destruction of Wells and other Deep Excavations in Santa Clara County.

TABLES

TABLE A1

MONITORING WELL CONSTRUCTION DETAILS
Olin Site
Morgan Hill, California

Well Identification	Start Date	End Date	Ground Elevation[1]	Top of Casing Elevation[1]	Easting[2]	Northing[2]	Diameter (inches)	Depth to Sand Pack Top (feet bgs)	Depth to Sand Pack Bottom (feet bgs)	Depth to Screen Interval Top (feet bgs)	Depth to Screen Interval Mid-Point (feet bgs)	Depth to Screen Interval Bottom (feet bgs)
MW-74-084	05/17/14	05/19/14	328.52	328.04	6230798.84	1867029.82	1	76	92	78.3	83.3	88.3
MW-74-142	05/17/14	05/19/14	328.52	328.03	6230799.10	1867029.82	1	134	150	136.9	141.9	146.9
MW-75-085	05/20/14	05/22/14	330.93	330.62	6231763.54	1867240.50	1	77	92	80	85	90
MW-75-120	05/20/14	05/22/14	330.93	330.60	6231763.60	1867240.30	1	112	127	114.9	119.9	124.9

Notes
1. Elevations are measured in feet referenced to NGVD 1929.
2. Horizontal coordinates are measured in feet referenced to NAD 1983.

Abbreviations
bgs = below ground surface
NAD = North Americal Datum
NGVD = National Geodetic Vertical Datum

FIGURES

N

0 400 800

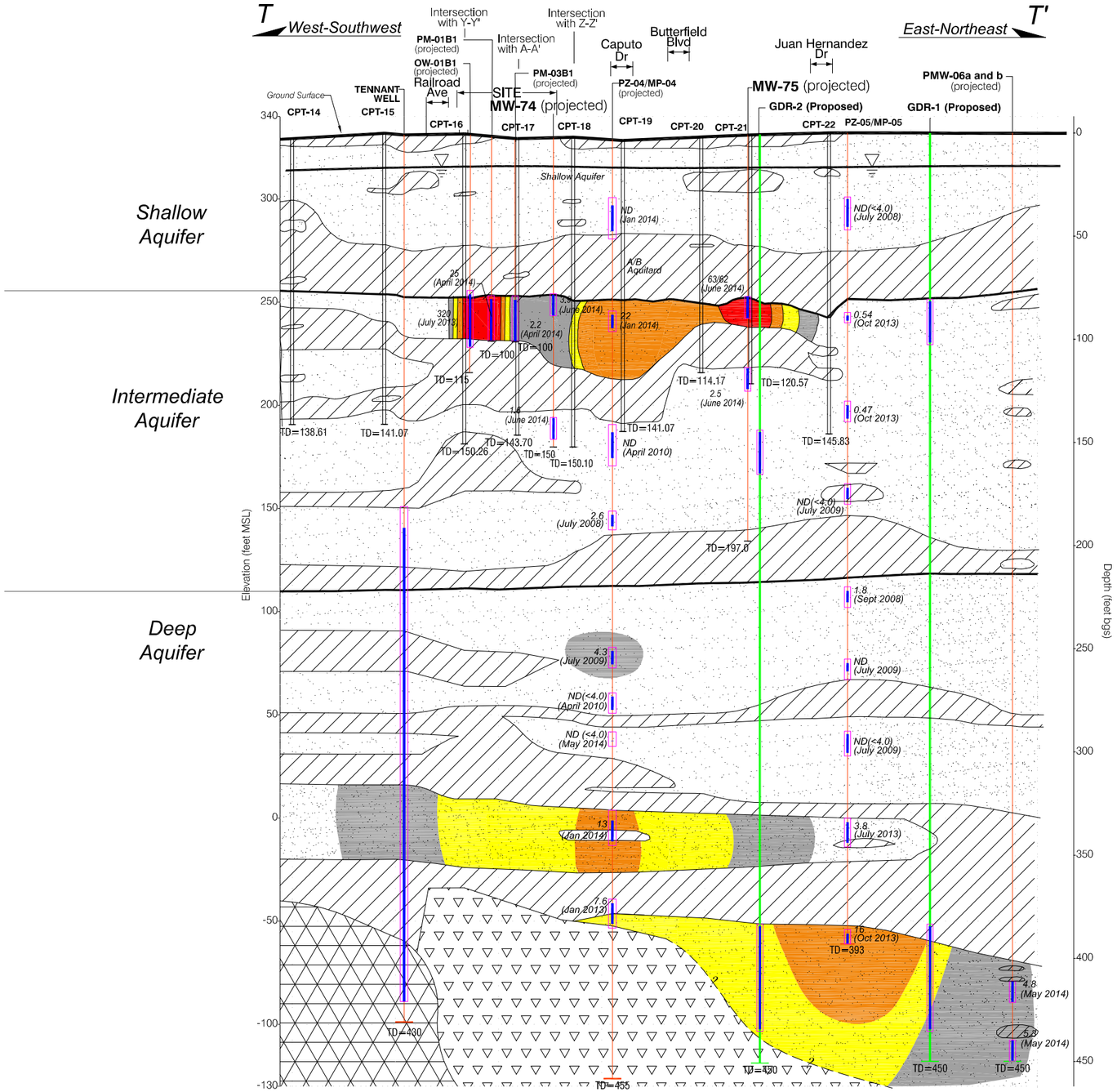
Scale in Feet

Aerial Photo Source: USDA Farm Service Agency, 2012

MONITORING WELL LOCATIONS
Well Installation Report
Wells MW-74 and MW-75
Olin Site
Morgan Hill, California

By: TJH	Date: 07/25/2014	Project No. 6107140013
amec		Figure 1

Friday, July 25, 2014 12:02:20 PM
P:\6107\GIS\Projects\MW-7475-Installation\Figure1-WellLocations.mxd



Note: Transect Location Illustrated on Figure 1.

Legend

Geologic Units (as described on driller's logs):

- Coarse Material, Facies B and C (Gravel & Sand)
- Fine Material, Facies D and E (Silt & Clay)
- Morgan Hill Facies A

Perchlorate Concentration (micrograms per Liter)

- 4.0 - 6.0
- 6.1 - 11.0
- 11.1 - 24.5
- >24.5
- NS Not Sampled

Shaded areas reflect most recent perchlorate data.

- Well Location and Depth
- Screen Interval
- Gravel Pack
- Total Depth of Well (TD=423)
- Proposed Well — Well screen lengths and depths are estimated for GDR-1 and GDR-2
- CPT Location
- ND(<4.0) — Sample
- Total Depth of CPT (TD=169.45)
- 7.3 — Perchlorate Concentration (micrograms per Liter)
- ND(<4.0) — Perchlorate Not Detected At or Above the Reporting Limit
- J — Laboratory Reports This as an Estimated Value
- NS — Well Not Sampled
- Aquifer Zone Boundary
- Aquifer Zone Boundary Inferred
- Top of Water Table

SCALE IN FEET: 0 – 60

SCALE IN FEET: 0 – 600

VERTICAL EXAGGERATION = 10X

FIGURE2-6107110013013.DWG 40.0
20140725.1245

DRAWN TJH	JOB NUMBER 6107140013	amec	Well Installation Report Wells MW-74 and MW-75 Olin Site Morgan Hill, California	Cross Section T-T'
ENGINEER	SCALE as shown			FIGURE 2
CHECKED	DATE 6/2014			
APPROVED	DATE			

APPENDIX A

Permits

A COPY OF THIS PERMIT MUST BE AVAILABLE AT THE JOBSITE.

CITY OF MORGAN HILL ENCROACHMENT PERMIT

Permit Number: 1398-P

In compliance with your request and subject to all of the terms and restrictions written herein and of the attached permit conditions, permission is hereby granted to:

Permit Valid Between
Date/Time: 5/9/2014
to
Date/Time: 11/9/2014

Date Application Received: 4/29/2014

Building Permit Number: N/A

Total Fees Collected: pd.

Date Issued: 5/9/2014

Owner: Olin Corporation

Address: 3855 North Ocoee Rd.

City/State: Cleveland, TN 37312

Phone: 423-336-4576

Contractor: AMEC E&I

Address: 180 Grand Ave.

City/State: Oakland, CA 94612

Phone #1: 510--504-7091
P.O.C.: Haely Young

Cell #:
FAX::

License # and Type: 705710 A

City Business License: 798983

Subdivision:
Tract:
Address: Tennant Ave.
Nearest cross street: Juan Hernandez Dr.

U.S.A Locate: 168959

Insurance Certificate Issued: 3/24/2014

Insurance Company:

Policy Number:

General Coverage Amount:: $2,000,000.00

Construction Authorization

	Yes	No
Saturday		X
Sunday		X
Sunset		X
See Comments	X	

DEVELOPMENT SERVICES
MAY 09 2014
CITY OF MORGAN HILL
Public Works Seal

Acceptance Authorization

	Accept	Deny	N/A	Intials
Cmmty Dev.:			X	
Pub Sfty:			X	
Utility Supvr.:			X	
Traffic:			X	

Surety Bond Received: N/A

Bonding Agency: N/A

Bond Number: N/A

Bond Amount: N/A

Description of work to be performed in the right of way:
Install monitoring well as shown on attached drawing. Traffic control per the attached diagram and all applicable MUTCD Standards.

Comments / Special Conditions:
Subs: Cascade Drilling #938110 C57

HAELY YOUNG/AMEC — Contractor's Name (Printed) — Signature **: — Date: 5/9/14

OBTAINED BY CONTRACTOR FOR OWNER — Owner's Name (Printed) — Signature **: — Date:

Public Works Representative: John Henry — Date: 5/9/14

Inspection Request Number:

Date Work Accepted:

Inspection Dates:

Public Works Inspector: Kevin Higgins — Date:

Attachments:

- [X] LOCATION DIAGRAM
- [X] TRAFFIC DIAGRAM(S)

GENERAL PROVISIONS

I. WORK REQUIREMENTS

1. **LEGAL ENFORCEMENT**- All provisions applicable to encroachment permits in the California Streets and Highway Code, the City of Morgan Hill Municipal Code and Cal OSHA shall apply to this permit whether or not they are set forth herein.
2. **GENERAL INSTRUCTIONS**- All work shall be completed in accordance with the provisions stipulated by the Department of Public Works (DPW) and any attachments made hereto. The director may require modification of the approved plans as needed because of special field conditions. If additional engineering, soils or geological investigations are required, they shall be provided by the contractor. Any required surveying or construction staking shall be provided by the contractor.
3. **EMERGENCY CONTACTS**- The name and two (2) telephone numbers of the contractor shall be furnished to the DPW for emergency contacts, twenty-four (24) hours a day, seven (7) days a week. The contractor shall have a superintendent available on the project at all times during any construction work day.
4. **ON SITE**- This permit must be kept at the work site and shown to any authorized representative of the City upon demand.
5. **MATERIALS STORAGE**- No material shall be stored near the edge of pavement, traveled way, or within the shoulder line which would create a hazardous condition to the motoring public.
6. **TRAFFIC PROTECTION & TRAFFIC CONTROL SIGNS**- The contractor shall implement measures to protect the traveling public. Traffic Control and Warning Signs shall be installed in accordance with the "Manual of Warning Signs, Lights, and Devices for Use in Performance of Work Upon Highways", CAL TRANS latest issue. The contractor shall submit two (2) copies of a proposed traffic control plan to the DPW for approval prior to any change in traffic patterns on any road.
7. **TRAFFIC LANES** - Two (2), 10-foot traffic lanes shall be open to the motoring public during all hours of darkness, and on all weekends and holidays. One lane, one way traffic may be permitted under the control of not less than two (2) competent flagmen during normal working hours. No work within a traveled roadway shall be undertaken until all materials, equipment, and labor forces are available to complete the work within (5) working days, unless prior approval is obtained from the DPW.
8. **SIGNS**- Any sign installed in the execution of this permit shall be approved by the DPW prior to placement.
9. **DRAINAGE**- If the work performed by the contractor interferes with the established surface drainage pattern, ample provisions shall be made by the contractor to provide for said drainage.
10. **PERMANENT MONUMENTS**- Any property corner or other permanent survey monument that will be disturbed during construction shall be shown on the plans for the work and referenced, removed and reset by a licensed surveyor.
11. **INSPECTION**- The contractor shall request inspections a minimum of forty-eight (48) hours prior to the requested date of inspection. This applies to initial, intermediate and final inspections. Contact Inspection Division at 408-776-7333.
12. **FACILITY RELOCATION**- Contractor shall be responsible for any required relocation, and cost thereof, of existing utilities or encroachments which may be affected by this permit.

II. PERMIT PROVISIONS

1. **REVOCATION**- This permit is revocable in accordance with the procedures of the California Streets and Highway Code.
2. **INDEMNIFICATION**- Contractor/Owner hereby agrees to indemnify, defend and hold harmless the City of Morgan Hill, its elected officials, officers, employees, agents, volunteers and representatives from any suits, claims or actions brought by any person(s) for or on account of any injuries or damages sustained or arising from the work covered by this permit, regardless of the passive nature of any negligence by City. This hold harmless provision shall apply to all liability regardless of whether any insurance policies are applicable. The policy limits do not act as a limitation upon the amount of indemnification to be provided.
3. **BONDS**- In the event the permittee fails or refuses to complete the work authorized by this permit, the City will be authorized to utilize any bonds posted pursuant to this permit to complete the work. If the City does complete the work or hire a contractor to complete the work, it will recover any and all costs incurred thereby, from the permittee, his surety, or both.
4. **BOND RELEASE**- If a faithful performance bond is posted, it will be released after final inspection and verification by the DPW that the work has been satisfactorily completed to City standard.
5. **PRIVATE PROPERTY**- This permit shall not be construed as authorization for excavation, grading, etc. on private property adjacent to the encroachment for which a separate permit may be required from the Building Division.
6. **RELOCATION RESPONSIBILITY**- In the event future improvement of the road necessitates relocation of the encroachment authorized by this permit, the Owner shall relocate it at his sole expense.
7. **REPAIRS**- All repairs conducted by the City within one (1) year of completion of the encroachment permit work and resulting from said work shall be charged to the contractor, his surety, or both.
8. **CONTRACTS AND AGREEMENTS**- This permit does not release the contractor from any liabilities contained in any other agreements or contracts with City of Morgan Hill or any other municipality.
9. **ACCEPTANCE**- Commencement of any work under this permit shall constitute acceptance of the conditions and requirements of the permit for the installation or future maintenance of the encroachment.

I have read the above general provisions and understand them fully. I am an authorized representative of the Owner / Contractor and have a written contract or agreement with the Owner/Contractor to perform the work under this permit.

OBTAINED BY CONTRACTOR FOR OWNER

Owner's Representative — date

Contractor's Representative — date 5/9/14

DESIGN MEMORANDUM

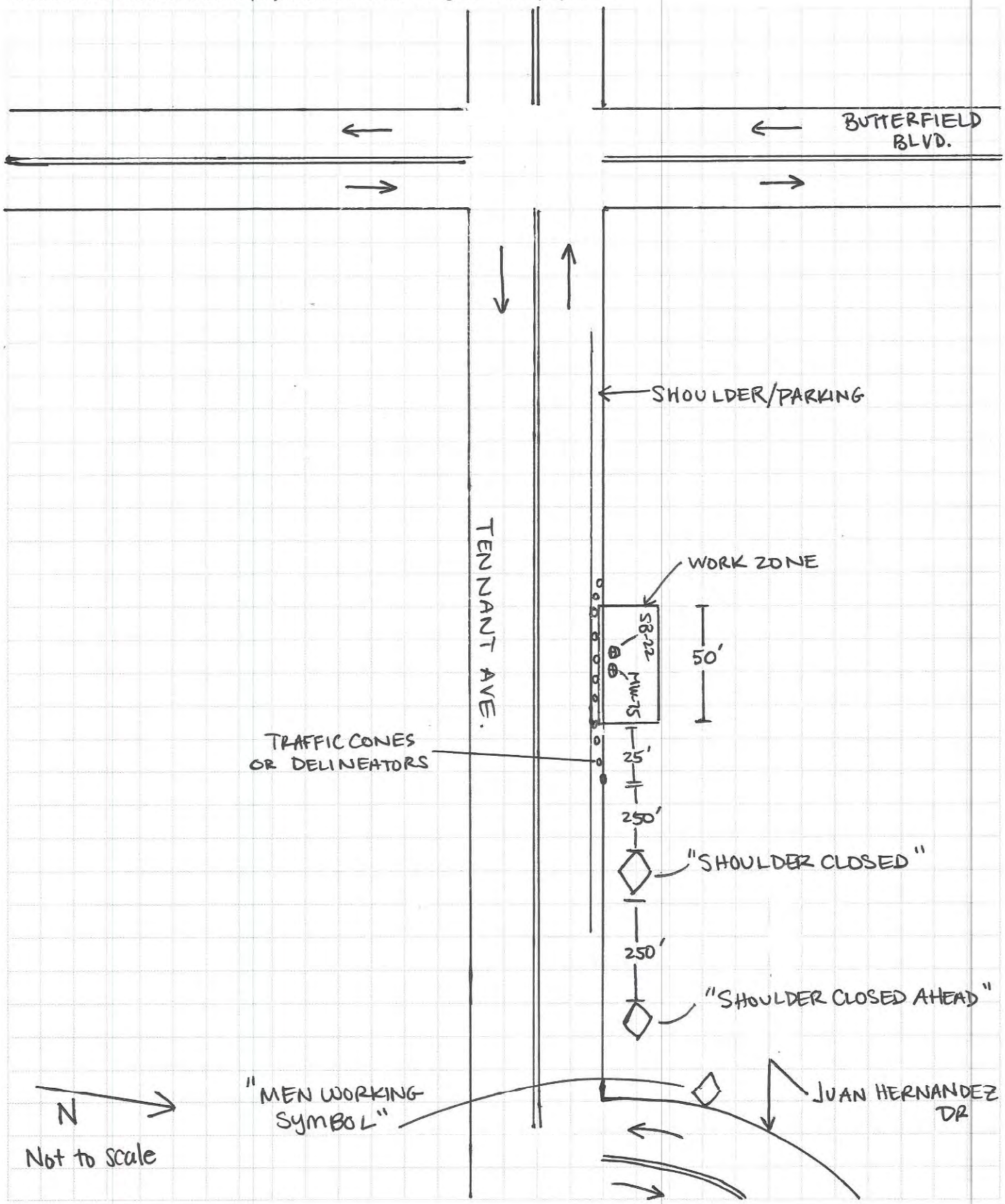
Client: MW-75/SB-22 Traffic Control | Sheet 1 Of 1

Project: Olin | Date: 4/29/14

Data For: City of Morgan Hill Encroachment | Work Order:

Prepared By: HTY | Checked By: | File No:

Note: This form must be used for project calculations and original filed in project files



Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-28-13)

TO BE COMPLETED BY DISTRICT

District Permit No.: 14W00227	Date Issued: 5/8/14	Well Registration No.:
Geologic Setting: 003	Expiration Date: 11/8/14	Driller's Log No.: e0206901

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Olin Corporation	Property Owner: Olin Corporation	Name of Business at Well Site: Olin Corporation
Well Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	Property Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	**Address of Well Site:** 16210 Railroad Avenue City, State, Zip: Morgan Hill, CA 95037
Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No.: NA

Owner's/Consultant's Well No.: MW-74a | Assessor's Parcel No. of **Well Site**: Book 817 Page 29 Parcel 028

Consultant (Company): AMEC E&I	Drilling Company: Cascade Drilling, L.P.	
Address: 180 Grand Ave, Suite 1100 City, State, Zip: Oakland, CA 94612	Address: 120 S. 23rd Street City, State, Zip: Richmond, CA 94804	
Telephone No.: (510) 663-4100	Telephone No.: (510) 478-0858	C-57 License No.: 938110
☒ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Olin Site	Caseworker Name: Dean Thomas
Oversight Agency: Central Coast Regional Water Quality Control Board	Caseworker Telephone No.: (805) 549-3690

Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:19:54 -07'00'
Signature of Responsible Professional | Date: 4/29/14 | Print Name: Mari Gilmore | (No substitution of signature will be accepted)

Civil Engineer Registration No. _____ OR Geologist Registration No.: PG 8492

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☐ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☐ On public property ☒ On private property ☐ On District property/easement* ☐ Within 50 feet of the top of a creek bank or District facility
*See General Condition F, page 2.

RECEIVED MAY 06 2014 S.C.V.W.D. WELLS

WELL TYPE/USE	☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: D-K BS	Date: 4/30/14	Print Name of Property Owner/Agent: Dave Grimshaw, Olin
Signature of Well Owner/Agent:: D-K BS	Date: 4/30/14	Print Name of Well Owner/Agent: Dave Grimshaw, Olin
Signature of Well Driller/Agent: Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:20:35 -07'00'	Date:	Print Name of Driller/Agent: Mari Gilmore, AMEC
Signature of Consultant/Agent: Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:20:46 -07'00'	Date:	Print Name of Consultant/Agent: Mari Gilmore, AMEC

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

DISTRICT WELL PERMIT NO.: 14W00127

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal**. An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

Approved by:	Date: 5/8/14

Please allow 10 working days to process this application.

N

0 300 600

Scale in Feet

PROPOSED WELL AND BORING LOCATIONS
Olin Site
Morgan Hill, California

By: TJH	Date: 04/29/2014	Project No. 6107140013
amec		Figure 1

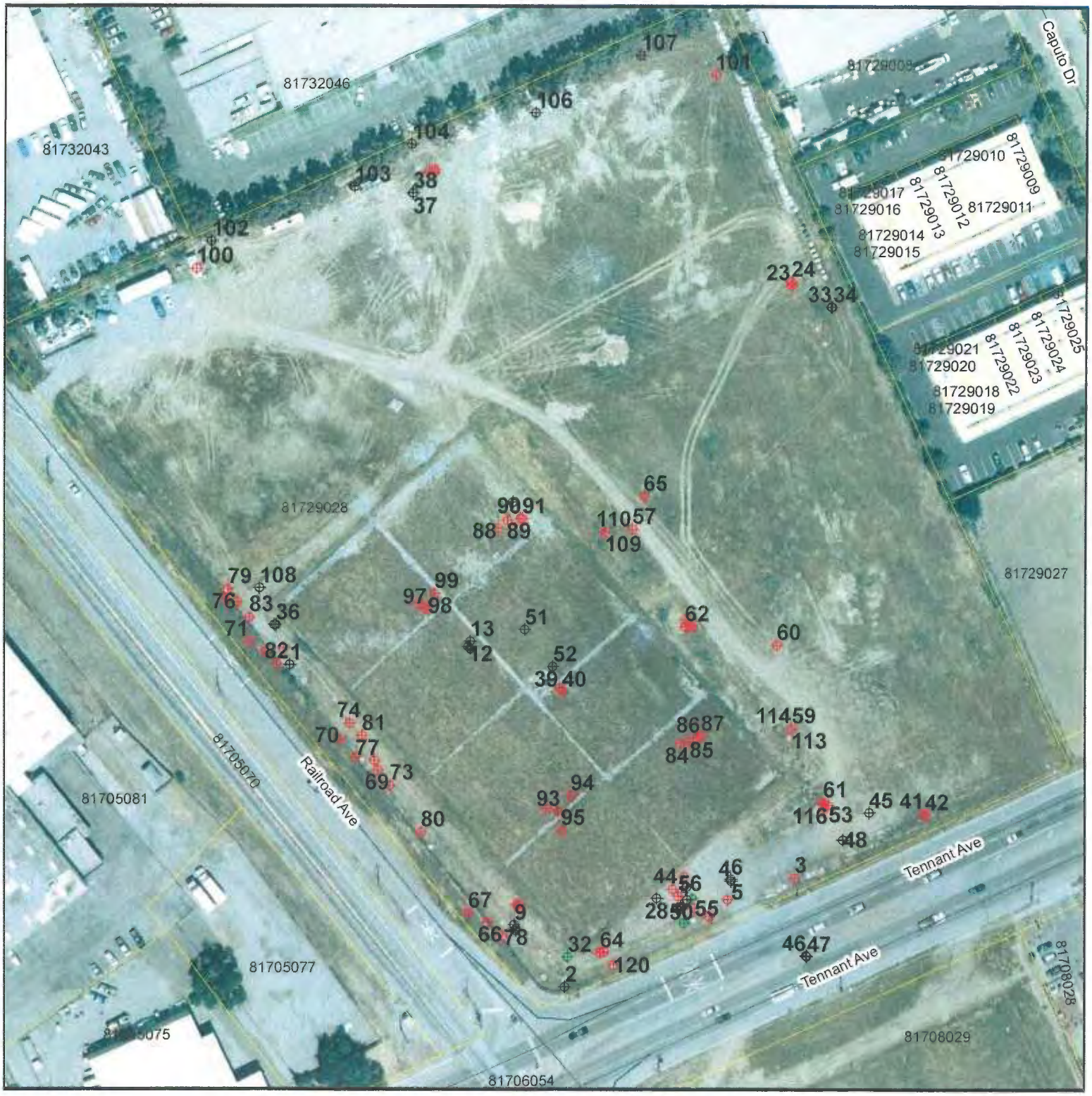
Tuesday, April 29, 2014 9:56:48 AM
P:\6107\GIS\Projects\General\ProposedWells-MW74-75.mxd

OLIN CORPORATION

APN 817-29-028
16210 Railroad Avenue
Morgan Hill, CA 95037

14W00227

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614



Approximate Scale

0 400 800 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/7/2014

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	MW-1	00W00910	09S03E27N005	A
2	MW-2	00W00911	09S03E27N006	A
3	MW-3	12D00413	09S03E27N007	D
4	MW-SW-004A	02W00785	09S03E27N008	A
5	MW-SW-004B	02W00786	09S03E27N009	A
6	MW-SW-004C	02W00787	09S03E27N010	A
7	MW-SW-005A	02W00841	09S03E27N011	A
8	MW-SW-005B	02W00842	09S03E27N012	A
9	MW-SW-005D	02W00843	09S03E27N013	A
10	MW-SW-005C	02W00844	09S03E27N014	A
11	MW-SW-006C	02W00895	09S03E27N015	A
12	MW-SW-006A	02W00839	09S03E27N016	A
13	MW-SW-006B	02W00840	09S03E27N017	A
14	MW-SW-007-SA1	03W00170	09S03E27N018	A
15	MW-SW-007-SA2	03W00171	09S03E27N019	A
16	MW-SW-007-SA3	03W00172	09S03E27N020	A
17	MW-SW-007-SA4	03W00192	09S03E27N021	A
18	MWSW-008-SA1	12D00426	09S03E27N022	D
19	MWSW-008-SA2	12D00425	09S03E27N023	D
20	MWSW-008-SA3	12D00424	09S03E27N024	D
21	MWSW-008-SA4	12D00423	09S03E27N025	D
22	MWSW-010-SA1	12D00412	09S03E27N026	D
23	MWSW-010-SA2	12D00422	09S03E27N027	D
24	MWSW-010-SA3	12D00421	09S03E27N028	D
25	MWSW-011-SA1	12D00420	09S03E27N029	D
26	MWSW-011-SA2	12D00419	09S03E27N030	D
27	MWSW-011-SA3	12D00418	09S03E27N031	D
28	OW-B1-001	03W00602	09S03E27N032	A
29	OW-A-001	03W00607	09S03E27N033	A
30	EW-B1-001	03W00601	09S03E27N034	A02
31	EW-A-001	03W00603	09S03E27N035	A02
32	EW-SW-002-A	03W00696	09S03E27N036	A02
33	MW-SW-014-B1	03W00698	09S03E27N038	A
34	MW-SW-014-A	03W00697	09S03E27N037	A
35	MW-SW-12-A	03W00685	09S03E27N039	A
36	MW-SW-12-B1	03W00686	09S03E27N040	A
37	MW-SW-013-B1	03W00688	09S03E27N041	A
38	MW-SW-13-A	03W00687	09S03E27N042	A
39	MW-SW-009-SA1	12D00410	09S03E27N043	D
40	MW-SW-009-SA4	12D00409	09S03E27N044	D
41	PM-SW-003-A	04D00001	09S03E27N047	D
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43	OW-SW-001-82	12D00427	09S03E27N049	D
44	PM-OS-001-C	12D00428	09S03E27N050	D
45	SW-003-AR	03W00917	09S03E27N051	A
46	PM-OS-001-A	03W00700	09S03E27N052	A

94	MSP-004-B	12D00732	09S03E27N105	D
95	MSP-004-A	12D00759	09S03E27N106	D
96	MSP-003-A	12D00760	09S03E27N101	D
97	LM-003-B	12D00684	09S03E27N102	D
98	MSP-003-B	12D00730	09S03E27N103	D
99	LM-003-A	12D00775	09S03E27N104	D
100	PZ-2	12D00429	09S03E27N107	D
101	PZ-1A	12D00430	09S03E27N108	D
102	INJ-001	05W00796	09S03E27N109	A
103	INJ-002	05W00797	09S03E27N110	A
104	INJ-003	05W00798	09S03E27N111	A
105	MW-18	06W00488	09S03E27N118	A
106	INJ 004	11W00764	09S03E27N123	A
107	INJ 005	11W00765	09S03E27M031	A
108	INJ-006	11W00766	09S03E27N124	A
109	MSP-005-A	12D00758	UNREGISTERED	D
110	MSP-005-B	12D00737	UNREGISTERED	D
111	MSP-006-A	12D00757	UNREGISTERED	D
112	MSP-006-B	12D00738	UNREGISTERED	D
113	MSP-007-A	12D00756	UNREGISTERED	D
114	MSP-007-B	12D00739	UNREGISTERED	D
115	MSP-008-A	12D00755	UNREGISTERED	D
116	MSP-008-B	12D00720	UNREGISTERED	D
117	MSP-009-A	12D00754	UNREGISTERED	D
118	MSP-009-B	12D00741	UNREGISTERED	D
119	MSP-010-A	12D00752	UNREGISTERED	D
120	MSP-010-B	12D00742	UNREGISTERED	D
121	MSP-011-A	12D00753	UNREGISTERED	D
122	MSP-011-B	12D00743	UNREGISTERED	D

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0206901

Page _____ of _____

Owner's Well Number MW-74A

Date Work Began _____ Date Work Ended _____

Local Permit Agency SCVWD

Permit Number 14W0027 Permit Date 5/8/14

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ○ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method _____ Drilling Fluid _____

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc

Total Depth of Boring _____ Feet

Total Depth of Completed Well _____ Feet

Well Owner

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Well Location

Address _____

City _____ County _____

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book _____ Page _____ Parcel _____

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

○ New Well

○ Modification/Repair

○ Deepen

○ Other _____

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply

☐ Domestic ☐ Public

☐ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other _____

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * _____ (GPM) Test Type _____

Test Length _____ (Hours) Total Drawdown _____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name _____

Person, Firm or Corporation

Address _____ City _____ State CA Zip _____

Signed _____

C-57 Licensed Water Well Contractor

Date Signed _____ C-57 License Number _____

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-28-13)

TO BE COMPLETED BY DISTRICT

District Permit No.: 14W00229	Date Issued: 5/8/14	Well Registration No.:
Geologic Setting: 003	Expiration Date: 11/8/14	Driller's Log No.: e0212717

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Olin Corporation	Property Owner: Olin Corporation	Name of Business at Well Site: Olin Corporation
Well Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	Property Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	**Address of Well Site:** 16210 Railroad Avenue City, State, Zip: Morgan Hill, CA 95037
Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No.: NA

Owner's/Consultant's Well No.: MW-74b

Assessor's Parcel No. of **Well Site**: Book 817 Page 29 Parcel 028

Consultant (Company): AMEC E&I	Drilling Company: Cascade Drilling, L.P.	
Address: 180 Grand Ave, Suite 1100 City, State, Zip: Oakland, CA 94612	Address: 120 S. 23rd Street City, State, Zip: Richmond, CA 94804	
Telephone No.: (510) 663-4100	Telephone No.: (510) 478-0858	C-57 License No.: 938110
☒ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Olin Site	Caseworker Name: Dean Thomas
Oversight Agency: Central Coast Regional Water Quality Control Board	Caseworker Telephone No.: (805) 549-3690

Mari Gil — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:23:13 -07'00'

Signature of Responsible Professional | Date: 4/29/14 | Print Name: Mari Gilmore | (No substitution of signature will be accepted)

Civil Engineer Registration No. | OR | Geologist Registration No.: PG 8492

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☐ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☐ On public property ☒ On private property ☐ On District property/easement* ☐ Within 50 feet of the top of a creek bank or District facility

*See General Condition F, page 2.

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☒ Yes ☐ No If yes, status: ☒ Active ☐ Inactive ☐ Abandoned

RECEIVED MAY 06 2014 S.C.V.W.D. WELLS

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: D. R. Grimshaw	Date: 4/30/14	Print Name of Property Owner/Agent: Dane Grimshaw, Olin
Signature of Well Owner/Agent:: D. R. Grimshaw	Date: 4/30/14	Print Name of Well Owner/Agent: Dane Grimshaw, Olin
Signature of Well Driller/Agent: Mari Gil	Date: Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:23:38 -07'00'	Print Name of Driller/Agent: Mari Gilmore, AMEC
Signature of Consultant/Agent: Mari Gil	Date: Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:23:49 -07'00'	Print Name of Consultant/Agent: Mari Gilmore, AMEC

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

DISTRICT WELL PERMIT NO.: 14W00029

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal**. An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

Approved by:	Date: 5/8/14

Please allow 10 working days to process this application.

N

0 300 600

Scale in Feet

PROPOSED WELL AND BORING LOCATIONS
Olin Site
Morgan Hill, California

By: TJH	Date: 04/29/2014	Project No. 6107140013
amec		Figure 1

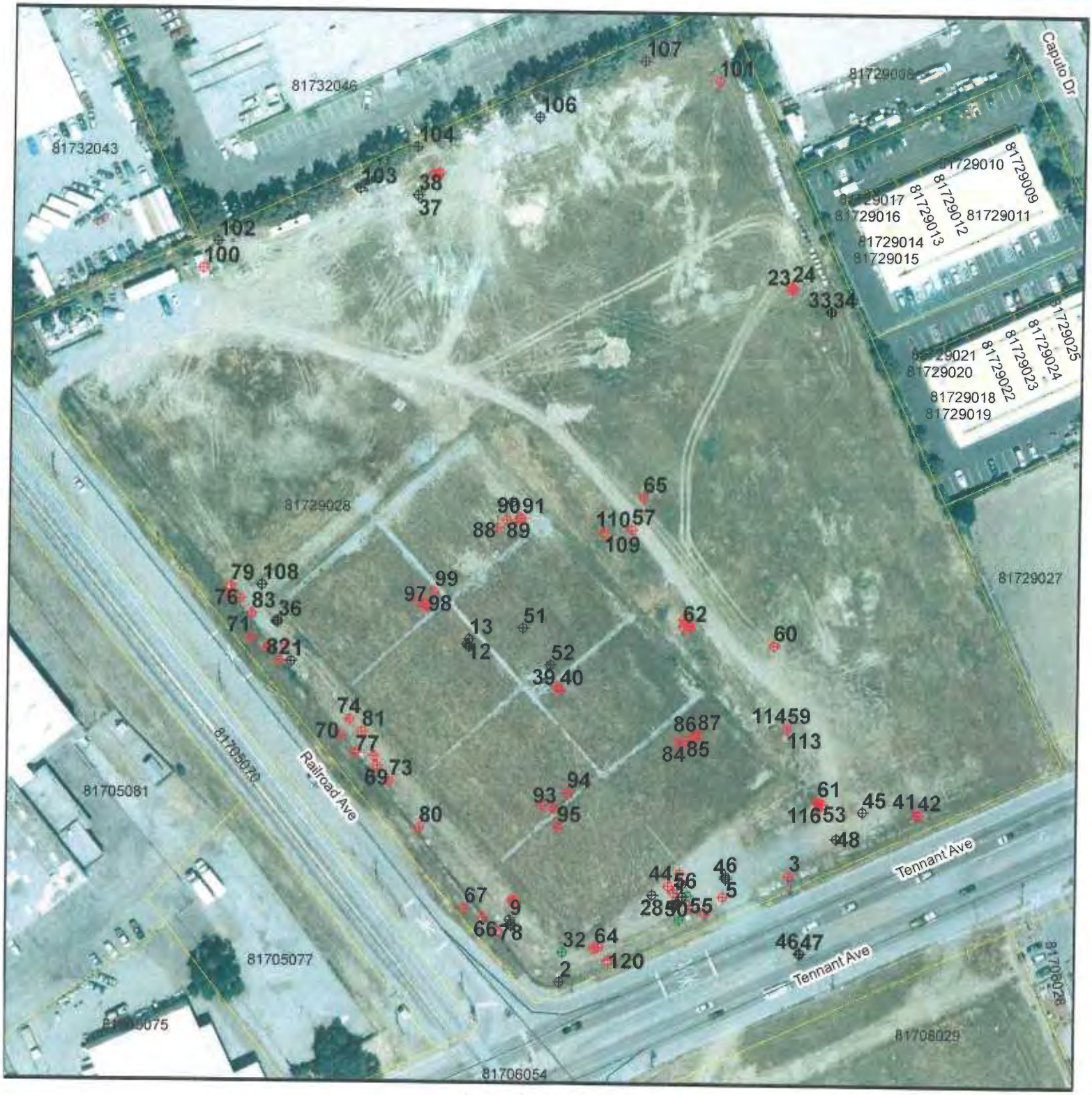
Tuesday, April 29, 2014 9:56:48 AM
P:\6107\GIS\Projects\General\ProposedWells-MW74-75.mxd

OLIN CORPORATION

APN 817-29-028
16210 Railroad Avenue
Morgan Hill, CA 95037

14W00229

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614



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Parcels

5/7/2014

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6	MW-SW-004C	02W00787	09S03E27N010	A
7	MW-SW-005A	02W00841	09S03E27N011	A
8	MW-SW-005B	02W00842	09S03E27N012	A
9	MW-SW-005D	02W00843	09S03E27N013	A
10	MW-SW-005C	02W00844	09S03E27N014	A
11	MW-SW-006C	02W00895	09S03E27N015	A
12	MW-SW-006A	02W00839	09S03E27N016	A
13	MW-SW-006B	02W00840	09S03E27N017	A
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34	MW-SW-014-A	03W00697	09S03E27N037	A
35	MW-SW-12-A	03W00685	09S03E27N039	A
36	MW-SW-12-B1	03W00686	09S03E27N040	A
37	MW-SW-013-B1	03W00688	09S03E27N041	A
38	MW-SW-13-A	03W00687	09S03E27N042	A
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99	LM-003-A	12D00775	09S03E27N104	D
100	PZ-2	12D00429	09S03E27N107	D
101	PZ-1A	12D00430	09S03E27N108	D
102	INJ-001	05W00796	09S03E27N109	A
103	INJ-002	05W00797	09S03E27N110	A
104	INJ-003	05W00798	09S03E27N111	A
105	MW-18	06W00488	09S03E27N118	A
106	INJ 004	11W00764	09S03E27N123	A
107	INJ 005	11W00765	09S03E27M031	A
108	INJ-006	11W00766	09S03E27N124	A
109	MSP-005-A	12D00758	UNREGISTERED	D
110	MSP-005-B	12D00737	UNREGISTERED	D
111	MSP-006-A	12D00757	UNREGISTERED	D
112	MSP-006-B	12D00738	UNREGISTERED	D
113	MSP-007-A	12D00756	UNREGISTERED	D
114	MSP-007-B	12D00739	UNREGISTERED	D
115	MSP-008-A	12D00755	UNREGISTERED	D
116	MSP-008-B	12D00720	UNREGISTERED	D
117	MSP-009-A	12D00754	UNREGISTERED	D
118	MSP-009-B	12D00741	UNREGISTERED	D
119	MSP-010-A	12D00752	UNREGISTERED	D
120	MSP-010-B	12D00742	UNREGISTERED	D
121	MSP-011-A	12D00753	UNREGISTERED	D
122	MSP-011-B	12D00743	UNREGISTERED	D

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0212717

Page _____ of _____

Owner's Well Number MW-74B

Date Work Began _____ Date Work Ended _____

Local Permit Agency SCVWD

Permit Number 14W00229 Permit Date 5/8/14

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation O Vertical O Horizontal O Angle Specify _____

Drilling Method _____ Drilling Fluid _____

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc

Total Depth of Boring _____ Feet

Total Depth of Completed Well _____ Feet

Well Owner

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Well Location

Address _____

City _____ County _____

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book _____ Page _____ Parcel _____

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

- O New Well
- O Modification/Repair
  - O Deepen
  - O Other _____
- O Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- O Water Supply
  - ☐ Domestic ☐ Public
  - ☐ Irrigation ☐ Industrial
- O Cathodic Protection
- O Dewatering
- O Heat Exchange
- O Injection
- O Monitoring
- O Remediation
- O Sparging
- O Test Well
- O Vapor Extraction
- O Other _____

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * _____ (GPM) Test Type _____

Test Length _____ (Hours) Total Drawdown _____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name _____ Person, Firm or Corporation

Address _____ City _____ State CA Zip _____

Signed _____ C-57 Licensed Water Well Contractor Date Signed _____ C-57 License Number _____

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-28-13)

TO BE COMPLETED BY DISTRICT

District Permit No.: 14W00233	Date Issued: 5/8/14	Well Registration No.:
Geologic Setting: 003	Expiration Date: 11/8/14	Driller's Log No.: E0212718

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Olin Corporation	Property Owner: City of Morgan Hill	Name of Business at Well Site: City of Morgan Hill Right-of-Way
Well Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	Property Owner's Mailing Address: 100 Edes Court City, State, Zip: Morgan Hill, CA 95037	**Address of Well Site**: North side of Tennant Ave at Butterfield Blvd City, State, Zip: Morgan Hill, CA 95037
Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No. & Contact Name: (408) 776-7333	Telephone No.: NA

Owner's/Consultant's Well No.: MW-75a | Assessor's Parcel No. of **Well Site**: Book 817 Page 09 Parcel ~~054~~ 500

Consultant (Company): AMEC E&I	Drilling Company: Cascade Drilling, L.P.
Address: 180 Grand Ave, Suite 1100 City, State, Zip: Oakland, CA 94612	Address: 120 S. 23rd Street City, State, Zip: Richmond, CA 94804
Telephone No.: (510) 663-4100	Telephone No.: (510) 478-0858 / C-57 License No.: 938110
☒ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Olin Site	Caseworker Name: Dean Thomas
Oversight Agency: Central Coast Regional Water Quality Control Board	Caseworker Telephone No.: (805) 549-3690

Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:28:15 -07'00'
Signature of Responsible Professional | Date: 4/29/14 | Print Name: Mari Gilmore | (No substitution of signature will be accepted)

Civil Engineer Registration No. _____ OR Geologist Registration No. PG 8492

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☐ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement* ☐ Within 50 feet of the top of a creek bank or District facility *See General Condition F, page 2.

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

RECEIVED MAY 06 2014 S.C.V.W.D. WELLS

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:29:16 -07'00'	Date: 4/29/14	Print Name of Property Owner/Agent: Mari Gilmore, AMEC
Signature of Well Owner/Agent: D-K-S	Date: 4/30/14	Print Name of Well Owner/Agent: Dave Grimshaw, Olin
Signature of Well Driller/Agent: Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:28:27 -07'00'	Date: 4/29/2014	Print Name of Driller/Agent: Mari Gilmore, AMEC
Signature of Consultant/Agent: Mari Gilmore — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:28:37 -07'00'	Date: 4/29/2014	Print Name of Consultant/Agent: Mari Gilmore, AMEC

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

DISTRICT WELL PERMIT NO.: 4W00233

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

Approved by:	Date: 5/8/14

Please allow 10 working days to process this application.

N

0 300 600

Scale in Feet

PROPOSED WELL AND
BORING LOCATIONS
Olin Site
Morgan Hill, California

By: TJH	Date: 04/29/2014	Project No. 6107140013
amec		Figure 1

Tuesday, April 29, 2014 9:56:48 AM
P:\6107\GIS\Projects\General\ProposedWells-MW74-75.mxd

OLIN CORPORATION

APN 817-09-500
North side of Tennant Ave at Butterfield Blvd
Morgan Hill, CA 95037

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

Approximate Scale

0 400 800 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined

Parcels

5/7/2014

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	MP-4	05W00144	09S03E27N090	A
2	MP-4-88	06W00188	09S03E27N112	A
3	MP-4-148	06W00189	09S03E27N113	A
4	MP-4-184	06W00190	09S03E27N114	A
5	MP-4-191	06W00191	09S03E27N115	A
6	MP-4-192	06W00192	09S03E27N116	A
7	MP-4-291	06W00193	09S03E27N117	A
8	PZ-04	06W00489	09S03E27N119	A
9	PZ-04B	06W00650	09S03E27N120	A

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0212718

Page _____ of _____

Owner's Well Number MW-75A

Date Work Began _____ Date Work Ended _____

Local Permit Agency SCVWD

Permit Number 14W00233 Permit Date 5/8/14

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ○ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method _____ Drilling Fluid _____

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc

Total Depth of Boring _____ Feet

Total Depth of Completed Well _____ Feet

Well Owner

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Well Location

Address _____

City _____ County _____

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book _____ Page _____ Parcel _____

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

○ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other _____

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * _____ (GPM) Test Type _____

Test Length _____ (Hours) Total Drawdown _____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name _____
Person, Firm or Corporation

Address _____ City _____ State CA Zip _____

Signed _____
C-57 Licensed Water Well Contractor

Date Signed _____ C-57 License Number _____

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-28-13)

TO BE COMPLETED BY DISTRICT

District Permit No.: 14W00234	Date Issued: 5/8/14	Well Registration No.:
Geologic Setting: 003	Expiration Date: 11/8/14	Driller's Log No.: e0212719

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Olin Corporation	Property Owner: City of Morgan Hill	Name of Business at Well Site: City of Morgan Hill Right-of-Way
Well Owner's Mailing Address: 3855 North Ocoee Rd City, State, Zip: Cleveland, TN 37312	Property Owner's Mailing Address: 100 Edes Court City, State, Zip: Morgan Hill, CA 95037	**Address of Well Site:** North side of Tennant Ave at Butterfield Blvd City, State, Zip: Morgan Hill, CA 95037
Telephone No. & Contact Name: Rick McClure (423) 336-4576	Telephone No. & Contact Name: (408) 776-7333	Telephone No.: NA

Owner's/Consultant's Well No.: MW-75b | Assessor's Parcel No. of **Well Site**: Book 817 Page 09 Parcel ~~054~~ 500

Consultant (Company): AMEC E&I	Drilling Company: Cascade Drilling, L.P.	
Address: 180 Grand Ave, Suite 1100 City, State, Zip: Oakland, CA 94612	Address: 120 S. 23rd Street City, State, Zip: Richmond, CA 94804	
Telephone No.: (510) 663-4100	Telephone No.: (510) 478-0858	C-57 License No.: 938110
☒ Check if address or phone number has changed	☐ Check if address or phone number has changed	

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Olin Site	Caseworker Name: Dean Thomas
Oversight Agency: Central Coast Regional Water Quality Control Board	Caseworker Telephone No.: (805) 549-3690

Mari Gil — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:33:44 -07'00'
Signature of Responsible Professional | 4/29/14 Date | Mari Gilmore Print Name | (No substitution of signature will be accepted)

Civil Engineer Registration No. OR PG 8492 Geologist Registration No.

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☐ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement* ☐ Within 50 feet of the top of a creek bank or District facility

*See General Condition F, page 2.

WELL TYPE/USE	☐ Water Production	☒ Monitoring	☐ Remediation	☐ Dewatering	☐ Heat Exchange	☐ Injection	☐ Cathodic Protection	☐ Other
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

RECEIVED MAY 06 2014 S.C.V.W.D. WELLS

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: Mari Gil — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:34:10 -07'00'	Date: 4/29/2014	Print Name of Property Owner/Agent: Mari Gilmore, AMEC
Signature of Well Owner/Agent: D-Gr	Date: 4/30/14	Print Name of Well Owner/Agent: Dave Grimshaw, Olin
Signature of Well Driller/Agent: Mari Gil — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:34:19 -07'00'	Date: 4/29/2014	Print Name of Driller/Agent: Mari Gilmore, AMEC
Signature of Consultant/Agent: Mari Gil — Digitally signed by mari.gilmore DN: cn=mari.gilmore Date: 2014.04.29 16:34:27 -07'00'	Date: 4/29/2014	Print Name of Consultant/Agent: Mari Gilmore, AMEC

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

DISTRICT WELL PERMIT NO.: 14W00234

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal**. An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

Approved by:	Date: 5/8/14

Please allow 10 working days to process this application.

N

0 300 600

Scale in Feet

PROPOSED WELL AND
BORING LOCATIONS
Olin Site
Morgan Hill, California

By: TJH	Date: 04/29/2014	Project No. 6107140013
amec		Figure 1

Tuesday, April 29, 2014 9:56:48 AM
P:\6107\GIS\Projects\General\ProposedWells-MW74-75.mxd

OLIN CORPORATION

APN 817-09-500
North side of Tennant Ave at Butterfield Blvd
Morgan Hill, CA 95037

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

Approximate Scale

0 400 800 Feet

Wells

- A01: Water Supply - Active
- S: Water Supply - Standby
- IS01: Water Supply - Inactive
- A02: Extraction (Env) - Active
- I02: Extraction (Env) - Inactive
- A: Other - Active
- I: Other - Inactive
- B: Abandoned
- D: Destroyed
- Undet: Status Undetermined
- Parcels

5/7/2014

ID	CONSULTANT	PERMIT	WELLID	WELLSTATUS
1	MP-4	05W00144	09S03E27N090	A
2	MP-4-88	06W00188	09S03E27N112	A
3	MP-4-148	06W00189	09S03E27N113	A
4	MP-4-184	06W00190	09S03E27N114	A
5	MP-4-191	06W00191	09S03E27N115	A
6	MP-4-192	06W00192	09S03E27N116	A
7	MP-4-291	06W00193	09S03E27N117	A
8	PZ-04	06W00489	09S03E27N119	A
9	PZ-04B	06W00650	09S03E27N120	A

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0212719

Page _____ of _____

Owner's Well Number MW-75B

Date Work Began _____ Date Work Ended _____

Local Permit Agency SCVWD

Permit Number 14W00234 Permit Date 5/8/14

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation O Vertical O Horizontal O Angle Specify _____

Drilling Method _____ Drilling Fluid _____

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc

Total Depth of Boring _____ Feet

Total Depth of Completed Well _____ Feet

Well Owner

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Well Location

Address _____

City _____ County _____

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum _____ Dec. Lat. _____ Dec. Long. _____

APN Book _____ Page _____ Parcel _____

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

- O New Well
- O Modification/Repair
  - O Deepen
  - O Other _____
- O Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- O Water Supply
  - ☐ Domestic ☐ Public
  - ☐ Irrigation ☐ Industrial
- O Cathodic Protection
- O Dewatering
- O Heat Exchange
- O Injection
- O Monitoring
- O Remediation
- O Sparging
- O Test Well
- O Vapor Extraction
- O Other _____

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured _____

Estimated Yield * _____ (GPM) Test Type _____

Test Length _____ (Hours) Total Drawdown _____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other _____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name _____ (Person, Firm or Corporation)

Address _____ City _____ State CA Zip _____

Signed _____ (C-57 Licensed Water Well Contractor) Date Signed _____ C-57 License Number _____

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

APPENDIX B

Lithological Logs and Well Construction Details

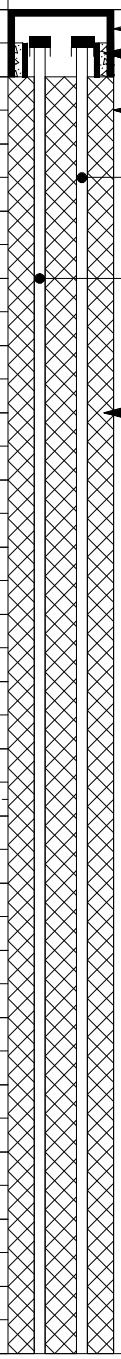
PROJECT: OLIN MORGAN HILL Morgan Hill, CA		**Boring Log Explanation**	
BORING LOCATION:		ELEVATION AND DATUM:	
DRILLING CONTRACTOR:		DATE STARTED:	DATE FINISHED:
DRILLING METHOD:		TOTAL DEPTH (ft.):	MEASURING POINT:
DRILLING EQUIPMENT:		DEPTH TO WATER (ft.)	FIRST / COMPL.
SAMPLING METHOD:		LOGGED BY:	
HAMMER WEIGHT:	DROP:	RESPONSIBLE PROFESSIONAL:	REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
					Notes:	
1					1. Soil described using visual-manual procedures of American Society of Testing and Materials (ASTM) Standard D 2488 for guidance; a Standard based on the Unified Soil Classification System.	
2					2. Soil color described according to Munsell Color Chart.	
3					3. Dashed lines separating soil strata represent inferred boundaries between sampled intervals that may be abrupt or gradual transitions.	
4						
5					4. Solid lines represent approximate boundaries observed within sample intervals.	
6					5. NA = not applicable.	
7					Interval of recovered soil collected with a continuous core sampler.	
8						
9					Interval of no recovery.	
10						
11						
12						
13						
14						
15						

KEYFORM (REV. 8/2011)

PROJECT: OLIN MORGAN HILL Morgan Hill, CA	**Log of Well No. MW-74-084-142**
BORING LOCATION: Latitude: 37.1168625; Longitude: -121.6347611	TOP OF CASING ELEVATION AND DATUM: 328.04' (NGVD 29)
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 5/17/14 / DATE FINISHED: 5/19/14
DRILLING METHOD: Rotosonic	TOTAL DEPTH (ft.): 150.0 / SCREEN INTERVAL (ft.): See notes
DRILLING EQUIPMENT: 600 TM	DEPTH TO WATER (ft.): FIRST 18.0, COMPL. NA / CASING: 1" Sch. 40 PVC
SAMPLING METHOD: Sonic core barrel [10' x 6"]	LOGGED BY: H. Young
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Gilmore / REG. NO. 8492

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: 328.52' (NGVD 29)
0–12					SILTY GRAVEL with SAND (GM): brown (10YR 4/3), dry, 50% fine subangular to subrounded gravel to 2.75" diameter, 35% fine to coarse sand, 15% low plasticity fines
2					cobbly
12–18.5					WELL-GRADED GRAVEL with SAND (GW): very dark grayish brown (10YR 3/2), moist, 60% fine to coarse angular to subrounded gravel and cobbles to 4.5" diameter, 35% fine to coarse sand, 5% fines
18					dark grayish brown (10YR 4/2), wet, subangular to subrounded gravel
19					cobbly



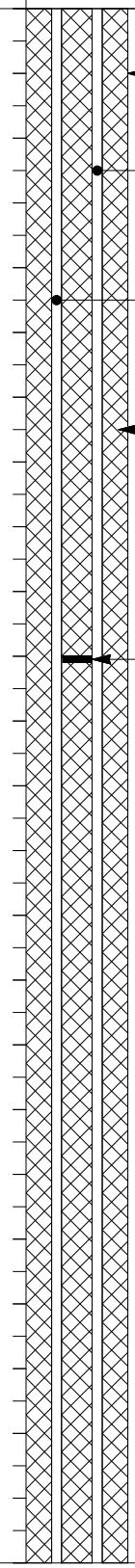
WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

Notes
1. Boring location coordinates are based on North American Datum of 1983.
2. Hand augered to 4.5 feet bgs.
3. Screen intervals:
   MW-74-084 = 78.3-88.3 feet bgs.
   MW-74-142 = 136.9-146.9 feet bgs.

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-74-084-142 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					WELL-GRADED GRAVEL with SAND (GW): cont'd	
21						7" diameter borehole
22					- 6" diameter cobble	MW-74-142: 1" diameter Schedule 40 PVC casing
23						
24						MW-74-084: 1" diameter Schedule 40 PVC casing
25						
26						Type II-V neat cement grout with 5% bentonite gel
27						
28						
29						
30					55% fine to coarse gravel, 40% fine to coarse sand, 5% fines	1" PVC spacer
31						
32						
33						
34					yellowish brown (10YR 5/4), 65% fine to coarse gravel, 30% fine to coarse sand, 5% fines, cobbly, medium sand increases, loose	
35					brown (10YR 4/3), 60% fine to coarse gravel, 40% fine to coarse sand, trace fines	
36						
37					yellowish brown (10YR 5/4), 55% fine to coarse gravel, 40% fine to coarse sand, 5% fines, consolidated	
38						
39						
40					65% fine to coarse gravel, 30% fine to coarse sand, 5% fines	
41						
42						
43						
44						



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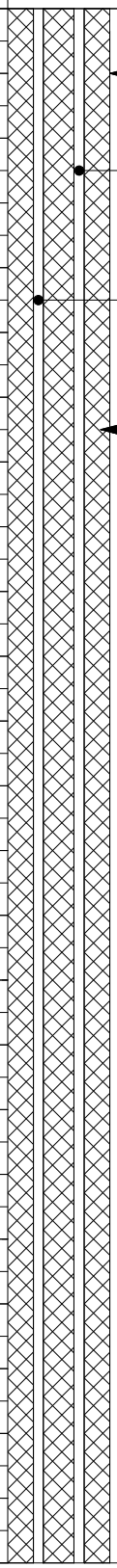
PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-74-084-142 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					WELL-GRADED GRAVEL with SAND (GW): cont'd	
45					55% fine to coarse gravel, 40% fine to coarse sand, 5% fines, loose	7" diameter borehole
46						
47						MW-74-142: 1" diameter Schedule 40 PVC casing
48					60% fine to coarse gravel, 35% fine to coarse sand, 5% fines	
49					65% fine to coarse gravel, 30% fine to coarse sand, 5% fines	MW-74-084: 1" diameter Schedule 40 PVC casing
50						
51					SILT (ML): yellowish brown (10YR 5/6), moist, 100% fines, trace fine sand, medium plasticity, soft, mottling, rootlets, clay present	Type II-V neat cement grout with 5% bentonite gel
52						
53						
54						
55						
56						
57					no mottling or rootlets	
58						
59					SILT with SAND (ML): brown (7.5YR 4/4), moist, 85% fines, 15% fine sand, low plasticity, firm, rootlets, clay present	
60						
61						
62					dark yellowish brown (10YR 4/6), 80% fines, 20% fine sand, soft	
63					SANDY SILT (ML): dark yellowish brown (10YR 4/6), moist, 70% fines, 30% fine to medium sand, trace coarse sand, low plasticity, firm, rootlets, clay present	
64						
65					60% fines, 40% fine to medium sand, trace coarse sand, soft	
66						
67					SILT (ML): dark yellowish brown (10YR 4/6), moist, 90% fines, 10% fine sand, low plasticity, hard, rootlets	
68						



PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-74-084-142 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILT (ML): cont'd	
69						7" diameter borehole
70					yellowish brown (10YR 5/4), 95% fines, 5% fine sand, firm, mottling, rootlets	MW-74-142: 1" diameter Schedule 40 PVC casing
71						
72						MW-74-084: 1" diameter Schedule 40 PVC casing
73					100% fines, trace fine sand	
74						3/8" coated bentonite tablets
75						
76					dark brown (7.5YR 3/4), 95% fines, 5% fine sand, hard, iron oxide staining	
77					SANDY SILT (ML): strong brown (7.5YR 4/6), moist, 60% fines, 40% fine to medium sand, trace coarse sand, trace fine gravel, low plasticity, firm	Centralizer 1" PVC spacer
78						
79					SILTY SAND with GRAVEL (SM): dark yellowish brown (10YR 4/6), wet, 55% fine to coarse sand, 25% fine gravel, 20% low plasticity fines, consolidated, clast-supported	
80						
81					SILTY GRAVEL with SAND (GM): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse subangular to subrounded gravel to 2" diameter, 30% fine to coarse sand, 15% low plasticity fines, consolidated, clast-supported	#3 filter pack sand
82						
83					WELL-GRADED SAND with GRAVEL (SW): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse sand, 40% fine to coarse gravel, 5% fines, loose	
84						MW-74-084: 1" diameter, 0.020" slot, Schedule 40 PVC screen
85						
86						
87					WELL-GRADED GRAVEL with SAND (GW): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse gravel, 40% fine to coarse sand, 5% fines	
88					65% fine to coarse gravel, 30% fine to coarse sand, 5% fines	Schedule 40 PVC endcap
89						
90					SILTY GRAVEL with SAND (GM): dark yellowish brown (10YR 4/4), wet, 50% fine to coarse subangular to subrounded gravel to 2.5" diameter, 35% fine to coarse sand, 15% low plasticity fines, consolidated, clast-supported	
91						
92						

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-74-084-142 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY GRAVEL with SAND (GM): cont'd	
93						7" diameter borehole
94						3/8" coated bentonite tablets
95					WELL-GRADED SAND with GRAVEL (SW): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse sand, 40% fine to coarse gravel, 5% fines	MW-74-142: 1" diameter Schedule 40 PVC casing
96						
97					SILTY GRAVEL with SAND (GM): 55% fine to coarse gravel, 30% fine to coarse sand, 15% low plasticity fines	
98					SILTY SAND (SM): moist, 60% fine to medium sand, 40% low plasticity fines, soft	
99					SILTY GRAVEL with SAND (GM): wet, 55% fine to coarse gravel, 30% fine to coarse sand, 15% low plasticity fines	
100					WELL-GRADED SAND with GRAVEL (SW): dark yellowish brown (10YR 4/4), wet, 60% fine to coarse sand, 35% fine to coarse gravel, 5% fines, loose	
101						
102					WELL-GRADED GRAVEL with SAND (GW): yellowish brown (10YR 5/4), wet, 65% fine to coarse subangular to subrounded gravel to 2.75" diameter, 30% fine to coarse sand, 5% fines, loose	
103						
104						
105						
106						
107						
108						
109						
110						
111					SANDY SILT (ML)	
					SILTY SAND (SM)	
112					SILT (ML): yellowish brown (10YR 5/6), moist, 100% fines, trace fine sand, low plasticity, hard, mottling	
113						
114					95% fines, 5% fine sand, firm	
115						
116						

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PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

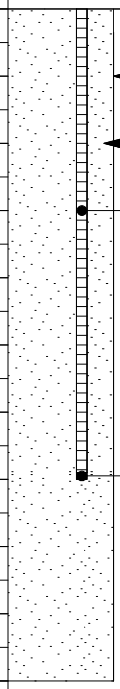
Log of Well No. MW-74-084-142 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILT (ML): cont'd	
117					SILT with SAND (ML): dark yellowish brown (10YR 4/6), moist, 85% fines, 15% fine sand, low plasticity, firm	7" diameter borehole
118					SANDY SILT (ML): yellowish brown (10YR 5/6), moist, 70% fines, 30% fine sand, trace medium sand, low plasticity, firm, mottling, rootlets	3/8" coated bentonite tablets
119						MW-74-142: 1" diameter Schedule 40 PVC casing
120					no mottling	
121						
122						
123						
124						
125						
126						
127					SILTY SAND (SM) WELL-GRADED SAND with GRAVEL (SW): yellowish brown (10YR 5/4), wet, 65% fine to coarse sand, 30% fine gravel, 5% fines, loose	
128					70% fine to coarse sand, 30% fine to coarse gravel, trace fines - cobbles to 4" diameter	
129					SANDY SILT (ML) SILTY SAND (SM): dark yellowish brown (10YR 4/4), 60% fine to coarse sand, 35% low plasticity fines, 5% fine gravel	
130						
131						
132						
133						
134						
135					70% fine to coarse sand, 25% fines, 5% fine gravel	Centralizer
136					SILTY GRAVEL with SAND (GM): yellowish brown (10YR 5/6), moist, 45% fine to coarse gravel, 35% fine to coarse sand, 20% low plasticity fines, consolidated	
137					wet, 55% fine to coarse gravel, 30% fine to coarse sand, 15% fines	#3 filter pack sand
138						MW-74-142: 1" diameter, 0.020" slot, Schedule 40 PVC screen
139					50% fine to coarse gravel, 30% fine to coarse sand, 20% fines	
140						

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-74-084-142 (cont'd)

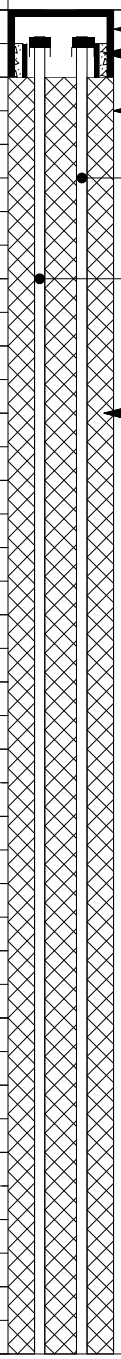
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY GRAVEL with SAND (GM): cont'd	
141					55% fine to coarse gravel, 30% fine to coarse sand, 15% fines, cobbles to 6" diameter	7" diameter borehole
142						#3 filter pack sand
143						MW-74-142: 1" diameter, 0.020" slot, Schedule 40 PVC screen
144						
145						
146						
147						Schedule 40 PVC endcap
148					moist, very dense, consolidated	
149						
150					Bottom of boring at 150.0 feet	
151						
152						
153						
154						
155						
156						
157						
158						
159						
160						
161						
162						
163						
164						



PROJECT: OLIN MORGAN HILL Morgan Hill, CA	**Log of Well No. MW-75-085-120**
BORING LOCATION: Latitude: 37.1174732; Longitude: -121.6314616	TOP OF CASING ELEVATION AND DATUM: 330.62' (NGVD 29)
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 5/20/14 / DATE FINISHED: 5/21/14
DRILLING METHOD: Rotosonic	TOTAL DEPTH (ft.): 197.0 / SCREEN INTERVAL (ft.): See notes
DRILLING EQUIPMENT: 600 TM	DEPTH TO WATER (ft.): FIRST 35.0, COMPL. NA / CASING: 1" Sch. 40 PVC
SAMPLING METHOD: Sonic core barrel [10' x 6"]	LOGGED BY: H. Young
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Gilmore / REG. NO. 8492

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: 330.93' (NGVD 29)
1					SILTY GRAVEL with SAND (GM): brown (10YR 4/3), dry, 50% fine to coarse angular to subrounded gravel and cobbles to 4.0" diameter, 30% fine to coarse sand, 20% low plasticity fines
2					
3					
4					
5					moist
6					
7					
8					
9					WELL-GRADED GRAVEL with SAND (GW)
10					50% fine to coarse gravel, 35% fine to coarse sand, 15% fines
11					
12					WELL-GRADED GRAVEL with SAND (GW): brown (10YR 4/3), moist, 70% fine to coarse angular to subrounded gravel to 2.75" diameter, 25% fine to coarse sand, 5% fines
13					
14					
15					SANDY SILT (ML): yellowish brown (10YR 5/4), moist, 70% fines, 30% fine sand, trace medium sand, low plasticity, firm, rootlets, clay present
16					
17					
18					SILT with SAND (ML): yellowish brown (10YR 5/4), moist, 80% fines, 20% fine sand, low plasticity, firm
19					
20					

WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS



Notes
1. Boring location coordinates are based on North American Datum of 1983.
2. Hand augered to 5.0 feet bgs.
3. Screen intervals:
   MW-75-085 = 80.0-90.0 feet bgs.
   MW-75-120 = 114.9-124.9 feet bgs.

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILT with SAND (ML): cont'd	
21					soft	7" diameter borehole
22						
23						MW-75-120: 1" diameter Schedule 40 PVC casing
					SANDY SILT (ML): yellowish brown (10YR 5/4), moist, 65% fines, 35% fine sand, low plasticity, firm	
24						
25					dark yellowish brown (10YR 4/6), 60% fines, 40% fine sand	MW-75-085: 1" diameter Schedule 40 PVC casing
					SILTY SAND (SM): dark yellowish brown (10YR 4/6), moist, 70% fine sand, 30% low plasticity fines	
26						Type II-V neat cement grout with 5% bentonite gel
27					SILTY SAND with GRAVEL (SM): dark yellowish brown (10YR 4/6), moist, 65% fine to coarse sand, 20% low plasticity fines, 15% fine gravel	
28						
29					SILTY GRAVEL with SAND (GM): dark brown (10YR 3/3), moist, 50% fine to coarse subangular to rounded gravel to 2.75" diameter, 35% fine to coarse sand, 15% low plasticity fines	
30						
31						
32						
33						
34						
35					wet, mostly coarse sand	
36						
37						
38						
39						
40						
41					consolidated	
42						
43						
44						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY GRAVEL with SAND (GM): cont'd	
45						7" diameter borehole
46						
47						MW-75-120: 1" diameter Schedule 40 PVC casing
48						
49						MW-75-085: 1" diameter Schedule 40 PVC casing
50						1" PVC spacer
51						Type II-V neat cement grout with 5% bentonite gel
52					POORLY-GRADED GRAVEL with SAND (GP): yellowish brown (10YR 5/4), wet, 60% fine to coarse gravel, 35% fine to coarse sand, 5% fines, loose	
53						
54					SILT (ML): yellowish brown (10YR 5/4), moist, 100% fines, trace fine sand, low plasticity, firm, rootlets, mottling, clay present	
55						
56						
57					95% fines, 5% fine sand, trace medium to coarse sand, trace fine gravel	
58						
59						
60						
61					SANDY SILT with GRAVEL (ML): dark yellowish brown (10YR 4/4), moist, 55% fines, 30% fine to coarse sand, 15% fine gravel, low plasticity, hard, mottling, rootlets, clay present	
62						
63						
64						
65					SANDY SILT (ML): dark yellowish brown (10YR 4/4), moist, 65% fines, 30% fine to medium sand, 5% fine gravel, trace coarse sand, low plasticity, hard, mottling, rootlets, clay present	
66						
67					yellowish brown (10YR 5/6), 60% fines, 40% fine sand, very soft	
68						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY SILT (ML): cont'd	
69						7" diameter borehole
70					70% fines, 30% fine sand, soft	MW-75-120: 1" diameter Schedule 40 PVC casing
71					SILT (ML): yellowish brown (10YR 5/6), moist, 95% fines, 5% fine sand, low plasticity, firm, mottling	
72						MW-75-085: 1" diameter Schedule 40 PVC casing
73						
74						
75					SANDY SILT (ML): dark yellowish brown (10YR 4/4), moist, 70% fines, 30% fine to medium sand, low plasticity, firm, rootlets	3/8" coated bentonite tablets
76						
77					SILT (ML): dark yellowish brown (10YR 4/6), moist, 95% fines, 5% fine sand, low plasticity, hard, mottling, rootlets, clay present	
78						1" PVC spacer
79					SANDY SILT (ML): strong brown (7.5YR 5/6), moist, 65% fines, 35% fine to medium sand, trace coarse sand, low plasticity, hard	Centralizer
80						
81					SILTY GRAVEL with SAND (GM): brown (7.5YR 4/3), moist, 50% fine to coarse subangular to subrounded gravel and cobbles to 3.25" diameter, 30% fine to coarse sand, 20% low plasticity fines, consolidated	#3 filter pack sand
82						
83						
84						MW-75-085: 1" diameter, 0.020" slot, Schedule 40 PVC screen
85					wet, 50% fine to coarse gravel, 35% fine to coarse sand, 15% fines	
86						
87					POORLY-GRADED GRAVEL with SAND (GP): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse gravel, 40% fine to coarse sand, 5% fines	
88						
89						
90					SANDY SILT (ML): brown (7.5YR 4/4), moist, 70% fines, 30% fine to medium sand, low plasticity, hard	Schedule 40 PVC endcap
91						
92						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY SILT (ML): cont'd	
93						7" diameter borehole
94					yellowish brown (10YR 5/6), 60% fines, 40% fine to medium sand	3/8" coated bentonite tablets
95						
96						MW-75-120: 1" diameter Schedule 40 PVC casing
97						
98					SILTY SAND (SM): yellowish brown (10YR 5/6), wet, 60% fine sand, 40% low plasticity fines	
99						
100						
101						
102						
103						
104					70% fine to medium sand, 30% fines	
105						
					85% fine sand, 15% fines, trace medium sand	
106					POORLY-GRADED SAND (SP): 95% fine sand, 5% fines, trace medium sand	
107						
108						
109						
110						
111						
112					POORLY-GRADED SAND (SP): dark yellowish brown (10YR 4/4), 95% fine sand, 5% fines, trace medium to coarse sand, trace fine gravel	#3 filter pack sand
113					WELL-GRADED GRAVEL with SAND (GW): dark yellowish brown (10YR 4/4), wet, 60% fine to coarse subrounded to rounded gravel to 2.75" diameter, 40% fine to coarse sand, trace fines, loose	
114						Centralizer
115						MW-74-142: 1" diameter, 0.020" slot, Schedule 40 PVC screen
116						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
117					WELL-GRADED GRAVEL with SAND (GW): cont'd 70% fine to coarse gravel, 30% fine to coarse sand, trace fines	7" diameter borehole
118						MW-74-142: 1" diameter, 0.020" slot, Schedule 40 PVC screen
119						
120						#3 filter pack sand
121						
122						
123						
124						
125						Schedule 40 PVC endcap
126						
127						
128						
129						
130						3/8" coated bentonite tablets
131					SILTY GRAVEL with SAND (GM): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse gravel, 30% fine to coarse sand, 15% low plasticity fines	
132						
133						
134						
135					65% fine to coarse gravel, 20% fine to coarse sand, 15% fines, cobbly, consolidated	
136						
137						
138						
139						
140						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY GRAVEL with SAND (GM): cont'd	
141						7" diameter borehole
142						3/8" coated bentonite tablets
143						
144						
145						
146					cobbly	
147					55% fine to coarse gravel, 30% fine to coarse sand, 15% fines, cobbly, consolidated	
148						
149					60% fine to coarse gravel, 25% fine to coarse sand, 15% fines, no cobbles	
150						
151						
152						
153						
154						
155					SILT with SAND (ML): dark yellowish brown (10YR 4/6), moist, 85% fines, 15% fine sand, low plasticity, firm	
156						
157					SILTY GRAVEL with SAND (GM): dark yellowish brown (10YR 4/4), wet, 60% fine to coarse subrounded to rounded gravel to 2.0" diameter, 25% fine to coarse sand, 15% low plasticity fines, consolidated	
158						
159					55% fine to coarse gravel, 25% fine to coarse sand, 20% fines	
160						
161					50% fine to coarse gravel, 25% fine to coarse sand, 25% fines	
162						
163						
164						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	Sample	Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					55% fine to coarse gravel, 30% fine to coarse sand, 15% fines	
165					SILTY GRAVEL with SAND (GM): cont'd	7" diameter borehole
166						3/8" coated bentonite tablets
167					50% fine to coarse gravel, 30% fine to coarse sand, 20% fines	
168						
169					WELL-GRADED GRAVEL with SAND (GW): dark yellowish brown (10YR 4/4), wet, 60% fine to coarse gravel, 45% fine to coarse sand, 5% fines	
170						
171						
172						
173					consolidated	
174						
175						
176						
177					SILTY GRAVEL with SAND (GM): dark yellowish brown (10YR 4/4), wet, 55% fine to coarse gravel, 30% fine to coarse sand, 15% low plasticity fines, consolidated	
178						
179					moist, 50% fine to coarse gravel, 30% fines, 20% fine to coarse sand	
180						
181					wet, 60% fine to coarse gravel, 25% fine to coarse sand, 15% fines	
182						
183						
184						
185						
186						
187						
188						

OAKWELLV_TOC (REV. 8/2011)

PROJECT: OLIN MORGAN HILL
Morgan Hill, CA

Log of Well No. MW-75-085-120 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SILTY GRAVEL with SAND (GM): cont'd	
189						7" diameter borehole
190					SANDY SILT (ML): dark yellowish brown (10YR 4/6), moist, 70% fines, 30% fine sand, trace medium sand, low plasticity, firm	3/8" coated bentonite tablets
191						
192						
193						
194						
195						
196					65% fines, 30% fine sand, 5% fine gravel, trace medium to coarse sand	
197					Bottom of boring at 197.0 feet	
198						
199						
200						
201						
202						
203						
204						
205						
206						
207						
208						
209						
210						
211						
212						

OAKWELLV_TOC (REV. 8/2011)

APPENDIX C

Monitoring Well Development Forms

amec 1" MONITORING WELL DEVELOPMENT LOG	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-74-142
	Prepared By: S. Korbay	Purging Start Date: 5 / 20 / 14	Purging End Date: 5 / 20 / 14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556			
Turbidimeter				

Purge Volume Calculations & Final Measurements

A. Depth to Water = 49.98 ft.	D. Sediment Column (B-C) = _____ ft.	G. Minimum Purge Volume (10 x F) = _____ gal.
B. Well TD (construction log) _____ ft.	E. Water Column (B – A) = _____ ft.	H. Development PSI = _____ PSI
C. Well TD before dev.(tagged) = 146.0 ft.	F. Well Volume (**0.0408** x E) = _____ gal.	I. Well TD after development (tagged) = _____ ft.
		J. Actual Vol. Purged (from below) _____ gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations
1010	Initial	2	19.5	643	8.74	>1,000	light brown, silty
1020	20		18.7	572	8.23	657	Clearing
1030	40		18.9	558	7.99	163	
1040	45		18.5	642	8.12	>1,000	tubing near bottom
1045	55		18.3	573	8.02	>1,000	Clearing
1050	65		18.2	571	7.98	>1,000	
1055	75		17.9	563	7.84	644	
1105	105		18.1	553	7.73	1062	

Remarks: 1105-Stopped purge

W.L. = after purge = 49.65
T.D. = after purge = 146.2

Tubing set at 125 @ start
1030-Lowered tubing to 1 ft off bottom
1055-Surge a couple times, turbidity back over 1,000

Signature: **Checked By:**

amec	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-74-142
1" MONITORING WELL DEVELOPMENT LOG	Prepared By: S. Korbay	Purging Start Date: 5/21/14	Purging End Date: 5/21/14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556	04A0031A1		5/21/14
Turbidimeter	La Motte	2766-3601		5/21/14

Purge Volume Calculations & Final Measurements

A. Depth to Water = 49.50 ft.	D. Sediment Column (B-C) = _____ ft.	G. Minimum Purge Volume (10 x F) = _____ gal.
B. Well TD (construction log) _____ ft.	E. Water Column (B – A) = _____ ft.	H. Development PSI = 80 PSI
C. Well TD before dev.(tagged) = 146.10 ft.	F. Well Volume (**0.0408** x E) = _____ gal.	I. Well TD after development (tagged) = 146.4 ft.
		J. Actual Vol. Purged (from below) 240 gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations
1000	Initial	3	18.1	636	7.60	68.0	
1005	15		17.6	619	7.49	>1,000	
1010	30		17.7	612	7.49	102.9	
1015	45		17.9	608	7.49	46.6	
1020	60		17.8	610	7.49	42.3	
1025	75		17.7	610	7.48	291	
1030	90		17.7	608	7.46	57.9	
1035	105		17.7	603	7.47	20.6	
1040	120		17.7	601	7.48	13.4	
1045	135		17.7	601	7.47	9.36	

Remarks: Purging from screen midpoint
1045 - Finished development - total purge = 240 Gallons
105 Gallons were purged yesterday at 425 ft, then just off bottom

Signature: Steve Korbay **Checked By:**

amec 1" MONITORING WELL DEVELOPMENT LOG	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-74-084
	Prepared By: S. Korbay	Purging Start Date: 5 /21/ 14	Purging End Date: 5 /21 / 14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556	04A0031A1		5/21/14
Turbidimeter	La Motte	2766-3601		5/21/14

Purge Volume Calculations & Final Measurements

A. Depth to Water = ~~48.57~~ ft. 48.57	D. Sediment Column (B-C) = _____ ft.	G. Minimum Purge Volume (10 x F) = _____ gal.
B. Well TD (construction log) _____ ft.	E. Water Column (B – A) = _____ ft.	H. Development PSI = _____ PSI
C. Well TD before dev.(tagged) = 87.5 ft.	F. Well Volume (**0.0408** x E) = _____ gal.	I. Well TD after development (tagged) = _____ ft.
		J. Actual Vol. Purged (from below) _____ gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations
1135	Initial	2	19.1	1269	9.30	>1,000	light brown, silty
1145	20	2	18.7	801	8.59	>1,000	
1200	–	–	–	–	–	–	Restart
1205	30		18.5	684	8.17	>1,000	
1210	40		18.2	575	7.85	>1,000	
1215	50		18.2	550	7.74	761	
1220	60		18.1	542	7.72	560	
1225	70		18.2	536	7.71	382	
1230	80		18.2	531	7.70	320	
1235	90		18.2	530	7.70	251	
1240	100		18.2	528	7.71	176	

Remarks: 1145 - Well is not producing much water @ 150 psi, may be going dry, letting well sit for 15 minutes.
1240 - Shut off to let well recover again.

Signature: Steve Korbay **Checked By:**

Modified **5/7/2014**

amec 1" MONITORING WELL DEVELOPMENT LOG	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-074-084
	Prepared By: S. Korbay	Purging Start Date: 5 /21 / 14	Purging End Date: 5 /21 / 14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556	04A0031A1		5/21/14
Turbidimeter	LA Motte	2766-3601		5/21/14

Purge Volume Calculations & Final Measurements

A. Depth to Water = 48.57 ft.	D. Sediment Column (B-C) = _____ ft.	G. Minimum Purge Volume (10 x F) = _____ gal.
B. Well TD (construction log) _____ ft.	E. Water Column (B – A) = _____ ft.	H. Development PSI = _____ PSI
C. Well TD before dev.(tagged) = 87.5 ft.	F. Well Volume (**0.0408** x E) = _____ gal.	I. Well TD after development (tagged) = 87.8 ft.
		J. Actual Vol. Purged (from below) 180 gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations
1255	Initial	2	–	–	–	–	Restart
1300	110		18.3	530	7.64	189	
1305	120		18.2	528	7.66	171	
1315	140		18.2	523	7.68	85.4	
1325	160		18.2	521	7.63	82.5	
1330	170		18.2	520	7.62	70.9	
1335	180		18.2	520	7.63	70.0	

Remarks: 1255- Restart purge

1335- Removed 180 Gallons, stable parameters
Turbidity was stable, but did not clear to <10

Signature: Steve Korbay **Checked By:**

amec 1" MONITORING WELL DEVELOPMENT LOG	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-75-085
	Prepared By: D. Allbut	Purging Start Date: 5/28/14	Purging End Date: 5/28/14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556	04A0031A1	–	5/28/14
Turbidimeter	La Motte 2020	2766-3601	–	5/28/14

Purge Volume Calculations & Final Measurements

A. Depth to Water = 53.70 ft.	D. Sediment Column (B-C) = 0.32 ft.	G. Minimum Purge Volume (10 x F) = 15.0 gal.
B. Well TD (construction log) 90 ft.	E. Water Column (B – A) = 36.30 ft.	H. Development PSI = 110 PSI
C. Well TD before dev.(tagged) = 89.68 ft.	F. Well Volume (**0.0408** x E) = 1.5 gal.	I. Well TD after development (tagged) = 89.68 ft.
		J. Actual Vol. Purged (from below) 70 gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations started w/ air compressor
0855	Initial	1 gpm	18.79	838	8.24	above range.	Tubing at top of screen. Brown, silty - 110 psi
0902	5		17.74	757	8.08	"	Surged 30 sec. Brown, silty, fine sand
0909	10		17.95	1784	8.24	"	"
0915	15		17.67	1089	8.10	"	"
0922	20		17.38	897	7.96	"	Moved tubing to mid-screen Surged 30 sec.
0928	25		17.49	739	7.82	"	"
0935	30		17.56	712	7.80	"	Moved tubing to bottom of screen. Surged 15 sec
0941	35		17.61	699	7.78	"	Brown, silty, fine sand
	Shut off compressor and let sit 15 min.						"
1008	40	1 gpm	17.69	656	7.81	"	Started purging at bottom of well
1014	45		17.74	562	7.78	"	Brown, silty, fine sand

Remarks: 0.30' toc to top of wellbox rim

Signature: David Allbut **Checked By:**

Purging/Sampling Date: 5/28/14 **Well Number:** MW-78-085

ADDITIONAL FIELD PARAMETER COLLECTION LOG for 1" MONITORING WELL DEVELOPMENT (continued from frontside)

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations
1028	50	1 gpm	17.57	523	7.77	1019	slight clearing. less silt, surged 15 sec. less sand
1040	55		18.10	428	7.85	1000	Tan; some silt and sand
1053	60		17.77	502	7.76	500	Tan; less silt and sand
	Let well sit for 5 min. Turbidity = 310 after starting purge						
1109	65	1gpm	18.74	505	7.84	270	tan, very little fine sand/silt surged 15 sec.
1122	70		18.72	500	7.80	450	Tan, very little fine sand/silt
	Stopped development per M. Gilmore and S. Panttaja						

Remarks:

amec 1" MONITORING WELL DEVELOPMENT LOG	Project: Olin/Standard Fusee	Job #/Decription:	Well Number: MW-75-120
	Prepared By: D. Allbut	Purging Start Date: 5 / 28 / 14	Purging End Date: 5 / 28 / 14

Sampling Protocol: 1) Record a depth to water before attaching the development manifold. 2) Place the air lift supply line at the approximate mid-point of the well screen. 3) Purge 10 well volumes while monitoring water quality parameters. See stabilization criteria below. 3a) Close water-line valve every few well volumes for approximately 15-30 seconds to surge the well. 4) Development is complete once water quality parameters are stable, or after purging a maximum of 20 well volumes. 5) Remove manifold and record the actual total depth of the well with a tag line. 6) Following development all equipment is decontaminated with DI water, and sampling is performed by normal methods after 24 hours.

Field Equipment

Equipment	Model	Serial #/Rental ID	Date Received/Serviced	Date Calibrated
Multi-Probe	YSI 556	04A003141	–	5/28/14
Turbidimeter	La Motte 2020	2766-3601	–	5/28/14

Purge Volume Calculations & Final Measurements

A. Depth to Water = 54.08 ft.	D. Sediment Column (B-C) = 0.51 ft.	G. Minimum Purge Volume (10 x F) = 29.0 gal.
B. Well TD (construction log) 125 ft.	E. Water Column (B – A) = 71.41 ft.	H. Development PSI = 110 PSI
C. Well TD before dev.(tagged) = 124.49 ft.	F. Well Volume (**0.0408** x E) = 2.9 gal.	I. Well TD after development (tagged) = 124.59 ft.
		J. Actual Vol. Purged (from below) 220 gal.

Purging Data			Water Quality Parameters				
Time (24 hr)	Purge Volume (gal)	Flow Rate (gal/min)	Temp (°C)	Conductivity (µS/cm) +/- 3%	pH +/- 0.1	Turbidity (NTU) ±10% or <10NTU	Observations Air compressor ~ 110 psi
1150	Initial	3	20.40	1015	8.48	above range	Brown; silt and fine sand. Air line at top of screen
1157	10		18.61	704	7.92	"	Brown; silt and fine sand. Surged 15 sec.
1207	40		18.42	583	7.76	210	Clearing; less silt/sand. Surged. Moved air to mid-screen
1218	70		18.53	595	7.78	Above range	Tan, very little silt/sand Moved air to well bottom
1228	100		18.95	613	7.74	"	Tan; silt and fine sand; surged well
1238	130		17.89	559	7.53	Above range	"
1248	160		18.35	544	7.65	900	clearing; fine sand present
	let sit for 10 min. without purging.						
1311	190	3	18.89	536	7.71	400	Tan, some fine sand. Surged 15 sec.
1321	220		18.82	528	7.77	280 ~~400~~	tan, some fine sand
	stopped development. Per Susan Panttaja						

Remarks: TOC to top of wellbox rim = 0.29'

Signature: David Allbut **Checked By:**

Purging/Sampling Date: 5/28/14 **Well Number:** MW-75-120

ADDITIONAL FIELD PARAMETER COLLECTION LOG for 1" MONITORING WELL DEVELOPMENT (continued from frontside)

Purging Data			Water Quality Parameters				
Time (24 hr)	**Purge Volume** (gal)	**Flow Rate** (gal/min)	**Temp** (°C)	**Conductivity** (µS/cm) +/- 3%	**pH** +/- 0.1	**Turbidity** (NTU) **±10% or <10NTU**	Observations
1330	checked	TD = 1241.59		WL = 53.55			

Remarks:

Modified **5/26/2014**

APPENDIX D

Investigation-Derived Materials Management Analytical Data
Chains-of-Custody

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-57743-1
Client Project/Site: Olin Site/Morgan Hill

For:
AMEC Environment & Infrastructure, Inc.
1465 North McDowell Blvd
Suite 200
Petaluma, California 94954

Attn: Laura Helliwell

Authorized for release by:
6/13/2014 3:03:34 PM
Micah Smith, Project Manager II
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Dimple Sharma, Senior Project Manager
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
F1	MS and/or MSD Recovery exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
B	Compound was found in the blank and sample.

GC Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery exceeds the control limits
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

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

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 720-57743-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-57743-1

Comments
No additional comments.

Receipt
The sample was received on 5/30/2014 4:50 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Except:

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed.

The methods are not listed on the COC for OrganoPhosphorus Pesticides logged for method 8141A and Organachlorine Pesticides for 8081A.

GC/MS VOA
Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for batch 160417 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method(s) 8260B: Internal standard (ISTD) response for the following samples was outside control limits: (720-57733-11 MS). The samples were re-analyzed with concurring results, and the data has been reported.

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

GC/MS Semi VOA
Method 8270C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch #160638 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

GC Semi VOA
Method 8015B: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for batch 160549 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8081A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for batch #160622 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Metals
Method 6010B: The following sample was diluted due to the abundance of non-target analyte: IDS-COMP (720-57743-1). Elevated reporting limits (RLs) are provided.

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for prep batch 160406 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Job ID: 720-57743-1 (Continued)

Laboratory: TestAmerica Pleasanton (Continued)

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

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

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

Detection Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Lab Sample ID: 720-57743-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	0.030	J B	0.33	0.0066	mg/Kg	1		8270C	Total/NA
Benzoic acid	0.10	J B	0.33	0.034	mg/Kg	1		8270C	Total/NA
Diesel Range Organics [C10-C28]	4.7	B	0.99	0.34	mg/Kg	1		8015B	Total/NA
Motor Oil Range Organics [C24-C36]	8.5	J B	50	0.57	mg/Kg	1		8015B	Total/NA
Arsenic	8.6		3.7	0.31	mg/Kg	4		6010B	Total/NA
Barium	230	B	1.9	0.26	mg/Kg	4		6010B	Total/NA
Beryllium	0.43		0.37	0.12	mg/Kg	4		6010B	Total/NA
Chromium	57		1.9	0.20	mg/Kg	4		6010B	Total/NA
Cobalt	11		0.74	0.074	mg/Kg	4		6010B	Total/NA
Copper	35		5.6	2.6	mg/Kg	4		6010B	Total/NA
Lead	8.1		1.9	0.39	mg/Kg	4		6010B	Total/NA
Molybdenum	0.45	J	1.9	0.24	mg/Kg	4		6010B	Total/NA
Nickel	74		1.9	0.19	mg/Kg	4		6010B	Total/NA
Vanadium	41		1.9	0.25	mg/Kg	4		6010B	Total/NA
Zinc	61		5.6	2.4	mg/Kg	4		6010B	Total/NA
Mercury	0.072		0.0094	0.0023	mg/Kg	1		7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Lab Sample ID: 720-57743-1

Date Collected: 05/30/14 12:40

Matrix: Solid

Date Received: 05/30/14 16:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		4.3	1.0	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Acetone	ND		43	21	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Benzene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Dichlorobromomethane	ND		4.3	0.33	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Bromobenzene	ND		4.3	0.35	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chlorobromomethane	ND		17	0.33	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Bromoform	ND		4.3	1.7	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Bromomethane	ND		8.7	0.42	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
2-Butanone (MEK)	ND		43	18	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
n-Butylbenzene	ND		4.3	0.87	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
sec-Butylbenzene	ND		4.3	0.37	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
tert-Butylbenzene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Carbon disulfide	ND		4.3	1.7	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Carbon tetrachloride	ND		4.3	0.39	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chlorobenzene	ND		4.3	0.30	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chloroethane	ND		8.7	0.39	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chloroform	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chloromethane	ND		8.7	0.42	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
2-Chlorotoluene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
4-Chlorotoluene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Chlorodibromomethane	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2-Dichlorobenzene	ND		4.3	0.52	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,3-Dichlorobenzene	ND		4.3	0.30	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,4-Dichlorobenzene	ND		4.3	0.62	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,3-Dichloropropane	ND		4.3	0.34	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1-Dichloropropene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2-Dibromo-3-Chloropropane	ND		8.7	1.5	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Ethylene Dibromide	ND		4.3	1.2	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Dibromomethane	ND		8.7	0.36	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Dichlorodifluoromethane	ND		8.7	0.68	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1-Dichloroethane	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2-Dichloroethane	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1-Dichloroethene	ND		4.3	0.31	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
cis-1,2-Dichloroethene	ND		4.3	0.32	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
trans-1,2-Dichloroethene	ND		4.3	0.47	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2-Dichloropropane	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
cis-1,3-Dichloropropene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
trans-1,3-Dichloropropene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Ethylbenzene	ND		4.3	0.65	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Hexachlorobutadiene	ND		4.3	0.51	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
2-Hexanone	ND		43	8.7	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Isopropylbenzene	ND		4.3	0.45	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
4-Isopropyltoluene	ND		4.3	2.2	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Methylene Chloride	ND		8.7	3.5	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
4-Methyl-2-pentanone (MIBK)	ND		43	8.7	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Naphthalene	ND		8.7	1.3	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
N-Propylbenzene	ND		4.3	0.32	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Styrene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1,1,2-Tetrachloroethane	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1

Client Sample ID: IDS-COMP
Date Collected: 05/30/14 12:40
Date Received: 05/30/14 16:50

Lab Sample ID: 720-57743-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		4.3	0.42	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Tetrachloroethene	ND		4.3	0.38	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Toluene	ND		4.3	0.62	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2,3-Trichlorobenzene	ND		4.3	0.64	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2,4-Trichlorobenzene	ND		4.3	0.48	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1,1-Trichloroethane	ND		4.3	0.47	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1,2-Trichloroethane	ND		4.3	0.32	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Trichloroethene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Trichlorofluoromethane	ND		4.3	0.49	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2,3-Trichloropropane	ND		4.3	0.46	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.3	1.8	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,2,4-Trimethylbenzene	ND		4.3	1.4	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
1,3,5-Trimethylbenzene	ND		4.3	0.29	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Vinyl acetate	ND		43	0.92	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Vinyl chloride	ND		4.3	0.46	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Xylenes, Total	ND		8.7	0.87	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
2,2-Dichloropropane	ND		4.3	1.7	ug/Kg		06/02/14 16:10	06/02/14 23:31	1
Gasoline Range Organics (GRO) -C5-C12	ND		220	87	ug/Kg		06/02/14 16:10	06/02/14 23:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*45 - 131*	*06/02/14 16:10*	*06/02/14 23:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*60 - 140*	*06/02/14 16:10*	*06/02/14 23:31*	*1*
Toluene-d8 (Surr)	*96*		*58 - 140*	*06/02/14 16:10*	*06/02/14 23:31*	*1*

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.067	0.0055	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Bis(2-chloroethyl)ether	ND		0.067	0.0070	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Chlorophenol	ND		0.067	0.0037	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
1,3-Dichlorobenzene	ND		0.067	0.0040	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
1,4-Dichlorobenzene	ND		0.067	0.0090	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzyl alcohol	ND		0.17	0.0052	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
1,2-Dichlorobenzene	ND		0.067	0.0047	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Methylphenol	ND		0.067	0.0050	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Methylphenol, 3 & 4	ND		0.067	0.0095	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
N-Nitrosodi-n-propylamine	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Hexachloroethane	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Nitrobenzene	ND		0.067	0.014	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Isophorone	ND		0.067	0.0047	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Nitrophenol	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4-Dimethylphenol	ND		0.067	0.0056	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Bis(2-chloroethoxy)methane	ND		0.17	0.0055	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4-Dichlorophenol	ND		0.33	0.0045	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
1,2,4-Trichlorobenzene	ND		0.067	0.0070	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Naphthalene	ND		0.067	0.0048	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Chloroaniline	ND		0.17	0.0044	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Hexachlorobutadiene	ND		0.067	0.0052	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Chloro-3-methylphenol	ND		0.17	0.0054	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Methylnaphthalene	ND		0.067	0.0062	mg/Kg		06/04/14 16:52	06/05/14 23:12	1

Client Sample ID: IDS-COMP
Date Collected: 05/30/14 12:40
Date Received: 05/30/14 16:50

Lab Sample ID: 720-57743-1
Matrix: Solid

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND		0.17	0.0043	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4,6-Trichlorophenol	ND		0.17	0.0098	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4,5-Trichlorophenol	ND		0.067	0.0042	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Chloronaphthalene	ND		0.067	0.0048	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Nitroaniline	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Dimethyl phthalate	ND		0.17	0.0058	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Acenaphthylene	ND		0.067	0.0056	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
3-Nitroaniline	ND		0.17	0.039	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Acenaphthene	ND		0.067	0.0038	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4-Dinitrophenol	ND		0.66	0.33	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Nitrophenol	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Dibenzofuran	ND		0.067	0.0053	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,4-Dinitrotoluene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2,6-Dinitrotoluene	ND		0.067	0.034	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Diethyl phthalate	ND		0.17	0.0047	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Chlorophenyl phenyl ether	ND		0.17	0.0059	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Fluorene	ND		0.067	0.0040	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Nitroaniline	ND		0.33	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
2-Methyl-4,6-dinitrophenol	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
N-Nitrosodiphenylamine	ND		0.067	0.0039	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
4-Bromophenyl phenyl ether	ND		0.17	0.0051	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Hexachlorobenzene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Pentachlorophenol	ND		0.33	0.016	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Phenanthrene	ND		0.067	0.0046	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Anthracene	ND		0.067	0.0043	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Di-n-butyl phthalate	ND		0.17	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Fluoranthene	ND		0.067	0.0073	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Pyrene	ND		0.067	0.0038	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Butyl benzyl phthalate	ND		0.17	0.0054	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
3,3'-Dichlorobenzidine	ND		0.17	0.010	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzo[a]anthracene	ND		0.33	0.018	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Bis(2-ethylhexyl) phthalate	**0.030**	**J B**	0.33	0.0066	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Chrysene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Di-n-octyl phthalate	ND		0.17	0.0048	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzo[b]fluoranthene	ND		0.067	0.0095	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzo[a]pyrene	ND		0.067	0.0066	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzo[k]fluoranthene	ND		0.067	0.014	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Indeno[1,2,3-cd]pyrene	ND		0.067	0.013	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzo[g,h,i]perylene	ND		0.067	0.020	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Benzoic acid	**0.10**	**J B**	0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Azobenzene	ND		0.067	0.0058	mg/Kg		06/04/14 16:52	06/05/14 23:12	1
Dibenz(a,h)anthracene	ND		0.067	0.015	mg/Kg		06/04/14 16:52	06/05/14 23:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*73*		*21 - 98*	*06/04/14 16:52*	*06/05/14 23:12*	*1*
2-Fluorobiphenyl	*72*		*30 - 112*	*06/04/14 16:52*	*06/05/14 23:12*	*1*
Terphenyl-d14	*96*		*32 - 117*	*06/04/14 16:52*	*06/05/14 23:12*	*1*
2-Fluorophenol	*64*		*28 - 98*	*06/04/14 16:52*	*06/05/14 23:12*	*1*
Phenol-d5	*64*		*23 - 101*	*06/04/14 16:52*	*06/05/14 23:12*	*1*
2,4,6-Tribromophenol	*99*		*37 - 114*	*06/04/14 16:52*	*06/05/14 23:12*	*1*

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Date Collected: 05/30/14 12:40
Date Received: 05/30/14 16:50

Lab Sample ID: 720-57743-1

Matrix: Solid

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.7	B	0.99	0.34	mg/Kg		06/03/14 16:50	06/04/14 19:17	1
Motor Oil Range Organics [C24-C36]	8.5	J B	50	0.57	mg/Kg		06/03/14 16:50	06/04/14 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
p-Terphenyl	*98*		*40 - 130*	*06/03/14 16:50*	*06/04/14 19:17*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Dieldrin	ND		1.9	0.26	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endrin aldehyde	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endrin	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endrin ketone	ND		1.9	0.39	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Heptachlor	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Heptachlor epoxide	ND		1.9	0.23	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
4,4'-DDT	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
4,4'-DDE	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
4,4'-DDD	ND		1.9	0.17	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endosulfan I	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endosulfan II	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
alpha-BHC	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
beta-BHC	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
gamma-BHC (Lindane)	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
delta-BHC	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Endosulfan sulfate	ND		1.9	0.18	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Methoxychlor	ND		1.9	0.17	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Toxaphene	ND		39	6.6	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
Chlordane (technical)	ND		39	1.7	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
alpha-Chlordane	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1
gamma-Chlordane	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 06:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*57 - 122*	*06/04/14 14:58*	*06/05/14 06:26*	*1*
DCB Decachlorobiphenyl	*116*		*21 - 136*	*06/04/14 14:58*	*06/05/14 06:26*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1221	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1232	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1242	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1248	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1254	ND		49	1.7	ug/Kg		06/04/14 15:05	06/05/14 00:06	1
PCB-1260	ND		49	5.2	ug/Kg		06/04/14 15:05	06/05/14 00:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*81*		*45 - 132*	*06/04/14 15:05*	*06/05/14 00:06*	*1*
DCB Decachlorobiphenyl	*99*		*42 - 146*	*06/04/14 15:05*	*06/05/14 00:06*	*1*

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Date Collected: 05/30/14 12:40
Date Received: 05/30/14 16:50

Lab Sample ID: 720-57743-1

Matrix: Solid

Method: 8141A - Organophosphorous Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND		32	3.0	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Bolstar	ND		32	3.0	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Chlorpyrifos	ND		32	3.2	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Coumaphos	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Demeton, Total	ND		64	5.8	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Demeton-O	ND		32	2.9	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Demeton-S	ND		32	2.9	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Diazinon	ND		32	3.2	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Dichlorvos	ND		32	2.9	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Dimethoate	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Disulfoton	ND		32	3.4	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
EPN	ND		32	2.8	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Famphur	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Fensulfothion	ND		32	2.5	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Fenthion	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Malathion	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Methyl parathion	ND		32	2.8	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Mevinphos	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
O,O,O-Triethyl phosphorothioate	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Parathion	ND		32	2.6	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Phorate	ND		32	3.2	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Ronnel	ND		32	3.0	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Stirophos	ND		32	3.3	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Sulfotepp	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Tokuthion	ND		32	3.2	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Trichloronate	ND		32	3.8	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Mocap	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1
Thionazin	ND		32	3.1	ug/Kg		06/04/14 03:29	06/04/14 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*93*		*55 - 125*	*06/04/14 03:29*	*06/04/14 19:26*	*1*
Tributyl phosphate	*86*		*47 - 130*	*06/04/14 03:29*	*06/04/14 19:26*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		80	5.5	ug/Kg		06/06/14 06:35	06/11/14 19:28	20
2,4,5-T	ND		20	2.5	ug/Kg		06/06/14 06:35	06/11/14 19:28	20
Silvex (2,4,5-TP)	ND		20	2.1	ug/Kg		06/06/14 06:35	06/11/14 19:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*129*		*42 - 140*	*06/06/14 06:35*	*06/11/14 19:28*	*20*

Method: 314.0 - Perchlorate (IC) - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		40	8.9	ug/Kg			06/05/14 11:19	1

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.9	0.31	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Arsenic	**8.6**		3.7	0.31	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Barium	**230**	**B**	1.9	0.26	mg/Kg		06/02/14 17:36	06/04/14 23:36	4

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Lab Sample ID: 720-57743-1

Date Collected: 05/30/14 12:40
Matrix: Solid
Date Received: 05/30/14 16:50

Method: 6010B - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	0.43		0.37	0.12	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Cadmium	ND		0.46	0.046	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Chromium	57		1.9	0.20	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Cobalt	11		0.74	0.074	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Copper	35		5.6	2.6	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Lead	8.1		1.9	0.39	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Molybdenum	0.45	J	1.9	0.24	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Nickel	74		1.9	0.19	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Selenium	ND		3.7	0.56	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Silver	ND		0.93	0.19	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Thallium	ND		1.9	0.54	mg/Kg		06/02/14 17:36	06/03/14 22:02	4
Vanadium	41		1.9	0.25	mg/Kg		06/02/14 17:36	06/04/14 23:36	4
Zinc	61		5.6	2.4	mg/Kg		06/02/14 17:36	06/03/14 22:02	4

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.072		0.0094	0.0023	mg/Kg		06/02/14 18:19	06/03/14 14:18	1

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

Lab Sample ID: MB 720-160417/5
Matrix: Solid
Analysis Batch: 160417

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		5.0	1.2	ug/Kg			06/02/14 15:26	1
Acetone	ND		50	24	ug/Kg			06/02/14 15:26	1
Benzene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Dichlorobromomethane	ND		5.0	0.38	ug/Kg			06/02/14 15:26	1
Bromobenzene	ND		5.0	0.40	ug/Kg			06/02/14 15:26	1
Chlorobromomethane	ND		20	0.38	ug/Kg			06/02/14 15:26	1
Bromoform	ND		5.0	2.0	ug/Kg			06/02/14 15:26	1
Bromomethane	ND		10	0.49	ug/Kg			06/02/14 15:26	1
2-Butanone (MEK)	ND		50	21	ug/Kg			06/02/14 15:26	1
n-Butylbenzene	ND		5.0	1.0	ug/Kg			06/02/14 15:26	1
sec-Butylbenzene	ND		5.0	0.43	ug/Kg			06/02/14 15:26	1
tert-Butylbenzene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Carbon disulfide	ND		5.0	2.0	ug/Kg			06/02/14 15:26	1
Carbon tetrachloride	ND		5.0	0.45	ug/Kg			06/02/14 15:26	1
Chlorobenzene	ND		5.0	0.35	ug/Kg			06/02/14 15:26	1
Chloroethane	ND		10	0.45	ug/Kg			06/02/14 15:26	1
Chloroform	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Chloromethane	ND		10	0.49	ug/Kg			06/02/14 15:26	1
2-Chlorotoluene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
4-Chlorotoluene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Chlorodibromomethane	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
1,2-Dichlorobenzene	ND		5.0	0.60	ug/Kg			06/02/14 15:26	1
1,3-Dichlorobenzene	ND		5.0	0.35	ug/Kg			06/02/14 15:26	1
1,4-Dichlorobenzene	ND		5.0	0.71	ug/Kg			06/02/14 15:26	1
1,3-Dichloropropane	ND		5.0	0.39	ug/Kg			06/02/14 15:26	1
1,1-Dichloropropene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
1,2-Dibromo-3-Chloropropane	ND		10	1.7	ug/Kg			06/02/14 15:26	1
Ethylene Dibromide	ND		5.0	1.4	ug/Kg			06/02/14 15:26	1
Dibromomethane	ND		10	0.42	ug/Kg			06/02/14 15:26	1
Dichlorodifluoromethane	ND		10	0.79	ug/Kg			06/02/14 15:26	1
1,1-Dichloroethane	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
1,2-Dichloroethane	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
1,1-Dichloroethene	ND		5.0	0.36	ug/Kg			06/02/14 15:26	1
cis-1,2-Dichloroethene	ND		5.0	0.37	ug/Kg			06/02/14 15:26	1
trans-1,2-Dichloroethene	ND		5.0	0.54	ug/Kg			06/02/14 15:26	1
1,2-Dichloropropane	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
trans-1,3-Dichloropropene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Ethylbenzene	ND		5.0	0.75	ug/Kg			06/02/14 15:26	1
Hexachlorobutadiene	ND		5.0	0.59	ug/Kg			06/02/14 15:26	1
2-Hexanone	ND		50	10	ug/Kg			06/02/14 15:26	1
Isopropylbenzene	ND		5.0	0.52	ug/Kg			06/02/14 15:26	1
4-Isopropyltoluene	ND		5.0	2.5	ug/Kg			06/02/14 15:26	1
Methylene Chloride	ND		10	4.0	ug/Kg			06/02/14 15:26	1
4-Methyl-2-pentanone (MIBK)	ND		50	10	ug/Kg			06/02/14 15:26	1
Naphthalene	ND		10	1.5	ug/Kg			06/02/14 15:26	1
N-Propylbenzene	ND		5.0	0.37	ug/Kg			06/02/14 15:26	1
Styrene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1

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

Lab Sample ID: MB 720-160417/5
Matrix: Solid
Analysis Batch: 160417

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.49	ug/Kg			06/02/14 15:26	1
Tetrachloroethene	ND		5.0	0.44	ug/Kg			06/02/14 15:26	1
Toluene	ND		5.0	0.71	ug/Kg			06/02/14 15:26	1
1,2,3-Trichlorobenzene	ND		5.0	0.74	ug/Kg			06/02/14 15:26	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/Kg			06/02/14 15:26	1
1,1,1-Trichloroethane	ND		5.0	0.54	ug/Kg			06/02/14 15:26	1
1,1,2-Trichloroethane	ND		5.0	0.37	ug/Kg			06/02/14 15:26	1
Trichloroethene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Trichlorofluoromethane	ND		5.0	0.56	ug/Kg			06/02/14 15:26	1
1,2,3-Trichloropropane	ND		5.0	0.53	ug/Kg			06/02/14 15:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	2.1	ug/Kg			06/02/14 15:26	1
1,2,4-Trimethylbenzene	ND		5.0	1.6	ug/Kg			06/02/14 15:26	1
1,3,5-Trimethylbenzene	ND		5.0	0.34	ug/Kg			06/02/14 15:26	1
Vinyl acetate	ND		50	1.1	ug/Kg			06/02/14 15:26	1
Vinyl chloride	ND		5.0	0.53	ug/Kg			06/02/14 15:26	1
Xylenes, Total	ND		10	1.0	ug/Kg			06/02/14 15:26	1
2,2-Dichloropropane	ND		5.0	2.0	ug/Kg			06/02/14 15:26	1
Gasoline Range Organics (GRO) -C5-C12	ND		250	100	ug/Kg			06/02/14 15:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*45 - 131*		*06/02/14 15:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*60 - 140*		*06/02/14 15:26*	*1*
Toluene-d8 (Surr)	*100*		*58 - 140*		*06/02/14 15:26*	*1*

Lab Sample ID: LCS 720-160417/6
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	50.0	49.5		ug/Kg		99	70 - 144
Acetone	250	266		ug/Kg		106	30 - 162
Benzene	50.0	49.2		ug/Kg		98	70 - 130
Dichlorobromomethane	50.0	48.9		ug/Kg		98	70 - 131
Bromobenzene	50.0	50.7		ug/Kg		101	70 - 130
Chlorobromomethane	50.0	50.8		ug/Kg		102	70 - 130
Bromoform	50.0	55.2		ug/Kg		110	59 - 158
Bromomethane	50.0	47.6		ug/Kg		95	59 - 132
2-Butanone (MEK)	250	275		ug/Kg		110	53 - 124
n-Butylbenzene	50.0	50.2		ug/Kg		100	70 - 142
sec-Butylbenzene	50.0	48.7		ug/Kg		97	70 - 136
tert-Butylbenzene	50.0	49.2		ug/Kg		98	70 - 130
Carbon disulfide	50.0	43.3		ug/Kg		87	60 - 140
Carbon tetrachloride	50.0	49.2		ug/Kg		98	70 - 138
Chlorobenzene	50.0	49.2		ug/Kg		98	70 - 130
Chloroethane	50.0	44.3		ug/Kg		89	65 - 130
Chloroform	50.0	48.3		ug/Kg		97	77 - 127

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

Lab Sample ID: LCS 720-160417/6
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	50.0	39.4		ug/Kg		79	55 - 140
2-Chlorotoluene	50.0	48.6		ug/Kg		97	70 - 138
4-Chlorotoluene	50.0	49.9		ug/Kg		100	70 - 136
Chlorodibromomethane	50.0	56.0		ug/Kg		112	70 - 146
1,2-Dichlorobenzene	50.0	51.2		ug/Kg		102	70 - 130
1,3-Dichlorobenzene	50.0	50.9		ug/Kg		102	70 - 131
1,4-Dichlorobenzene	50.0	51.5		ug/Kg		103	70 - 130
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	70 - 140
1,1-Dichloropropene	50.0	51.5		ug/Kg		103	70 - 130
1,2-Dibromo-3-Chloropropane	50.0	56.0		ug/Kg		112	60 - 145
Ethylene Dibromide	50.0	54.9		ug/Kg		110	70 - 140
Dibromomethane	50.0	51.5		ug/Kg		103	70 - 139
Dichlorodifluoromethane	50.0	42.5		ug/Kg		85	37 - 158
1,1-Dichloroethane	50.0	47.5		ug/Kg		95	70 - 130
1,2-Dichloroethane	50.0	46.4		ug/Kg		93	70 - 130
1,1-Dichloroethene	50.0	43.3		ug/Kg		87	76 - 122
cis-1,2-Dichloroethene	50.0	46.3		ug/Kg		93	70 - 138
trans-1,2-Dichloroethene	50.0	49.6		ug/Kg		99	67 - 130
1,2-Dichloropropane	50.0	49.1		ug/Kg		98	73 - 127
cis-1,3-Dichloropropene	50.0	55.5		ug/Kg		111	68 - 147
trans-1,3-Dichloropropene	50.0	61.0		ug/Kg		122	70 - 136
Ethylbenzene	50.0	47.6		ug/Kg		95	80 - 137
Hexachlorobutadiene	50.0	51.6		ug/Kg		103	70 - 132
2-Hexanone	250	240		ug/Kg		96	44 - 133
Isopropylbenzene	50.0	48.7		ug/Kg		97	88 - 128
4-Isopropyltoluene	50.0	49.0		ug/Kg		98	70 - 133
Methylene Chloride	50.0	48.1		ug/Kg		96	70 - 134
4-Methyl-2-pentanone (MIBK)	250	253		ug/Kg		101	60 - 160
Naphthalene	50.0	57.3		ug/Kg		115	60 - 147
N-Propylbenzene	50.0	49.0		ug/Kg		98	70 - 130
Styrene	50.0	52.6		ug/Kg		105	70 - 130
1,1,1,2-Tetrachloroethane	50.0	51.0		ug/Kg		102	70 - 130
1,1,2,2-Tetrachloroethane	50.0	51.2		ug/Kg		102	70 - 146
Tetrachloroethene	50.0	52.5		ug/Kg		105	70 - 132
Toluene	50.0	48.7		ug/Kg		97	80 - 128
1,2,3-Trichlorobenzene	50.0	55.4		ug/Kg		111	60 - 140
1,2,4-Trichlorobenzene	50.0	55.1		ug/Kg		110	60 - 140
1,1,1-Trichloroethane	50.0	47.0		ug/Kg		94	70 - 130
1,1,2-Trichloroethane	50.0	52.5		ug/Kg		105	70 - 130
Trichloroethene	50.0	52.2		ug/Kg		104	70 - 133
Trichlorofluoromethane	50.0	50.5		ug/Kg		101	60 - 140
1,2,3-Trichloropropane	50.0	53.0		ug/Kg		106	70 - 146
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	44.5		ug/Kg		89	60 - 140
1,2,4-Trimethylbenzene	50.0	50.3		ug/Kg		101	70 - 130
1,3,5-Trimethylbenzene	50.0	50.7		ug/Kg		101	70 - 131
Vinyl acetate	50.0	60.3		ug/Kg		121	38 - 176
Vinyl chloride	50.0	39.2		ug/Kg		78	58 - 125

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

Lab Sample ID: LCS 720-160417/6
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	50.0	48.7		ug/Kg		97	70 - 146
o-Xylene	50.0	48.7		ug/Kg		97	70 - 140
2,2-Dichloropropane	50.0	49.6		ug/Kg		99	70 - 162

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*90*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*88*		*60 - 140*
Toluene-d8 (Surr)	*100*		*58 - 140*

Lab Sample ID: LCS 720-160417/8
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C5-C12	1000	909		ug/Kg		91	61 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*95*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*92*		*60 - 140*
Toluene-d8 (Surr)	*99*		*58 - 140*

Lab Sample ID: LCSD 720-160417/7
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether	50.0	46.8		ug/Kg		94	70 - 144	6	20
Acetone	250	250		ug/Kg		100	30 - 162	6	30
Benzene	50.0	48.8		ug/Kg		98	70 - 130	1	20
Dichlorobromomethane	50.0	49.2		ug/Kg		98	70 - 131	1	20
Bromobenzene	50.0	51.0		ug/Kg		102	70 - 130	1	20
Chlorobromomethane	50.0	49.6		ug/Kg		99	70 - 130	2	20
Bromoform	50.0	53.2		ug/Kg		106	59 - 158	4	20
Bromomethane	50.0	48.9		ug/Kg		98	59 - 132	3	20
2-Butanone (MEK)	250	238		ug/Kg		95	53 - 124	15	20
n-Butylbenzene	50.0	51.7		ug/Kg		103	70 - 142	3	20
sec-Butylbenzene	50.0	50.1		ug/Kg		100	70 - 136	3	20
tert-Butylbenzene	50.0	50.7		ug/Kg		101	70 - 130	3	20
Carbon disulfide	50.0	43.5		ug/Kg		87	60 - 140	0	20
Carbon tetrachloride	50.0	49.8		ug/Kg		100	70 - 138	1	20
Chlorobenzene	50.0	49.8		ug/Kg		100	70 - 130	1	20
Chloroethane	50.0	45.9		ug/Kg		92	65 - 130	3	20
Chloroform	50.0	47.8		ug/Kg		96	77 - 127	1	20
Chloromethane	50.0	40.8		ug/Kg		82	55 - 140	4	20
2-Chlorotoluene	50.0	49.8		ug/Kg		100	70 - 138	2	20
4-Chlorotoluene	50.0	50.9		ug/Kg		102	70 - 136	2	20
Chlorodibromomethane	50.0	55.3		ug/Kg		111	70 - 146	1	20

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

Lab Sample ID: LCSD 720-160417/7
Matrix: Solid
Analysis Batch: 160417

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	50.0	51.5		ug/Kg		103	70 - 130	0	20
1,3-Dichlorobenzene	50.0	51.0		ug/Kg		102	70 - 131	0	20
1,4-Dichlorobenzene	50.0	52.3		ug/Kg		105	70 - 130	2	20
1,3-Dichloropropane	50.0	49.5		ug/Kg		99	70 - 140	3	20
1,1-Dichloropropene	50.0	51.8		ug/Kg		104	70 - 130	0	20
1,2-Dibromo-3-Chloropropane	50.0	52.9		ug/Kg		106	60 - 145	6	20
Ethylene Dibromide	50.0	53.7		ug/Kg		107	70 - 140	2	20
Dibromomethane	50.0	49.6		ug/Kg		99	70 - 139	4	20
Dichlorodifluoromethane	50.0	45.7		ug/Kg		91	37 - 158	7	20
1,1-Dichloroethane	50.0	47.2		ug/Kg		94	70 - 130	0	20
1,2-Dichloroethane	50.0	45.3		ug/Kg		91	70 - 130	2	20
1,1-Dichloroethene	50.0	44.1		ug/Kg		88	76 - 122	2	20
cis-1,2-Dichloroethene	50.0	46.0		ug/Kg		92	70 - 138	1	20
trans-1,2-Dichloroethene	50.0	49.8		ug/Kg		100	67 - 130	0	20
1,2-Dichloropropane	50.0	48.6		ug/Kg		97	73 - 127	1	20
cis-1,3-Dichloropropene	50.0	54.8		ug/Kg		110	68 - 147	1	20
trans-1,3-Dichloropropene	50.0	59.5		ug/Kg		119	70 - 136	3	20
Ethylbenzene	50.0	48.4		ug/Kg		97	80 - 137	2	20
Hexachlorobutadiene	50.0	52.8		ug/Kg		106	70 - 132	2	20
2-Hexanone	250	217		ug/Kg		87	44 - 133	10	20
Isopropylbenzene	50.0	49.7		ug/Kg		99	88 - 128	2	20
4-Isopropyltoluene	50.0	50.1		ug/Kg		100	70 - 133	2	20
Methylene Chloride	50.0	48.3		ug/Kg		97	70 - 134	1	20
4-Methyl-2-pentanone (MIBK)	250	229		ug/Kg		92	60 - 160	10	20
Naphthalene	50.0	57.8		ug/Kg		116	60 - 147	1	20
N-Propylbenzene	50.0	50.3		ug/Kg		101	70 - 130	3	20
Styrene	50.0	53.0		ug/Kg		106	70 - 130	1	20
1,1,1,2-Tetrachloroethane	50.0	50.8		ug/Kg		102	70 - 130	0	20
1,1,2,2-Tetrachloroethane	50.0	49.2		ug/Kg		98	70 - 146	4	20
Tetrachloroethene	50.0	53.2		ug/Kg		106	70 - 132	1	20
Toluene	50.0	48.4		ug/Kg		97	80 - 128	1	20
1,2,3-Trichlorobenzene	50.0	57.1		ug/Kg		114	60 - 140	3	20
1,2,4-Trichlorobenzene	50.0	56.3		ug/Kg		113	60 - 140	2	20
1,1,1-Trichloroethane	50.0	47.6		ug/Kg		95	70 - 130	1	20
1,1,2-Trichloroethane	50.0	51.7		ug/Kg		103	70 - 130	2	20
Trichloroethene	50.0	51.8		ug/Kg		104	70 - 133	1	20
Trichlorofluoromethane	50.0	52.0		ug/Kg		104	60 - 140	3	20
1,2,3-Trichloropropane	50.0	51.5		ug/Kg		103	70 - 146	3	20
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	46.3		ug/Kg		93	60 - 140	4	20
1,2,4-Trimethylbenzene	50.0	51.3		ug/Kg		103	70 - 130	2	20
1,3,5-Trimethylbenzene	50.0	51.7		ug/Kg		103	70 - 131	2	20
Vinyl acetate	50.0	56.5		ug/Kg		113	38 - 176	6	20
Vinyl chloride	50.0	42.0		ug/Kg		84	58 - 125	7	20
m-Xylene & p-Xylene	50.0	49.5		ug/Kg		99	70 - 146	2	20
o-Xylene	50.0	49.2		ug/Kg		98	70 - 140	1	20
2,2-Dichloropropane	50.0	50.6		ug/Kg		101	70 - 162	2	20

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

Lab Sample ID: LCSD 720-160417/7
Matrix: Solid
Analysis Batch: 160417

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

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*90*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*88*		*60 - 140*
Toluene-d8 (Surr)	*100*		*58 - 140*

Lab Sample ID: LCSD 720-160417/9
Matrix: Solid
Analysis Batch: 160417

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C5-C12			1000	939		ug/Kg		94	61 - 128	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*92*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*93*		*60 - 140*
Toluene-d8 (Surr)	*100*		*58 - 140*

Lab Sample ID: 720-57733-A-11-D MS
Matrix: Solid
Analysis Batch: 160417

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 160465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	ND		45.8	57.2		ug/Kg		125	69 - 130
Acetone	76		229	453	F1	ug/Kg		165	37 - 150
Benzene	ND		45.8	46.8		ug/Kg		102	70 - 130
Dichlorobromomethane	ND		45.8	46.1		ug/Kg		101	64 - 135
Bromobenzene	ND	*	45.8	64.6	F1 *	ug/Kg		141	70 - 130
Chlorobromomethane	ND		45.8	52.1		ug/Kg		114	65 - 130
Bromoform	ND		45.8	51.2		ug/Kg		112	58 - 132
Bromomethane	ND		45.8	47.2		ug/Kg		103	56 - 130
2-Butanone (MEK)	ND		229	246		ug/Kg		107	41 - 150
n-Butylbenzene	1.2	J *	45.8	35.9	*	ug/Kg		76	60 - 145
sec-Butylbenzene	ND	*	45.8	46.4	*	ug/Kg		101	64 - 137
tert-Butylbenzene	ND	*	45.8	54.2	*	ug/Kg		118	63 - 134
Carbon disulfide	ND		45.8	37.8		ug/Kg		83	10 - 150
Carbon tetrachloride	ND		45.8	42.0		ug/Kg		92	54 - 130
Chlorobenzene	ND		45.8	44.6		ug/Kg		97	70 - 130
Chloroethane	ND		45.8	46.4		ug/Kg		101	61 - 130
Chloroform	ND		45.8	47.9		ug/Kg		105	67 - 130
Chloromethane	ND		45.8	40.9		ug/Kg		89	50 - 131
2-Chlorotoluene	ND	*	45.8	54.9	*	ug/Kg		120	70 - 130
4-Chlorotoluene	ND	*	45.8	53.1	*	ug/Kg		116	70 - 130
Chlorodibromomethane	ND		45.8	45.4		ug/Kg		99	60 - 141
1,2-Dichlorobenzene	ND	*	45.8	43.1	*	ug/Kg		94	70 - 130
1,3-Dichlorobenzene	ND	*	45.8	44.7	*	ug/Kg		98	70 - 130
1,4-Dichlorobenzene	ND	*	45.8	46.0	*	ug/Kg		100	70 - 130
1,3-Dichloropropane	ND		45.8	47.4		ug/Kg		104	70 - 130
1,1-Dichloropropene	ND		45.8	43.7		ug/Kg		95	67 - 130

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

Lab Sample ID: 720-57733-A-11-D MS
Matrix: Solid
Analysis Batch: 160417

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 160465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	ND	*	45.8	69.8	F1 *	ug/Kg		152	57 - 130
Ethylene Dibromide	ND		45.8	47.0		ug/Kg		103	66 - 135
Dibromomethane	ND		45.8	49.9		ug/Kg		109	65 - 131
Dichlorodifluoromethane	ND		45.8	42.4		ug/Kg		93	38 - 130
1,1-Dichloroethane	ND		45.8	48.7		ug/Kg		106	67 - 130
1,2-Dichloroethane	ND		45.8	47.6		ug/Kg		104	70 - 130
1,1-Dichloroethene	ND		45.8	41.7		ug/Kg		91	64 - 130
cis-1,2-Dichloroethene	ND		45.8	45.7		ug/Kg		100	68 - 131
trans-1,2-Dichloroethene	ND		45.8	48.0		ug/Kg		105	70 - 130
1,2-Dichloropropane	ND		45.8	48.6		ug/Kg		106	65 - 133
cis-1,3-Dichloropropene	ND		45.8	47.2		ug/Kg		103	46 - 139
trans-1,3-Dichloropropene	ND		45.8	50.3		ug/Kg		110	55 - 131
Ethylbenzene	ND		45.8	43.0		ug/Kg		94	65 - 130
Hexachlorobutadiene	ND	*	45.8	18.8	F1 *	ug/Kg		41	58 - 132
2-Hexanone	ND		229	195		ug/Kg		85	44 - 150
Isopropylbenzene	ND		45.8	37.5		ug/Kg		82	65 - 130
4-Isopropyltoluene	4.8	*	45.8	46.0	*	ug/Kg		90	69 - 134
Methylene Chloride	ND		45.8	52.9		ug/Kg		115	63 - 130
4-Methyl-2-pentanone (MIBK)	ND		229	243		ug/Kg		106	51 - 140
Naphthalene	3.7	J *	45.8	36.6	*	ug/Kg		72	45 - 146
N-Propylbenzene	0.74	J *	45.8	56.9	*	ug/Kg		123	70 - 130
Styrene	ND		45.8	41.7		ug/Kg		91	58 - 135
1,1,1,2-Tetrachloroethane	ND		45.8	51.6		ug/Kg		113	64 - 133
1,1,2,2-Tetrachloroethane	ND	*	45.8	82.2	F1 *	ug/Kg		179	70 - 131
Tetrachloroethene	ND		45.8	35.5		ug/Kg		78	67 - 130
Toluene	1.4	J	45.8	53.9		ug/Kg		115	70 - 130
1,2,3-Trichlorobenzene	1.7	J *	45.8	21.2	F1 *	ug/Kg		43	58 - 138
1,2,4-Trichlorobenzene	1.0	J *	45.8	23.5	*	ug/Kg		49	49 - 144
1,1,1-Trichloroethane	ND		45.8	43.0		ug/Kg		94	57 - 133
1,1,2-Trichloroethane	ND		45.8	48.6		ug/Kg		106	68 - 132
Trichloroethene	ND		45.8	43.6		ug/Kg		95	66 - 130
Trichlorofluoromethane	ND		45.8	47.6		ug/Kg		104	61 - 130
1,2,3-Trichloropropane	ND	*	45.8	95.9	F1 *	ug/Kg		210	62 - 150
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		45.8	38.6		ug/Kg		84	52 - 130
1,2,4-Trimethylbenzene	ND	*	45.8	53.5	*	ug/Kg		117	64 - 140
1,3,5-Trimethylbenzene	ND	*	45.8	56.1	*	ug/Kg		123	67 - 134
Vinyl acetate	ND		45.8	1.69	J F1	ug/Kg		4	52 - 150
Vinyl chloride	ND		45.8	41.1		ug/Kg		90	62 - 130
m-Xylene & p-Xylene	ND		45.8	42.2		ug/Kg		92	70 - 130
o-Xylene	ND		45.8	43.0		ug/Kg		94	68 - 130
2,2-Dichloropropane	ND		45.8	45.3		ug/Kg		99	63 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene	*75*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*101*		*60 - 140*
Toluene-d8 (Surr)	*89*		*58 - 140*

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

Lab Sample ID: 720-57733-A-11-E MSD
Matrix: Solid
Analysis Batch: 160417

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 160465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether	ND		46.6	58.2		ug/Kg		125	69 - 130	2	20
Acetone	76		233	451	F1	ug/Kg		161	37 - 150	0	20
Benzene	ND		46.6	45.6		ug/Kg		98	70 - 130	3	20
Dichlorobromomethane	ND		46.6	47.0		ug/Kg		101	64 - 135	2	20
Bromobenzene	ND	*	46.6	61.8	F1	ug/Kg		133	70 - 130	4	20
Chlorobromomethane	ND		46.6	52.8		ug/Kg		113	65 - 130	1	20
Bromoform	ND		46.6	53.8		ug/Kg		116	58 - 132	5	20
Bromomethane	ND		46.6	45.5		ug/Kg		98	56 - 130	4	20
2-Butanone (MEK)	ND		233	257		ug/Kg		110	41 - 150	4	20
n-Butylbenzene	1.2	J *	46.6	35.1		ug/Kg		73	60 - 145	2	20
sec-Butylbenzene	ND	*	46.6	43.1		ug/Kg		93	64 - 137	7	20
tert-Butylbenzene	ND	*	46.6	49.1		ug/Kg		105	63 - 134	10	20
Carbon disulfide	ND		46.6	36.4		ug/Kg		78	10 - 150	4	20
Carbon tetrachloride	ND		46.6	40.5		ug/Kg		87	54 - 130	4	20
Chlorobenzene	ND		46.6	43.8		ug/Kg		94	70 - 130	2	20
Chloroethane	ND		46.6	44.5		ug/Kg		96	61 - 130	4	20
Chloroform	ND		46.6	47.1		ug/Kg		101	67 - 130	2	20
Chloromethane	ND		46.6	39.0		ug/Kg		84	50 - 131	5	20
2-Chlorotoluene	ND	*	46.6	50.6		ug/Kg		109	70 - 130	8	20
4-Chlorotoluene	ND	*	46.6	50.4		ug/Kg		108	70 - 130	5	20
Chlorodibromomethane	ND		46.6	48.5		ug/Kg		104	60 - 141	6	20
1,2-Dichlorobenzene	ND	*	46.6	42.2		ug/Kg		91	70 - 130	2	20
1,3-Dichlorobenzene	ND	*	46.6	42.7		ug/Kg		92	70 - 130	5	20
1,4-Dichlorobenzene	ND	*	46.6	44.5		ug/Kg		96	70 - 130	3	20
1,3-Dichloropropane	ND		46.6	49.9		ug/Kg		107	70 - 130	5	20
1,1-Dichloropropene	ND		46.6	42.2		ug/Kg		91	67 - 130	4	20
1,2-Dibromo-3-Chloropropane	ND	*	46.6	70.7	F1	ug/Kg		152	57 - 130	1	20
Ethylene Dibromide	ND		46.6	50.9		ug/Kg		109	66 - 135	8	20
Dibromomethane	ND		46.6	51.4		ug/Kg		110	65 - 131	3	20
Dichlorodifluoromethane	ND		46.6	41.5		ug/Kg		89	38 - 130	2	20
1,1-Dichloroethane	ND		46.6	47.2		ug/Kg		101	67 - 130	3	20
1,2-Dichloroethane	ND		46.6	48.6		ug/Kg		104	70 - 130	2	20
1,1-Dichloroethene	ND		46.6	40.1		ug/Kg		86	64 - 130	4	20
cis-1,2-Dichloroethene	ND		46.6	44.6		ug/Kg		96	68 - 131	2	20
trans-1,2-Dichloroethene	ND		46.6	46.0		ug/Kg		99	70 - 130	4	20
1,2-Dichloropropane	ND		46.6	48.1		ug/Kg		103	65 - 133	1	20
cis-1,3-Dichloropropene	ND		46.6	48.2		ug/Kg		104	46 - 139	2	20
trans-1,3-Dichloropropene	ND		46.6	53.0		ug/Kg		114	55 - 131	5	20
Ethylbenzene	ND		46.6	41.2		ug/Kg		89	65 - 130	4	20
Hexachlorobutadiene	ND	*	46.6	20.1	F1	ug/Kg		43	58 - 132	7	20
2-Hexanone	ND		233	209		ug/Kg		90	44 - 150	7	20
Isopropylbenzene	ND		46.6	36.6		ug/Kg		79	65 - 130	3	20
4-Isopropyltoluene	4.8	*	46.6	43.7		ug/Kg		84	69 - 134	5	20
Methylene Chloride	ND		46.6	51.5		ug/Kg		111	63 - 130	3	20
4-Methyl-2-pentanone (MIBK)	ND		233	265		ug/Kg		114	51 - 140	8	20
Naphthalene	3.7	J *	46.6	34.9		ug/Kg		67	45 - 146	5	20
N-Propylbenzene	0.74	J *	46.6	51.9		ug/Kg		110	70 - 130	9	20
Styrene	ND		46.6	42.1		ug/Kg		90	58 - 135	1	20

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

Lab Sample ID: 720-57733-A-11-E MSD
Matrix: Solid
Analysis Batch: 160417

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 160465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		46.6	50.3		ug/Kg		108	64 - 133	3	20
1,1,2,2-Tetrachloroethane	ND	*	46.6	79.2	F1	ug/Kg		170	70 - 131	4	20
Tetrachloroethene	ND		46.6	35.6		ug/Kg		76	67 - 130	0	20
Toluene	1.4	J	46.6	51.4		ug/Kg		107	70 - 130	5	20
1,2,3-Trichlorobenzene	1.7	J *	46.6	23.5	F1	ug/Kg		47	58 - 138	10	20
1,2,4-Trichlorobenzene	1.0	J *	46.6	25.4		ug/Kg		52	49 - 144	8	20
1,1,1-Trichloroethane	ND		46.6	41.5		ug/Kg		89	57 - 133	4	20
1,1,2-Trichloroethane	ND		46.6	50.8		ug/Kg		109	68 - 132	5	20
Trichloroethene	ND		46.6	43.3		ug/Kg		93	66 - 130	1	20
Trichlorofluoromethane	ND		46.6	46.4		ug/Kg		100	61 - 130	2	20
1,2,3-Trichloropropane	ND	*	46.6	93.2	F1	ug/Kg		200	62 - 150	3	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		46.6	37.5		ug/Kg		81	52 - 130	3	20
1,2,4-Trimethylbenzene	ND	*	46.6	50.0		ug/Kg		107	64 - 140	7	20
1,3,5-Trimethylbenzene	ND	*	46.6	51.4		ug/Kg		110	67 - 134	9	20
Vinyl acetate	ND		46.6	2.81	J F1 F2	ug/Kg		6	52 - 150	50	20
Vinyl chloride	ND		46.6	38.3		ug/Kg		82	62 - 130	7	20
m-Xylene & p-Xylene	ND		46.6	41.1		ug/Kg		88	70 - 130	3	20
o-Xylene	ND		46.6	42.0		ug/Kg		90	68 - 130	2	20
2,2-Dichloropropane	ND		46.6	43.9		ug/Kg		94	63 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene	*79*		*45 - 131*
1,2-Dichloroethane-d4 (Surr)	*99*		*60 - 140*
Toluene-d8 (Surr)	*90*		*58 - 140*

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Lab Sample ID: MB 720-160638/1-A
Matrix: Solid
Analysis Batch: 160711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160638

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.067	0.0055	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Bis(2-chloroethyl)ether	ND		0.067	0.0070	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Chlorophenol	ND		0.067	0.0037	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
1,3-Dichlorobenzene	ND		0.067	0.0040	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
1,4-Dichlorobenzene	ND		0.067	0.0090	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzyl alcohol	ND		0.17	0.0052	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
1,2-Dichlorobenzene	ND		0.067	0.0047	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Methylphenol	ND		0.067	0.0050	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Methylphenol, 3 & 4	ND		0.067	0.0095	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
N-Nitrosodi-n-propylamine	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Hexachloroethane	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Nitrobenzene	ND		0.067	0.014	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Isophorone	ND		0.067	0.0047	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Nitrophenol	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4-Dimethylphenol	ND		0.067	0.0056	mg/Kg		06/04/14 16:52	06/05/14 22:48	1

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: MB 720-160638/1-A | **Client Sample ID: Method Blank**
Matrix: Solid | **Prep Type: Total/NA**
Analysis Batch: 160711 | **Prep Batch: 160638**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.17	0.0055	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4-Dichlorophenol	ND		0.33	0.0045	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
1,2,4-Trichlorobenzene	ND		0.067	0.0070	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Naphthalene	ND		0.067	0.0048	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Chloroaniline	ND		0.17	0.0044	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Hexachlorobutadiene	ND		0.067	0.0052	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Chloro-3-methylphenol	ND		0.17	0.0054	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Methylnaphthalene	ND		0.067	0.0062	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Hexachlorocyclopentadiene	ND		0.17	0.0043	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4,6-Trichlorophenol	ND		0.17	0.0098	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4,5-Trichlorophenol	ND		0.067	0.0042	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Chloronaphthalene	ND		0.067	0.0048	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Nitroaniline	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Dimethyl phthalate	ND		0.17	0.0058	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Acenaphthylene	ND		0.067	0.0056	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
3-Nitroaniline	ND		0.17	0.039	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Acenaphthene	ND		0.067	0.0038	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4-Dinitrophenol	ND		0.66	0.33	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Nitrophenol	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Dibenzofuran	ND		0.067	0.0053	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,4-Dinitrotoluene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2,6-Dinitrotoluene	ND		0.067	0.034	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Diethyl phthalate	ND		0.17	0.0047	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Chlorophenyl phenyl ether	ND		0.17	0.0059	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Fluorene	ND		0.067	0.0040	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Nitroaniline	ND		0.33	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
2-Methyl-4,6-dinitrophenol	ND		0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
N-Nitrosodiphenylamine	ND		0.067	0.0039	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
4-Bromophenyl phenyl ether	ND		0.17	0.0051	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Hexachlorobenzene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Pentachlorophenol	ND		0.33	0.016	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Phenanthrene	ND		0.067	0.0046	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Anthracene	ND		0.067	0.0043	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Di-n-butyl phthalate	ND		0.17	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Fluoranthene	ND		0.067	0.0073	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Pyrene	ND		0.067	0.0038	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Butyl benzyl phthalate	ND		0.17	0.0054	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
3,3'-Dichlorobenzidine	ND		0.17	0.010	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzo[a]anthracene	ND		0.33	0.018	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Bis(2-ethylhexyl) phthalate	0.0200	J	0.33	0.0066	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Chrysene	ND		0.067	0.033	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Di-n-octyl phthalate	ND		0.17	0.0048	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzo[b]fluoranthene	ND		0.067	0.0095	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzo[a]pyrene	ND		0.067	0.0066	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzo[k]fluoranthene	ND		0.067	0.014	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Indeno[1,2,3-cd]pyrene	ND		0.067	0.013	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Benzo[g,h,i]perylene	ND		0.067	0.020	mg/Kg		06/04/14 16:52	06/05/14 22:48	1

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: MB 720-160638/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzoic acid	0.102	J	0.33	0.034	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Azobenzene	ND		0.067	0.0058	mg/Kg		06/04/14 16:52	06/05/14 22:48	1
Dibenz(a,h)anthracene	ND		0.067	0.015	mg/Kg		06/04/14 16:52	06/05/14 22:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*83*		*21 - 98*	*06/04/14 16:52*	*06/05/14 22:48*	*1*
2-Fluorobiphenyl	*80*		*30 - 112*	*06/04/14 16:52*	*06/05/14 22:48*	*1*
Terphenyl-d14	*101*		*32 - 117*	*06/04/14 16:52*	*06/05/14 22:48*	*1*
2-Fluorophenol	*72*		*28 - 98*	*06/04/14 16:52*	*06/05/14 22:48*	*1*
Phenol-d5	*72*		*23 - 101*	*06/04/14 16:52*	*06/05/14 22:48*	*1*
2,4,6-Tribromophenol	*97*		*37 - 114*	*06/04/14 16:52*	*06/05/14 22:48*	*1*

Lab Sample ID: LCS 720-160638/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	1.33	1.08		mg/Kg		81	48 - 115
Bis(2-chloroethyl)ether	1.33	0.996		mg/Kg		75	45 - 115
2-Chlorophenol	1.33	1.13		mg/Kg		85	48 - 115
1,3-Dichlorobenzene	1.33	0.990		mg/Kg		74	41 - 115
1,4-Dichlorobenzene	1.33	1.04		mg/Kg		78	40 - 115
Benzyl alcohol	1.33	1.09		mg/Kg		82	51 - 115
1,2-Dichlorobenzene	1.33	1.03		mg/Kg		77	44 - 115
2-Methylphenol	1.33	1.10		mg/Kg		83	54 - 115
Methylphenol, 3 & 4	1.33	1.13		mg/Kg		85	42 - 115
N-Nitrosodi-n-propylamine	1.33	1.07		mg/Kg		80	46 - 115
Hexachloroethane	1.33	1.01		mg/Kg		76	44 - 115
Nitrobenzene	1.33	1.12		mg/Kg		84	48 - 115
Isophorone	1.33	1.05		mg/Kg		79	54 - 115
2-Nitrophenol	1.33	1.14		mg/Kg		86	48 - 115
2,4-Dimethylphenol	1.33	1.13		mg/Kg		85	52 - 115
Bis(2-chloroethoxy)methane	1.33	1.07		mg/Kg		81	46 - 115
2,4-Dichlorophenol	1.33	1.10		mg/Kg		83	49 - 100
1,2,4-Trichlorobenzene	1.33	1.03		mg/Kg		77	47 - 115
Naphthalene	1.33	1.07		mg/Kg		80	44 - 115
4-Chloroaniline	1.33	0.928		mg/Kg		70	30 - 115
Hexachlorobutadiene	1.33	1.06		mg/Kg		79	44 - 115
4-Chloro-3-methylphenol	1.33	1.13		mg/Kg		85	58 - 115
2-Methylnaphthalene	1.33	1.06		mg/Kg		80	49 - 115
Hexachlorocyclopentadiene	1.33	1.17		mg/Kg		88	42 - 132
2,4,6-Trichlorophenol	1.33	1.12		mg/Kg		85	45 - 115
2,4,5-Trichlorophenol	1.33	1.18		mg/Kg		88	48 - 115
2-Chloronaphthalene	1.33	1.11		mg/Kg		83	52 - 115
2-Nitroaniline	1.33	1.22		mg/Kg		91	54 - 115
Dimethyl phthalate	1.33	1.18		mg/Kg		89	64 - 119
Acenaphthylene	1.33	1.10		mg/Kg		83	61 - 129

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: LCS 720-160638/2-A
Matrix: Solid
Analysis Batch: 160711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160638

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
3-Nitroaniline	1.33	1.16		mg/Kg		87	50 - 115
Acenaphthene	1.33	1.16		mg/Kg		87	50 - 115
2,4-Dinitrophenol	2.66	1.74		mg/Kg		65	15 - 115
4-Nitrophenol	2.66	2.50		mg/Kg		94	54 - 125
Dibenzofuran	1.33	1.12		mg/Kg		84	55 - 115
2,4-Dinitrotoluene	1.33	1.25		mg/Kg		94	57 - 115
2,6-Dinitrotoluene	1.33	1.19		mg/Kg		89	54 - 119
Diethyl phthalate	1.33	1.19		mg/Kg		89	49 - 117
4-Chlorophenyl phenyl ether	1.33	1.14		mg/Kg		85	57 - 115
Fluorene	1.33	1.17		mg/Kg		88	54 - 115
4-Nitroaniline	1.33	1.13		mg/Kg		85	59 - 115
2-Methyl-4,6-dinitrophenol	2.66	2.34		mg/Kg		88	39 - 115
N-Nitrosodiphenylamine	1.33	1.18		mg/Kg		89	56 - 115
4-Bromophenyl phenyl ether	1.33	1.14		mg/Kg		86	53 - 115
Hexachlorobenzene	1.33	1.17		mg/Kg		88	55 - 115
Pentachlorophenol	2.66	2.52		mg/Kg		95	35 - 115
Phenanthrene	1.33	1.25		mg/Kg		94	54 - 115
Anthracene	1.33	1.22		mg/Kg		91	55 - 115
Di-n-butyl phthalate	1.33	1.19		mg/Kg		89	55 - 115
Fluoranthene	1.33	1.23		mg/Kg		93	52 - 130
Pyrene	1.33	1.28		mg/Kg		96	48 - 115
Butyl benzyl phthalate	1.33	1.27		mg/Kg		96	53 - 115
3,3'-Dichlorobenzidine	1.33	1.09		mg/Kg		82	42 - 115
Benzo[a]anthracene	1.33	1.26		mg/Kg		95	55 - 115
Bis(2-ethylhexyl) phthalate	1.33	1.35		mg/Kg		101	53 - 115
Chrysene	1.33	1.35		mg/Kg		101	58 - 115
Di-n-octyl phthalate	1.33	1.33		mg/Kg		100	53 - 115
Benzo[b]fluoranthene	1.33	1.16		mg/Kg		87	50 - 119
Benzo[a]pyrene	1.33	1.26		mg/Kg		94	57 - 122
Benzo[k]fluoranthene	1.33	1.29		mg/Kg		97	55 - 120
Indeno[1,2,3-cd]pyrene	1.33	1.25		mg/Kg		94	56 - 115
Benzo[g,h,i]perylene	1.33	1.25		mg/Kg		94	56 - 115
Benzoic acid	1.33	1.01		mg/Kg		76	10 - 115
Azobenzene	1.33	1.14		mg/Kg		86	52 - 115
Dibenz(a,h)anthracene	1.33	1.26		mg/Kg		95	57 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*86*		*21 - 98*
2-Fluorobiphenyl	*81*		*30 - 112*
Terphenyl-d14	*96*		*32 - 117*
2-Fluorophenol	*80*		*28 - 98*
Phenol-d5	*81*		*23 - 101*
2,4,6-Tribromophenol	*101*		*37 - 114*

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: LCSD 720-160638/3-A
Matrix: Solid
Analysis Batch: 160711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160638

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	1.33	1.05		mg/Kg		79	48 - 115	3	35
Bis(2-chloroethyl)ether	1.33	0.983		mg/Kg		74	45 - 115	1	35
2-Chlorophenol	1.33	1.12		mg/Kg		84	48 - 115	1	35
1,3-Dichlorobenzene	1.33	1.00		mg/Kg		75	41 - 115	1	35
1,4-Dichlorobenzene	1.33	0.996		mg/Kg		75	40 - 115	4	35
Benzyl alcohol	1.33	1.06		mg/Kg		80	51 - 115	2	35
1,2-Dichlorobenzene	1.33	1.01		mg/Kg		76	44 - 115	2	35
2-Methylphenol	1.33	1.08		mg/Kg		81	54 - 115	2	35
Methylphenol, 3 & 4	1.33	1.13		mg/Kg		85	42 - 115	0	35
N-Nitrosodi-n-propylamine	1.33	1.06		mg/Kg		80	46 - 115	1	35
Hexachloroethane	1.33	1.01		mg/Kg		76	44 - 115	0	35
Nitrobenzene	1.33	1.10		mg/Kg		82	48 - 115	2	35
Isophorone	1.33	1.05		mg/Kg		79	54 - 115	0	35
2-Nitrophenol	1.33	1.14		mg/Kg		86	48 - 115	1	35
2,4-Dimethylphenol	1.33	1.13		mg/Kg		85	52 - 115	0	35
Bis(2-chloroethoxy)methane	1.33	1.05		mg/Kg		79	46 - 115	2	35
2,4-Dichlorophenol	1.33	1.09		mg/Kg		82	49 - 100	2	35
1,2,4-Trichlorobenzene	1.33	1.00		mg/Kg		76	47 - 115	2	35
Naphthalene	1.33	1.04		mg/Kg		78	44 - 115	2	35
4-Chloroaniline	1.33	0.942		mg/Kg		71	30 - 115	2	35
Hexachlorobutadiene	1.33	1.03		mg/Kg		78	44 - 115	2	35
4-Chloro-3-methylphenol	1.33	1.12		mg/Kg		84	58 - 115	1	35
2-Methylnaphthalene	1.33	1.02		mg/Kg		77	49 - 115	4	35
Hexachlorocyclopentadiene	1.33	1.14		mg/Kg		86	42 - 132	3	35
2,4,6-Trichlorophenol	1.33	1.11		mg/Kg		83	45 - 115	2	35
2,4,5-Trichlorophenol	1.33	1.18		mg/Kg		89	48 - 115	0	35
2-Chloronaphthalene	1.33	1.07		mg/Kg		80	52 - 115	3	35
2-Nitroaniline	1.33	1.20		mg/Kg		90	54 - 115	1	35
Dimethyl phthalate	1.33	1.17		mg/Kg		88	64 - 119	1	35
Acenaphthylene	1.33	1.08		mg/Kg		81	61 - 129	2	35
3-Nitroaniline	1.33	1.14		mg/Kg		85	50 - 115	2	35
Acenaphthene	1.33	1.12		mg/Kg		84	50 - 115	4	35
2,4-Dinitrophenol	2.66	1.78		mg/Kg		67	15 - 115	2	35
4-Nitrophenol	2.66	2.50		mg/Kg		94	54 - 125	0	35
Dibenzofuran	1.33	1.09		mg/Kg		82	55 - 115	2	35
2,4-Dinitrotoluene	1.33	1.23		mg/Kg		93	57 - 115	1	35
2,6-Dinitrotoluene	1.33	1.19		mg/Kg		89	54 - 119	0	35
Diethyl phthalate	1.33	1.18		mg/Kg		89	49 - 117	1	35
4-Chlorophenyl phenyl ether	1.33	1.12		mg/Kg		84	57 - 115	1	35
Fluorene	1.33	1.15		mg/Kg		86	54 - 115	2	35
4-Nitroaniline	1.33	1.12		mg/Kg		84	59 - 115	1	35
2-Methyl-4,6-dinitrophenol	2.66	2.34		mg/Kg		88	39 - 115	0	35
N-Nitrosodiphenylamine	1.33	1.17		mg/Kg		88	56 - 115	1	35
4-Bromophenyl phenyl ether	1.33	1.14		mg/Kg		86	53 - 115	0	35
Hexachlorobenzene	1.33	1.19		mg/Kg		89	55 - 115	2	35
Pentachlorophenol	2.66	2.53		mg/Kg		95	35 - 115	0	35
Phenanthrene	1.33	1.23		mg/Kg		93	54 - 115	1	35

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: LCSD 720-160638/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	1.33	1.23		mg/Kg		92	55 - 115	1	35
Di-n-butyl phthalate	1.33	1.18		mg/Kg		89	55 - 115	1	35
Fluoranthene	1.33	1.23		mg/Kg		93	52 - 130	0	35
Pyrene	1.33	1.29		mg/Kg		97	48 - 115	1	35
Butyl benzyl phthalate	1.33	1.28		mg/Kg		96	53 - 115	0	35
3,3'-Dichlorobenzidine	1.33	1.09		mg/Kg		82	42 - 115	0	35
Benzo[a]anthracene	1.33	1.26		mg/Kg		94	55 - 115	0	35
Bis(2-ethylhexyl) phthalate	1.33	1.33		mg/Kg		100	53 - 115	1	35
Chrysene	1.33	1.35		mg/Kg		101	58 - 115	0	35
Di-n-octyl phthalate	1.33	1.33		mg/Kg		100	53 - 115	1	35
Benzo[b]fluoranthene	1.33	1.20		mg/Kg		91	50 - 119	4	35
Benzo[a]pyrene	1.33	1.27		mg/Kg		95	57 - 122	1	35
Benzo[k]fluoranthene	1.33	1.26		mg/Kg		95	55 - 120	2	35
Indeno[1,2,3-cd]pyrene	1.33	1.24		mg/Kg		93	56 - 115	1	35
Benzo[g,h,i]perylene	1.33	1.23		mg/Kg		92	56 - 115	2	35
Benzoic acid	1.33	1.03		mg/Kg		78	10 - 115	2	35
Azobenzene	1.33	1.12		mg/Kg		85	52 - 115	2	35
Dibenz(a,h)anthracene	1.33	1.24		mg/Kg		93	57 - 121	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*84*		*21 - 98*
2-Fluorobiphenyl	*79*		*30 - 112*
Terphenyl-d14	*97*		*32 - 117*
2-Fluorophenol	*78*		*28 - 98*
Phenol-d5	*80*		*23 - 101*
2,4,6-Tribromophenol	*99*		*37 - 114*

Lab Sample ID: 720-57739-D-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	ND		1.32	1.05		mg/Kg		79	23 - 115
Bis(2-chloroethyl)ether	ND		1.32	1.01		mg/Kg		77	27 - 115
2-Chlorophenol	ND		1.32	1.06		mg/Kg		80	16 - 115
1,3-Dichlorobenzene	ND		1.32	0.930		mg/Kg		71	22 - 115
1,4-Dichlorobenzene	ND		1.32	0.986		mg/Kg		75	21 - 115
Benzyl alcohol	ND		1.32	1.03		mg/Kg		78	28 - 115
1,2-Dichlorobenzene	ND		1.32	0.973		mg/Kg		74	25 - 115
2-Methylphenol	ND		1.32	1.08		mg/Kg		82	32 - 115
Methylphenol, 3 & 4	ND		1.32	1.10		mg/Kg		84	28 - 115
N-Nitrosodi-n-propylamine	ND		1.32	1.07		mg/Kg		81	27 - 115
Hexachloroethane	ND		1.32	0.778		mg/Kg		59	19 - 115
Nitrobenzene	ND		1.32	1.10		mg/Kg		84	30 - 115
Isophorone	ND		1.32	1.04		mg/Kg		79	36 - 115
2-Nitrophenol	ND		1.32	0.850		mg/Kg		65	11 - 116
2,4-Dimethylphenol	ND		1.32	0.959		mg/Kg		73	36 - 115

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: 720-57739-D-1-E MS | **Client Sample ID: Matrix Spike**
Matrix: Solid | **Prep Type: Total/NA**
Analysis Batch: 160711 | **Prep Batch: 160638**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-chloroethoxy)methane	ND		1.32	1.05		mg/Kg		80	28 - 115
2,4-Dichlorophenol	ND		1.32	1.07	J	mg/Kg		81	17 - 115
1,2,4-Trichlorobenzene	ND		1.32	0.978		mg/Kg		74	29 - 115
Naphthalene	ND		1.32	1.09		mg/Kg		82	22 - 115
4-Chloroaniline	ND		1.32	0.882		mg/Kg		67	7 - 115
Hexachlorobutadiene	ND		1.32	0.952		mg/Kg		72	26 - 115
4-Chloro-3-methylphenol	ND		1.32	1.16		mg/Kg		88	42 - 115
2-Methylnaphthalene	ND		1.32	1.07		mg/Kg		81	28 - 115
Hexachlorocyclopentadiene	ND		1.32	0.117	J F1	mg/Kg		9	15 - 115
2,4,6-Trichlorophenol	ND		1.32	1.08		mg/Kg		82	25 - 115
2,4,5-Trichlorophenol	ND		1.32	1.12		mg/Kg		85	38 - 115
2-Chloronaphthalene	ND		1.32	1.09		mg/Kg		83	38 - 115
2-Nitroaniline	ND		1.32	1.16	J	mg/Kg		88	43 - 115
Dimethyl phthalate	ND		1.32	1.17		mg/Kg		89	55 - 116
Acenaphthylene	ND		1.32	1.05		mg/Kg		80	49 - 120
3-Nitroaniline	ND		1.32	1.23		mg/Kg		93	39 - 115
Acenaphthene	ND		1.32	1.14		mg/Kg		86	42 - 115
2,4-Dinitrophenol	ND		2.63	ND	F1	mg/Kg		0	13 - 122
4-Nitrophenol	ND		2.63	2.50		mg/Kg		95	25 - 147
Dibenzofuran	ND		1.32	1.04		mg/Kg		79	43 - 115
2,4-Dinitrotoluene	ND		1.32	0.890		mg/Kg		68	47 - 115
2,6-Dinitrotoluene	ND		1.32	0.972		mg/Kg		74	55 - 115
Diethyl phthalate	ND		1.32	1.12		mg/Kg		85	48 - 115
4-Chlorophenyl phenyl ether	ND		1.32	1.17		mg/Kg		89	44 - 115
Fluorene	ND		1.32	1.18		mg/Kg		89	41 - 115
4-Nitroaniline	ND		1.32	1.32	J	mg/Kg		100	47 - 120
2-Methyl-4,6-dinitrophenol	ND		2.63	ND	F1	mg/Kg		0	19 - 132
N-Nitrosodiphenylamine	ND		1.32	1.18		mg/Kg		89	43 - 115
4-Bromophenyl phenyl ether	ND		1.32	1.08		mg/Kg		82	45 - 115
Hexachlorobenzene	ND		1.32	1.06		mg/Kg		81	48 - 115
Pentachlorophenol	ND		2.63	1.36	J	mg/Kg		52	7 - 132
Phenanthrene	ND		1.32	1.23		mg/Kg		94	38 - 115
Anthracene	0.012	J	1.32	1.12		mg/Kg		84	47 - 115
Di-n-butyl phthalate	ND		1.32	1.08		mg/Kg		82	46 - 115
Fluoranthene	0.017	J	1.32	1.20		mg/Kg		90	40 - 115
Pyrene	0.019	J	1.32	1.15		mg/Kg		86	35 - 115
Butyl benzyl phthalate	ND		1.32	1.21		mg/Kg		92	40 - 115
3,3'-Dichlorobenzidine	ND		1.32	0.851		mg/Kg		65	17 - 115
Benzo[a]anthracene	ND		1.32	1.22	J	mg/Kg		93	42 - 115
Bis(2-ethylhexyl) phthalate	0.043	J B	1.32	1.19	J	mg/Kg		87	42 - 115
Chrysene	ND		1.32	1.22		mg/Kg		93	37 - 115
Di-n-octyl phthalate	ND		1.32	1.38		mg/Kg		105	46 - 115
Benzo[b]fluoranthene	ND		1.32	1.02		mg/Kg		78	43 - 115
Benzo[a]pyrene	0.015	J	1.32	1.14		mg/Kg		86	48 - 115
Benzo[k]fluoranthene	ND		1.32	1.30		mg/Kg		98	39 - 115
Indeno[1,2,3-cd]pyrene	ND		1.32	0.948		mg/Kg		72	50 - 115
Benzo[g,h,i]perylene	ND		1.32	0.923		mg/Kg		70	43 - 115

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: 720-57739-D-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzoic acid	0.20	J B	1.32	0.844	J	mg/Kg		49	0 - 115
Azobenzene	ND		1.32	1.10		mg/Kg		83	48 - 115
Dibenz(a,h)anthracene	ND		1.32	0.963		mg/Kg		73	49 - 115

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*82*		*21 - 98*
2-Fluorobiphenyl	*84*		*30 - 112*
Terphenyl-d14	*91*		*32 - 117*
2-Fluorophenol	*75*		*28 - 98*
Phenol-d5	*76*		*23 - 101*
2,4,6-Tribromophenol	*89*		*37 - 114*

Lab Sample ID: 720-57739-D-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160711 — **Prep Batch: 160638**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	ND		1.33	1.13		mg/Kg		85	23 - 115	7	35
Bis(2-chloroethyl)ether	ND		1.33	0.993		mg/Kg		75	27 - 115	2	35
2-Chlorophenol	ND		1.33	1.08		mg/Kg		81	16 - 115	2	35
1,3-Dichlorobenzene	ND		1.33	0.901		mg/Kg		68	22 - 115	3	35
1,4-Dichlorobenzene	ND		1.33	0.961		mg/Kg		72	21 - 115	3	35
Benzyl alcohol	ND		1.33	1.02		mg/Kg		77	28 - 115	0	35
1,2-Dichlorobenzene	ND		1.33	0.950		mg/Kg		72	25 - 115	2	35
2-Methylphenol	ND		1.33	1.10		mg/Kg		83	32 - 115	2	35
Methylphenol, 3 & 4	ND		1.33	1.14		mg/Kg		86	28 - 115	3	35
N-Nitrosodi-n-propylamine	ND		1.33	1.05		mg/Kg		79	27 - 115	2	35
Hexachloroethane	ND		1.33	0.745		mg/Kg		56	19 - 115	4	35
Nitrobenzene	ND		1.33	1.09		mg/Kg		82	30 - 115	1	35
Isophorone	ND		1.33	1.05		mg/Kg		79	36 - 115	1	35
2-Nitrophenol	ND		1.33	0.839		mg/Kg		63	11 - 116	1	35
2,4-Dimethylphenol	ND		1.33	0.983		mg/Kg		74	36 - 115	2	35
Bis(2-chloroethoxy)methane	ND		1.33	1.02		mg/Kg		77	28 - 115	3	35
2,4-Dichlorophenol	ND		1.33	1.09	J	mg/Kg		82	17 - 115	2	35
1,2,4-Trichlorobenzene	ND		1.33	0.972		mg/Kg		73	29 - 115	1	35
Naphthalene	ND		1.33	1.07		mg/Kg		81	22 - 115	1	35
4-Chloroaniline	ND		1.33	0.850		mg/Kg		64	7 - 115	4	35
Hexachlorobutadiene	ND		1.33	0.938		mg/Kg		71	26 - 115	2	35
4-Chloro-3-methylphenol	ND		1.33	1.17		mg/Kg		88	42 - 115	1	35
2-Methylnaphthalene	ND		1.33	1.07		mg/Kg		80	28 - 115	0	35
Hexachlorocyclopentadiene	ND		1.33	0.110	J F1	mg/Kg		8	15 - 115	6	35
2,4,6-Trichlorophenol	ND		1.33	1.09		mg/Kg		82	25 - 115	1	35
2,4,5-Trichlorophenol	ND		1.33	1.14		mg/Kg		86	38 - 115	1	35
2-Chloronaphthalene	ND		1.33	1.11		mg/Kg		84	38 - 115	2	35
2-Nitroaniline	ND		1.33	1.19	J	mg/Kg		89	43 - 115	2	35
Dimethyl phthalate	ND		1.33	1.19		mg/Kg		90	55 - 116	2	35
Acenaphthylene	ND		1.33	1.06		mg/Kg		80	49 - 120	1	35

Method: 8270C - Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Continued)

Lab Sample ID: 720-57739-D-1-F MSD
Matrix: Solid
Analysis Batch: 160711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 160638

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
3-Nitroaniline	ND		1.33	1.27		mg/Kg		95	39 - 115	3	35
Acenaphthene	ND		1.33	1.16		mg/Kg		87	42 - 115	2	35
2,4-Dinitrophenol	ND		2.65	ND	F1	mg/Kg		0	13 - 122	NC	35
4-Nitrophenol	ND		2.65	2.39		mg/Kg		90	25 - 147	5	35
Dibenzofuran	ND		1.33	1.06		mg/Kg		80	43 - 115	1	35
2,4-Dinitrotoluene	ND		1.33	0.900		mg/Kg		68	47 - 115	1	35
2,6-Dinitrotoluene	ND		1.33	0.959		mg/Kg		72	55 - 115	1	35
Diethyl phthalate	ND		1.33	1.14		mg/Kg		86	48 - 115	2	35
4-Chlorophenyl phenyl ether	ND		1.33	1.16		mg/Kg		88	44 - 115	0	35
Fluorene	ND		1.33	1.19		mg/Kg		90	41 - 115	1	35
4-Nitroaniline	ND		1.33	1.29	J	mg/Kg		97	47 - 120	2	35
2-Methyl-4,6-dinitrophenol	ND		2.65	ND	F1	mg/Kg		0	19 - 132	NC	35
N-Nitrosodiphenylamine	ND		1.33	1.20		mg/Kg		91	43 - 115	2	35
4-Bromophenyl phenyl ether	ND		1.33	1.09		mg/Kg		82	45 - 115	2	35
Hexachlorobenzene	ND		1.33	1.08		mg/Kg		81	48 - 115	2	35
Pentachlorophenol	ND		2.65	1.51	J	mg/Kg		57	7 - 132	10	35
Phenanthrene	ND		1.33	1.26		mg/Kg		95	38 - 115	2	35
Anthracene	0.012	J	1.33	1.14		mg/Kg		85	47 - 115	2	35
Di-n-butyl phthalate	ND		1.33	1.10		mg/Kg		83	46 - 115	2	35
Fluoranthene	0.017	J	1.33	1.25		mg/Kg		93	40 - 115	4	35
Pyrene	0.019	J	1.33	1.18		mg/Kg		88	35 - 115	3	35
Butyl benzyl phthalate	ND		1.33	1.26		mg/Kg		95	40 - 115	4	35
3,3'-Dichlorobenzidine	ND		1.33	0.789	J	mg/Kg		59	17 - 115	8	35
Benzo[a]anthracene	ND		1.33	1.23	J	mg/Kg		93	42 - 115	1	35
Bis(2-ethylhexyl) phthalate	0.043	J B	1.33	1.21	J	mg/Kg		88	42 - 115	2	35
Chrysene	ND		1.33	1.24		mg/Kg		94	37 - 115	2	35
Di-n-octyl phthalate	ND		1.33	1.38		mg/Kg		104	46 - 115	0	35
Benzo[b]fluoranthene	ND		1.33	1.12		mg/Kg		85	43 - 115	9	35
Benzo[a]pyrene	0.015	J	1.33	1.16		mg/Kg		86	48 - 115	1	35
Benzo[k]fluoranthene	ND		1.33	1.24		mg/Kg		93	39 - 115	5	35
Indeno[1,2,3-cd]pyrene	ND		1.33	0.918		mg/Kg		69	50 - 115	3	35
Benzo[g,h,i]perylene	ND		1.33	0.899		mg/Kg		68	43 - 115	3	35
Benzoic acid	0.20	J B	1.33	0.940	J	mg/Kg		55	0 - 115	11	35
Azobenzene	ND		1.33	1.13		mg/Kg		85	48 - 115	3	35
Dibenz(a,h)anthracene	ND		1.33	0.933		mg/Kg		70	49 - 115	3	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*80*		*21 - 98*
2-Fluorobiphenyl	*84*		*30 - 112*
Terphenyl-d14	*93*		*32 - 117*
2-Fluorophenol	*75*		*28 - 98*
Phenol-d5	*77*		*23 - 101*
2,4,6-Tribromophenol	*90*		*37 - 114*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 720-160549/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160580 — **Prep Batch: 160549**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.818	J	0.99	0.34	mg/Kg		06/03/14 15:01	06/04/14 13:33	1
Motor Oil Range Organics [C24-C36]	1.20	J	50	0.57	mg/Kg		06/03/14 15:01	06/04/14 13:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
p-Terphenyl	*88*		*40 - 130*	*06/03/14 15:01*	*06/04/14 13:33*	*1*

Lab Sample ID: LCS 720-160549/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160580 — **Prep Batch: 160549**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	82.3	68.4		mg/Kg		83	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
p-Terphenyl	*95*		*40 - 130*

Lab Sample ID: LCSD 720-160549/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160580 — **Prep Batch: 160549**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	83.2	67.2		mg/Kg		81	50 - 150	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
p-Terphenyl	*90*		*40 - 130*

Lab Sample ID: 720-57733-A-10-J MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160589 — **Prep Batch: 160549**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	52	B	82.5	138		mg/Kg		105	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
p-Terphenyl	*56*		*40 - 130*

Lab Sample ID: 720-57733-A-10-K MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160589 — **Prep Batch: 160549**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	52	B	82.4	101	F2	mg/Kg		60	50 - 150	31	30

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 720-57733-A-10-K MSD
Matrix: Solid
Analysis Batch: 160589

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 160549

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
p-Terphenyl	*57*		*40 - 130*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 720-160622/1-A
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Dieldrin	ND		1.9	0.26	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endrin aldehyde	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endrin	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endrin ketone	ND		1.9	0.39	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Heptachlor	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Heptachlor epoxide	ND		1.9	0.23	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
4,4'-DDT	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
4,4'-DDE	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
4,4'-DDD	ND		1.9	0.17	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endosulfan I	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endosulfan II	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
alpha-BHC	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
beta-BHC	ND		1.9	0.81	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
gamma-BHC (Lindane)	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
delta-BHC	ND		1.9	0.49	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Endosulfan sulfate	ND		1.9	0.19	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Methoxychlor	ND		1.9	0.17	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Toxaphene	ND		39	6.6	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
Chlordane (technical)	ND		39	1.8	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
alpha-Chlordane	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1
gamma-Chlordane	ND		1.9	0.80	ug/Kg		06/04/14 14:58	06/05/14 01:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*57 - 122*	*06/04/14 14:58*	*06/05/14 01:05*	*1*
DCB Decachlorobiphenyl	*116*		*21 - 136*	*06/04/14 14:58*	*06/05/14 01:05*	*1*

Lab Sample ID: LCS 720-160622/2-A
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	16.5	12.1		ug/Kg		73	65 - 120
Dieldrin	16.5	17.0		ug/Kg		103	72 - 120
Endrin aldehyde	16.5	17.6		ug/Kg		107	68 - 120
Endrin	16.5	17.4		ug/Kg		105	68 - 120
Endrin ketone	16.5	17.4		ug/Kg		105	67 - 120
Heptachlor	16.5	13.9		ug/Kg		84	69 - 120

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 720-160622/2-A
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Heptachlor epoxide	16.5	16.0		ug/Kg		97	68 - 120
4,4'-DDT	16.5	17.8		ug/Kg		108	63 - 127
4,4'-DDE	16.5	16.7		ug/Kg		101	70 - 120
4,4'-DDD	16.5	17.7		ug/Kg		107	69 - 120
Endosulfan I	16.5	16.1		ug/Kg		98	62 - 120
Endosulfan II	16.5	17.6		ug/Kg		107	65 - 120
alpha-BHC	16.5	13.8		ug/Kg		84	62 - 120
beta-BHC	16.5	16.8		ug/Kg		102	74 - 124
gamma-BHC (Lindane)	16.5	14.6		ug/Kg		88	72 - 120
delta-BHC	16.5	11.7		ug/Kg		71	43 - 125
Endosulfan sulfate	16.5	17.0		ug/Kg		103	67 - 120
Methoxychlor	16.5	18.1		ug/Kg		110	71 - 132
alpha-Chlordane	16.5	16.2		ug/Kg		98	70 - 120
gamma-Chlordane	16.5	16.8		ug/Kg		102	68 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*87*		*57 - 122*
DCB Decachlorobiphenyl	*115*		*21 - 136*

Lab Sample ID: LCSD 720-160622/3-A
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160622

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	16.5	12.6		ug/Kg		77	65 - 120	5	20
Dieldrin	16.5	17.3		ug/Kg		105	72 - 120	2	20
Endrin aldehyde	16.5	17.8		ug/Kg		108	68 - 120	1	20
Endrin	16.5	17.7		ug/Kg		107	68 - 120	2	20
Endrin ketone	16.5	17.3		ug/Kg		105	67 - 120	0	20
Heptachlor	16.5	14.5		ug/Kg		88	69 - 120	4	20
Heptachlor epoxide	16.5	16.7		ug/Kg		101	68 - 120	4	20
4,4'-DDT	16.5	17.8		ug/Kg		108	63 - 127	0	20
4,4'-DDE	16.5	17.0		ug/Kg		103	70 - 120	2	20
4,4'-DDD	16.5	17.7		ug/Kg		108	69 - 120	0	20
Endosulfan I	16.5	16.7		ug/Kg		102	62 - 120	4	20
Endosulfan II	16.5	17.7		ug/Kg		108	65 - 120	0	35
alpha-BHC	16.5	14.4		ug/Kg		88	62 - 120	4	20
beta-BHC	16.5	17.1		ug/Kg		104	74 - 124	2	20
gamma-BHC (Lindane)	16.5	15.4		ug/Kg		93	72 - 120	5	20
delta-BHC	16.5	11.9		ug/Kg		72	43 - 125	2	20
Endosulfan sulfate	16.5	17.0		ug/Kg		104	67 - 120	0	20
Methoxychlor	16.5	18.1		ug/Kg		110	71 - 132	0	20
alpha-Chlordane	16.5	16.5		ug/Kg		100	70 - 120	2	20
gamma-Chlordane	16.5	17.1		ug/Kg		104	68 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*88*		*57 - 122*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 720-160622/3-A
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160622

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*113*		*21 - 136*

Lab Sample ID: 720-57738-A-3-D MS
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 160622

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		16.4	18.4		ug/Kg		112	53 - 120
Dieldrin	ND		16.4	22.1	F1	ug/Kg		135	46 - 130
Endrin aldehyde	ND		16.4	17.1		ug/Kg		105	40 - 120
Endrin	ND		16.4	22.1		ug/Kg		135	32 - 143
Endrin ketone	ND		16.4	15.5		ug/Kg		94	40 - 120
Heptachlor	ND		16.4	12.0		ug/Kg		73	52 - 120
Heptachlor epoxide	ND		16.4	26.7	F1	ug/Kg		163	40 - 120
4,4'-DDT	ND		16.4	5.69	p	ug/Kg		35	17 - 144
4,4'-DDE	4.2		16.4	23.1		ug/Kg		116	40 - 120
4,4'-DDD	ND		16.4	31.7	F1	ug/Kg		193	40 - 120
Endosulfan I	ND		16.4	33.4	F1	ug/Kg		204	40 - 120
Endosulfan II	ND		16.4	17.7		ug/Kg		108	40 - 120
alpha-BHC	ND		16.4	19.2		ug/Kg		117	40 - 120
beta-BHC	ND		16.4	20.5	F1	ug/Kg		125	40 - 120
gamma-BHC (Lindane)	ND		16.4	17.0		ug/Kg		104	58 - 120
delta-BHC	ND		16.4	14.0		ug/Kg		85	40 - 120
Endosulfan sulfate	ND		16.4	18.8		ug/Kg		115	40 - 120
Methoxychlor	ND		16.4	3.68	F1	ug/Kg		22	40 - 120
alpha-Chlordane	ND		16.4	21.1	F1	ug/Kg		129	40 - 120
gamma-Chlordane	ND		16.4	16.9		ug/Kg		103	40 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*107*		*57 - 122*
DCB Decachlorobiphenyl	*122*		*21 - 136*

Lab Sample ID: 720-57738-A-3-E MSD
Matrix: Solid
Analysis Batch: 160650

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 160622

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		16.3	18.2		ug/Kg		112	53 - 120	3	20
Dieldrin	ND		16.3	22.0	F1	ug/Kg		135	46 - 130	0	20
Endrin aldehyde	ND		16.3	16.2		ug/Kg		99	40 - 120	6	20
Endrin	ND		16.3	21.1		ug/Kg		130	32 - 143	5	20
Endrin ketone	ND		16.3	14.8		ug/Kg		91	40 - 120	5	20
Heptachlor	ND		16.3	10.8		ug/Kg		66	52 - 120	11	20
Heptachlor epoxide	ND		16.3	27.4	F1	ug/Kg		169	40 - 120	3	20
4,4'-DDT	ND		16.3	4.39	p F2	ug/Kg		27	17 - 144	26	20
4,4'-DDE	4.2		16.3	23.4		ug/Kg		118	40 - 120	1	20
4,4'-DDD	ND		16.3	30.7	F1	ug/Kg		189	40 - 120	3	20
Endosulfan I	ND		16.3	32.5	F1	ug/Kg		200	40 - 120	3	20

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 720-57738-A-3-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160650 — **Prep Batch: 160622**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endosulfan II	ND		16.3	16.8		ug/Kg		103	40 - 120	5	30
alpha-BHC	ND		16.3	19.0		ug/Kg		117	40 - 120	1	20
beta-BHC	ND		16.3	19.4		ug/Kg		119	40 - 120	5	20
gamma-BHC (Lindane)	ND		16.3	16.4		ug/Kg		101	58 - 120	4	20
delta-BHC	ND		16.3	15.2		ug/Kg		93	40 - 120	8	20
Endosulfan sulfate	ND		16.3	17.0		ug/Kg		104	40 - 120	10	20
Methoxychlor	ND		16.3	27.3	F1 F2	ug/Kg		168	40 - 120	152	20
alpha-Chlordane	ND		16.3	20.3	F1	ug/Kg		125	40 - 120	4	20
gamma-Chlordane	ND		16.3	20.7	F1	ug/Kg		127	40 - 120	20	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*109*		*57 - 122*
DCB Decachlorobiphenyl	*134*		*21 - 136*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 720-160624/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160581 — **Prep Batch: 160624**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1221	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1232	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1242	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1248	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1254	ND		49	1.8	ug/Kg		06/04/14 15:05	06/05/14 01:46	1
PCB-1260	ND		49	5.2	ug/Kg		06/04/14 15:05	06/05/14 01:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*45 - 132*	*06/04/14 15:05*	*06/05/14 01:46*	*1*
DCB Decachlorobiphenyl	*107*		*42 - 146*	*06/04/14 15:05*	*06/05/14 01:46*	*1*

Lab Sample ID: LCS 720-160624/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160581 — **Prep Batch: 160624**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	132	117		ug/Kg		88	65 - 121
PCB-1260	132	135		ug/Kg		102	68 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*81*		*45 - 132*
DCB Decachlorobiphenyl	*105*		*42 - 146*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 720-160624/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160581 — **Prep Batch: 160624**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			132	120		ug/Kg		91	65 - 121	2	20
PCB-1260			132	135		ug/Kg		103	68 - 127	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*45 - 132*
DCB Decachlorobiphenyl	*106*		*42 - 146*

Lab Sample ID: 720-57738-A-3-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160582 — **Prep Batch: 160624**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	ND		131	124		ug/Kg		95	69 - 120		
PCB-1260	ND		131	129		ug/Kg		98	73 - 114		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*85*		*45 - 132*
DCB Decachlorobiphenyl	*79*		*42 - 146*

Lab Sample ID: 720-57738-A-3-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160582 — **Prep Batch: 160624**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		133	133		ug/Kg		100	69 - 120	7	20
PCB-1260	ND		133	129		ug/Kg		97	73 - 114	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*82*		*45 - 132*
DCB Decachlorobiphenyl	*78*		*42 - 146*

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: MB 180-107563/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107598 — **Prep Batch: 107563**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Azinphos-methyl	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Bolstar	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Chlorpyrifos	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Coumaphos	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Demeton, Total	ND		66	6.0	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Demeton-O	ND		33	3.0	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Demeton-S	ND		33	3.0	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Diazinon	ND		33	3.3	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Dichlorvos	ND		33	2.9	ug/Kg		06/04/14 03:29	06/04/14 21:07	1

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Lab Sample ID: MB 180-107563/1-A
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 107563

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Disulfoton	ND		33	3.5	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
EPN	ND		33	2.9	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Famphur	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Fensulfothion	ND		33	2.6	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Fenthion	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Malathion	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Methyl parathion	ND		33	2.9	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Mevinphos	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
O,O,O-Triethyl phosphorothioate	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Parathion	ND		33	2.6	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Phorate	ND		33	3.3	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Ronnel	ND		33	3.1	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Stirophos	ND		33	3.3	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Sulfotepp	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Tokuthion	ND		33	3.3	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Trichloronate	ND		33	3.9	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Mocap	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1
Thionazin	ND		33	3.2	ug/Kg		06/04/14 03:29	06/04/14 21:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*92*		*55 - 125*	*06/04/14 03:29*	*06/04/14 21:07*	*1*
Tributyl phosphate	*75*		*47 - 130*	*06/04/14 03:29*	*06/04/14 21:07*	*1*

Lab Sample ID: LCS 180-107563/2-A
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 107563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Azinphos-methyl	333	324		ug/Kg		97	40 - 150
Bolstar	333	346		ug/Kg		104	10 - 150
Chlorpyrifos	333	340		ug/Kg		102	50 - 130
Coumaphos	333	330		ug/Kg		99	10 - 150
Demeton-O	657	654	E	ug/Kg		100	
Demeton-S	343	389		ug/Kg		113	
Diazinon	333	345		ug/Kg		103	50 - 150
Dichlorvos	333	312		ug/Kg		94	10 - 150
Dimethoate	333	349		ug/Kg		105	40 - 143
Disulfoton	333	329		ug/Kg		99	31 - 136
EPN	333	316		ug/Kg		95	10 - 150
Famphur	333	322		ug/Kg		97	54 - 137
Fensulfothion	333	363		ug/Kg		109	10 - 150
Fenthion	333	345		ug/Kg		103	10 - 150
Malathion	333	333		ug/Kg		100	50 - 135
Methyl parathion	333	330		ug/Kg		99	43 - 146
Mevinphos	333	369		ug/Kg		111	10 - 150
O,O,O-Triethyl phosphorothioate	333	316		ug/Kg		95	45 - 130
Parathion	333	330		ug/Kg		99	52 - 133

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-107563/2-A
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 107563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phorate	333	336		ug/Kg		101	41 - 143
Ronnel	333	341		ug/Kg		102	10 - 150
Stirophos	333	326		ug/Kg		98	10 - 150
Sulfotepp	333	329		ug/Kg		99	48 - 126
Tokuthion	333	335		ug/Kg		101	10 - 150
Trichloronate	333	336		ug/Kg		101	10 - 150
Mocap	333	349		ug/Kg		105	10 - 150
Thionazin	333	343		ug/Kg		103	48 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Triphenylphosphate	*106*		*55 - 125*
Tributyl phosphate	*110*		*47 - 130*

Lab Sample ID: 720-57743-1 MS
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: IDS-COMP
Prep Type: Total/NA
Prep Batch: 107563

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Azinphos-methyl	ND		327	309		ug/Kg		95	40 - 150
Bolstar	ND		327	307		ug/Kg		94	10 - 150
Chlorpyrifos	ND		327	307		ug/Kg		94	50 - 130
Coumaphos	ND		327	303		ug/Kg		93	10 - 150
Demeton-O	ND		644	612	E	ug/Kg		95	
Demeton-S	ND		337	353		ug/Kg		105	
Diazinon	ND		327	313		ug/Kg		96	50 - 150
Dichlorvos	ND		327	342		ug/Kg		105	10 - 150
Dimethoate	ND		327	326		ug/Kg		100	40 - 143
Disulfoton	ND		327	299		ug/Kg		92	31 - 136
EPN	ND		327	294		ug/Kg		90	10 - 150
Famphur	ND		327	298		ug/Kg		91	54 - 137
Fensulfothion	ND		327	352		ug/Kg		108	10 - 150
Fenthion	ND		327	309		ug/Kg		94	10 - 150
Malathion	ND		327	301		ug/Kg		92	50 - 135
Methyl parathion	ND		327	297		ug/Kg		91	43 - 146
Mevinphos	ND		327	354		ug/Kg		108	10 - 150
O,O,O-Triethyl phosphorothioate	ND		327	298		ug/Kg		91	45 - 130
Parathion	ND		327	291		ug/Kg		89	52 - 133
Phorate	ND		327	309		ug/Kg		95	41 - 143
Ronnel	ND		327	312		ug/Kg		95	10 - 150
Stirophos	ND		327	295		ug/Kg		90	10 - 150
Sulfotepp	ND		327	301		ug/Kg		92	48 - 126
Tokuthion	ND		327	301		ug/Kg		92	10 - 150
Trichloronate	ND		327	302		ug/Kg		92	10 - 150
Mocap	ND		327	324		ug/Kg		99	10 - 150
Thionazin	ND		327	325		ug/Kg		99	48 - 126

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Lab Sample ID: 720-57743-1 MS
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: IDS-COMP
Prep Type: Total/NA
Prep Batch: 107563

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Triphenylphosphate	*99*		*55 - 125*
Tributyl phosphate	*105*		*47 - 130*

Lab Sample ID: 720-57743-1 MSD
Matrix: Solid
Analysis Batch: 107598

Client Sample ID: IDS-COMP
Prep Type: Total/NA
Prep Batch: 107563

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Azinphos-methyl	ND		325	345		ug/Kg		106	40 - 150	11	30
Bolstar	ND		325	335		ug/Kg		103	10 - 150	9	30
Chlorpyrifos	ND		325	334		ug/Kg		103	50 - 130	9	25
Coumaphos	ND		325	334		ug/Kg		103	10 - 150	10	30
Demeton-O	ND		640	651	E	ug/Kg		102		6	
Demeton-S	ND		334	384		ug/Kg		115		8	
Diazinon	ND		325	344		ug/Kg		106	50 - 150	9	30
Dichlorvos	ND		325	361		ug/Kg		111	10 - 150	5	30
Dimethoate	ND		325	371		ug/Kg		114	40 - 143	13	30
Disulfoton	ND		325	324		ug/Kg		100	31 - 136	8	30
EPN	ND		325	350		ug/Kg		108	10 - 150	18	30
Famphur	ND		325	328		ug/Kg		101	54 - 137	9	30
Fensulfothion	ND		325	398		ug/Kg		122	10 - 150	12	30
Fenthion	ND		325	339		ug/Kg		104	10 - 150	9	30
Malathion	ND		325	329		ug/Kg		101	50 - 135	9	20
Methyl parathion	ND		325	345		ug/Kg		106	43 - 146	15	30
Mevinphos	ND		325	380		ug/Kg		117	10 - 150	7	30
O,O,O-Triethyl phosphorothioate	ND		325	316		ug/Kg		97	45 - 130	6	30
Parathion	ND		325	333		ug/Kg		103	52 - 133	13	30
Phorate	ND		325	334		ug/Kg		103	41 - 143	8	30
Ronnel	ND		325	346		ug/Kg		106	10 - 150	10	30
Stirophos	ND		325	326		ug/Kg		101	10 - 150	10	30
Sulfotepp	ND		325	330		ug/Kg		102	48 - 126	9	28
Tokuthion	ND		325	330		ug/Kg		102	10 - 150	9	30
Trichloronate	ND		325	334		ug/Kg		103	10 - 150	10	30
Mocap	ND		325	351		ug/Kg		108	10 - 150	8	30
Thionazin	ND		325	348		ug/Kg		107	48 - 126	7	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Triphenylphosphate	*98*		*55 - 125*
Tributyl phosphate	*107*		*47 - 130*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-107790/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 108213 — **Prep Batch: 107790**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		80	5.5	ug/Kg		06/06/14 06:35	06/11/14 11:38	20
2,4,5-T	ND		20	2.5	ug/Kg		06/06/14 06:35	06/11/14 11:38	20
Silvex (2,4,5-TP)	ND		20	2.1	ug/Kg		06/06/14 06:35	06/11/14 11:38	20

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*100*		*42 - 140*	*06/06/14 06:35*	*06/11/14 11:38*	*20*

Lab Sample ID: LCS 180-107790/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 108213 — **Prep Batch: 107790**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	160	200		ug/Kg		125	30 - 140
2,4,5-T	160	185		ug/Kg		115	30 - 140
Silvex (2,4,5-TP)	160	201		ug/Kg		126	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*130*		*42 - 140*

Lab Sample ID: 180-33415-A-15-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 108213 — **Prep Batch: 107790**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	ND		160	157		ug/Kg		99	30 - 140
2,4,5-T	ND		160	160		ug/Kg		100	30 - 140
Silvex (2,4,5-TP)	ND		160	185		ug/Kg		116	40 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*135*		*42 - 140*

Lab Sample ID: 180-33415-A-15-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 108213 — **Prep Batch: 107790**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D	ND		160	171		ug/Kg		107	30 - 140	8	30
2,4,5-T	ND		160	168		ug/Kg		105	30 - 140	5	30
Silvex (2,4,5-TP)	ND		160	188		ug/Kg		118	40 - 130	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*132*		*42 - 140*

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 720-160630/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 160669

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		40	8.9	ug/Kg			06/05/14 10:41	1

Lab Sample ID: LCS 720-160630/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 160669

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	100	98.8		ug/Kg		99	85 - 115

Lab Sample ID: 720-57743-1 MS — **Client Sample ID: IDS-COMP**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 160669

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		99.3	84.2		ug/Kg		85	80 - 120

Lab Sample ID: 720-57743-1 MSD — **Client Sample ID: IDS-COMP**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 160669

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	ND		98.8	83.5		ug/Kg		84	80 - 120	1	15

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 720-160406/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.104	J	0.50	0.083	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Arsenic	ND		1.0	0.085	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Beryllium	ND		0.10	0.033	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Cadmium	ND		0.13	0.012	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Chromium	ND		0.50	0.053	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Cobalt	ND		0.20	0.020	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Copper	ND		1.5	0.71	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Lead	ND		0.50	0.11	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Molybdenum	ND		0.50	0.064	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Nickel	ND		0.50	0.051	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Selenium	ND		1.0	0.15	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Silver	ND		0.25	0.051	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Thallium	ND		0.50	0.15	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Vanadium	ND		0.50	0.068	mg/Kg		05/31/14 10:39	06/03/14 20:09	1
Zinc	ND		1.5	0.64	mg/Kg		05/31/14 10:39	06/03/14 20:09	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 720-160406/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.0922	J	0.50	0.071	mg/Kg		05/31/14 10:39	06/04/14 16:13	1

Lab Sample ID: LCS 720-160406/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	50.0	46.6		mg/Kg		93	80 - 120
Arsenic	50.0	48.6		mg/Kg		97	80 - 120
Beryllium	50.0	50.9		mg/Kg		102	80 - 120
Cadmium	50.0	47.4		mg/Kg		95	80 - 120
Chromium	50.0	50.4		mg/Kg		101	80 - 120
Cobalt	50.0	50.8		mg/Kg		102	80 - 120
Copper	50.0	50.5		mg/Kg		101	80 - 120
Lead	50.0	50.0		mg/Kg		100	80 - 120
Molybdenum	50.0	50.0		mg/Kg		100	80 - 120
Nickel	50.0	48.7		mg/Kg		97	80 - 120
Selenium	50.0	47.0		mg/Kg		94	80 - 120
Silver	25.0	23.7		mg/Kg		95	80 - 120
Thallium	50.0	49.9		mg/Kg		100	80 - 120
Vanadium	50.0	51.1		mg/Kg		102	80 - 120
Zinc	50.0	50.4		mg/Kg		101	80 - 120

Lab Sample ID: LCS 720-160406/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	50.0	50.9		mg/Kg		102	80 - 120

Lab Sample ID: LCSD 720-160406/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	50.0	46.5		mg/Kg		93	80 - 120	0	20
Arsenic	50.0	48.7		mg/Kg		97	80 - 120	0	20
Beryllium	50.0	50.7		mg/Kg		101	80 - 120	0	20
Cadmium	50.0	47.2		mg/Kg		94	80 - 120	0	20
Chromium	50.0	50.3		mg/Kg		101	80 - 120	0	20
Cobalt	50.0	50.7		mg/Kg		101	80 - 120	0	20
Copper	50.0	50.3		mg/Kg		101	80 - 120	0	20
Lead	50.0	49.8		mg/Kg		100	80 - 120	0	20
Molybdenum	50.0	50.0		mg/Kg		100	80 - 120	0	20
Nickel	50.0	48.6		mg/Kg		97	80 - 120	0	20
Selenium	50.0	46.9		mg/Kg		94	80 - 120	0	20
Silver	25.0	23.4		mg/Kg		94	80 - 120	1	20
Thallium	50.0	49.7		mg/Kg		99	80 - 120	0	20
Vanadium	50.0	51.1		mg/Kg		102	80 - 120	0	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 720-160406/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	50.0	49.9		mg/Kg		100	80 - 120	1	20

Lab Sample ID: LCSD 720-160406/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	50.0	51.0		mg/Kg		102	80 - 120	0	20

Lab Sample ID: LCSSRM 720-160406/25-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	74.6	49.9		mg/Kg		67	11 - 101
Arsenic	45.5	41.5		mg/Kg		91	69 - 119
Beryllium	155	146		mg/Kg		94	56 - 102
Cadmium	201	166		mg/Kg		83	67 - 118
Chromium	106	96.6		mg/Kg		91	67 - 121
Cobalt	247	229		mg/Kg		93	64 - 133
Copper	130	122		mg/Kg		94	68 - 126
Lead	302	259		mg/Kg		86	62 - 113
Molybdenum	165	145		mg/Kg		88	62 - 128
Nickel	305	261		mg/Kg		85	65 - 117
Selenium	133	120		mg/Kg		91	63 - 126
Silver	33.5	28.8		mg/Kg		86	51 - 130
Thallium	191	163		mg/Kg		85	64 - 124
Zinc	388	345		mg/Kg		89	62 - 110

Lab Sample ID: LCSSRM 720-160406/25-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	579	541		mg/Kg		93	61 - 117
Vanadium	214	199		mg/Kg		93	67 - 123

Lab Sample ID: 720-57704-A-2-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		43.5	17.5	F1	mg/Kg		40	75 - 125
Arsenic	3.6	J	43.5	46.8		mg/Kg		99	75 - 125
Beryllium	0.54		43.5	46.1		mg/Kg		105	75 - 125
Cadmium	ND		43.5	40.4		mg/Kg		93	75 - 125
Chromium	71		43.5	115		mg/Kg		101	75 - 125
Cobalt	12		43.5	56.0		mg/Kg		101	75 - 125
Copper	35		43.5	71.7		mg/Kg		84	75 - 125

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 720-57704-A-2-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	6.6		43.5	53.5		mg/Kg		108	75 - 125
Molybdenum	0.29	J	43.5	38.9		mg/Kg		89	75 - 125
Nickel	82		43.5	127		mg/Kg		103	75 - 125
Selenium	ND		43.5	40.5		mg/Kg		93	75 - 125
Silver	ND		21.7	21.8		mg/Kg		100	75 - 125
Thallium	ND		43.5	40.8		mg/Kg		94	75 - 125
Vanadium	39		43.5	88.7		mg/Kg		114	75 - 125
Zinc	53		43.5	92.6		mg/Kg		91	75 - 125

Lab Sample ID: 720-57704-A-2-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	260	B	43.5	412	4	mg/Kg		356	75 - 125

Lab Sample ID: 720-57704-A-2-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160583 — **Prep Batch: 160406**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		47.2	18.8	F1	mg/Kg		40	75 - 125	7	20
Arsenic	3.6	J	47.2	49.3		mg/Kg		97	75 - 125	5	20
Beryllium	0.54		47.2	49.4		mg/Kg		104	75 - 125	7	20
Cadmium	ND		47.2	43.4		mg/Kg		92	75 - 125	7	20
Chromium	71		47.2	128		mg/Kg		122	75 - 125	11	20
Cobalt	12		47.2	59.9		mg/Kg		101	75 - 125	7	20
Copper	35		47.2	79.3		mg/Kg		94	75 - 125	10	20
Lead	6.6		47.2	52.6		mg/Kg		98	75 - 125	2	20
Molybdenum	0.29	J	47.2	41.9		mg/Kg		88	75 - 125	7	20
Nickel	82		47.2	130		mg/Kg		101	75 - 125	2	20
Selenium	ND		47.2	43.3		mg/Kg		92	75 - 125	7	20
Silver	ND		23.6	23.3		mg/Kg		99	75 - 125	7	20
Thallium	ND		47.2	43.4		mg/Kg		92	75 - 125	6	20
Vanadium	39		47.2	93.1		mg/Kg		115	75 - 125	5	20
Zinc	53		47.2	98.9		mg/Kg		98	75 - 125	7	20

Lab Sample ID: 720-57704-A-2-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160641 — **Prep Batch: 160406**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	260	B	47.2	365	4	mg/Kg		230	75 - 125	12	20

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 720-160473/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160547 — **Prep Batch: 160473**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.010	0.0025	mg/Kg		06/02/14 18:17	06/03/14 13:37	1

Lab Sample ID: LCS 720-160473/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160547 — **Prep Batch: 160473**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.833	0.850		mg/Kg		102	80 - 120		

Lab Sample ID: LCSD 720-160473/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160547 — **Prep Batch: 160473**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.833	0.850		mg/Kg		102	80 - 120	0	20

QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

GC/MS VOA

Analysis Batch: 160417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57733-A-11-D MS	Matrix Spike	Total/NA	Solid	8260B	160465
720-57733-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	160465
720-57743-1	IDS-COMP	Total/NA	Solid	8260B	160465
LCS 720-160417/6	Lab Control Sample	Total/NA	Solid	8260B	
LCS 720-160417/8	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 720-160417/7	Lab Control Sample Dup	Total/NA	Solid	8260B	
LCSD 720-160417/9	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 720-160417/5	Method Blank	Total/NA	Solid	8260B	

Prep Batch: 160465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57733-A-11-D MS	Matrix Spike	Total/NA	Solid	5030B	
720-57733-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5030B	
720-57743-1	IDS-COMP	Total/NA	Solid	5030B	

GC/MS Semi VOA

Prep Batch: 160638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57739-D-1-E MS	Matrix Spike	Total/NA	Solid	3546	
720-57739-D-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
720-57743-1	IDS-COMP	Total/NA	Solid	3546	
LCS 720-160638/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 720-160638/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 720-160638/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 160711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57739-D-1-E MS	Matrix Spike	Total/NA	Solid	8270C	160638
720-57739-D-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C	160638
720-57743-1	IDS-COMP	Total/NA	Solid	8270C	160638
LCS 720-160638/2-A	Lab Control Sample	Total/NA	Solid	8270C	160638
LCSD 720-160638/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C	160638
MB 720-160638/1-A	Method Blank	Total/NA	Solid	8270C	160638

GC Semi VOA

Prep Batch: 107563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	3541	
720-57743-1 MS	IDS-COMP	Total/NA	Solid	3541	
720-57743-1 MSD	IDS-COMP	Total/NA	Solid	3541	
LCS 180-107563/2-A	Lab Control Sample	Total/NA	Solid	3541	
MB 180-107563/1-A	Method Blank	Total/NA	Solid	3541	

Analysis Batch: 107598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	8141A	107563
720-57743-1 MS	IDS-COMP	Total/NA	Solid	8141A	107563
720-57743-1 MSD	IDS-COMP	Total/NA	Solid	8141A	107563

GC Semi VOA (Continued)

Analysis Batch: 107598 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-107563/2-A	Lab Control Sample	Total/NA	Solid	8141A	107563
MB 180-107563/1-A	Method Blank	Total/NA	Solid	8141A	107563

Prep Batch: 107790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-33415-A-15-F MS	Matrix Spike	Total/NA	Solid	8151A	
180-33415-A-15-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8151A	
720-57743-1	IDS-COMP	Total/NA	Solid	8151A	
LCS 180-107790/2-A	Lab Control Sample	Total/NA	Solid	8151A	
MB 180-107790/1-A	Method Blank	Total/NA	Solid	8151A	

Analysis Batch: 108213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-33415-A-15-F MS	Matrix Spike	Total/NA	Solid	8151A	107790
180-33415-A-15-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8151A	107790
720-57743-1	IDS-COMP	Total/NA	Solid	8151A	107790
LCS 180-107790/2-A	Lab Control Sample	Total/NA	Solid	8151A	107790
MB 180-107790/1-A	Method Blank	Total/NA	Solid	8151A	107790

Prep Batch: 160549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57733-A-10-J MS	Matrix Spike	Total/NA	Solid	3546	
720-57733-A-10-K MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
720-57743-1	IDS-COMP	Total/NA	Solid	3546	
LCS 720-160549/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 720-160549/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 720-160549/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 160580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 720-160549/2-A	Lab Control Sample	Total/NA	Solid	8015B	160549
LCSD 720-160549/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	160549
MB 720-160549/1-A	Method Blank	Total/NA	Solid	8015B	160549

Analysis Batch: 160581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	8082	160624
LCS 720-160624/2-A	Lab Control Sample	Total/NA	Solid	8082	160624
LCSD 720-160624/3-A	Lab Control Sample Dup	Total/NA	Solid	8082	160624
MB 720-160624/1-A	Method Blank	Total/NA	Solid	8082	160624

Analysis Batch: 160582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57738-A-3-G MS	Matrix Spike	Total/NA	Solid	8082	160624
720-57738-A-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8082	160624

Analysis Batch: 160589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57733-A-10-J MS	Matrix Spike	Total/NA	Solid	8015B	160549
720-57733-A-10-K MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	160549

GC Semi VOA (Continued)

Analysis Batch: 160590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	8015B	160549

Prep Batch: 160622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57738-A-3-D MS	Matrix Spike	Total/NA	Solid	3546	
720-57738-A-3-E MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
720-57743-1	IDS-COMP	Total/NA	Solid	3546	
LCS 720-160622/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 720-160622/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 720-160622/1-A	Method Blank	Total/NA	Solid	3546	

Prep Batch: 160624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57738-A-3-G MS	Matrix Spike	Total/NA	Solid	3546	
720-57738-A-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
720-57743-1	IDS-COMP	Total/NA	Solid	3546	
LCS 720-160624/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 720-160624/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 720-160624/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 160650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57738-A-3-D MS	Matrix Spike	Total/NA	Solid	8081A	160622
720-57738-A-3-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	160622
720-57743-1	IDS-COMP	Total/NA	Solid	8081A	160622
LCS 720-160622/2-A	Lab Control Sample	Total/NA	Solid	8081A	160622
LCSD 720-160622/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	160622
MB 720-160622/1-A	Method Blank	Total/NA	Solid	8081A	160622

HPLC/IC

Leach Batch: 160630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Soluble	Solid	DI Leach	
720-57743-1 MS	IDS-COMP	Soluble	Solid	DI Leach	
720-57743-1 MSD	IDS-COMP	Soluble	Solid	DI Leach	
LCS 720-160630/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 720-160630/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 160669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Soluble	Solid	314.0	160630
720-57743-1 MS	IDS-COMP	Soluble	Solid	314.0	160630
720-57743-1 MSD	IDS-COMP	Soluble	Solid	314.0	160630
LCS 720-160630/2-A	Lab Control Sample	Soluble	Solid	314.0	160630
MB 720-160630/1-A	Method Blank	Soluble	Solid	314.0	160630

QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Metals

Prep Batch: 160406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57704-A-2-H MS	Matrix Spike	Total/NA	Solid	3050B	
720-57704-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
720-57743-1	IDS-COMP	Total/NA	Solid	3050B	
LCS 720-160406/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 720-160406/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 720-160406/25-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 720-160406/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 160473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	7471A	
LCS 720-160473/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 720-160473/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
MB 720-160473/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 160547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	7471A	160473
LCS 720-160473/2-A	Lab Control Sample	Total/NA	Solid	7471A	160473
LCSD 720-160473/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	160473
MB 720-160473/1-A	Method Blank	Total/NA	Solid	7471A	160473

Analysis Batch: 160583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57704-A-2-H MS	Matrix Spike	Total/NA	Solid	6010B	160406
720-57704-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	160406
720-57743-1	IDS-COMP	Total/NA	Solid	6010B	160406
LCS 720-160406/2-A	Lab Control Sample	Total/NA	Solid	6010B	160406
LCSD 720-160406/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	160406
LCSSRM 720-160406/25-A	Lab Control Sample	Total/NA	Solid	6010B	160406
MB 720-160406/1-A	Method Blank	Total/NA	Solid	6010B	160406

Analysis Batch: 160641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57704-A-2-H MS	Matrix Spike	Total/NA	Solid	6010B	160406
720-57704-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	160406
LCS 720-160406/2-A	Lab Control Sample	Total/NA	Solid	6010B	160406
LCSD 720-160406/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	160406
LCSSRM 720-160406/25-A	Lab Control Sample	Total/NA	Solid	6010B	160406
MB 720-160406/1-A	Method Blank	Total/NA	Solid	6010B	160406

Analysis Batch: 160662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57743-1	IDS-COMP	Total/NA	Solid	6010B	160406

Lab Chronicle

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Client Sample ID: IDS-COMP

Lab Sample ID: 720-57743-1

Date Collected: 05/30/14 12:40

Matrix: Solid

Date Received: 05/30/14 16:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			160465	06/02/14 16:10	LPL	TAL PLS
Total/NA	Analysis	8260B		1	160417	06/02/14 23:31	PDR	TAL PLS
Total/NA	Prep	3546			160638	06/04/14 16:52	AFM	TAL PLS
Total/NA	Analysis	8270C		1	160711	06/05/14 23:12	MQL	TAL PLS
Total/NA	Prep	3546			160549	06/03/14 16:50	NDU	TAL PLS
Total/NA	Analysis	8015B		1	160590	06/04/14 19:17	JL	TAL PLS
Total/NA	Prep	3546			160622	06/04/14 14:58	STL	TAL PLS
Total/NA	Analysis	8081A		1	160650	06/05/14 06:26	MQL	TAL PLS
Total/NA	Prep	3546			160624	06/04/14 15:05	STL	TAL PLS
Total/NA	Analysis	8082		1	160581	06/05/14 00:06	DCH	TAL PLS
Total/NA	Prep	3541			107563	06/04/14 03:29	BAP	TAL PIT
Total/NA	Analysis	8141A		1	107598	06/04/14 19:26	DFE	TAL PIT
Total/NA	Prep	8151A			107790	06/06/14 06:35	KLG	TAL PIT
Total/NA	Analysis	8151A		20	108213	06/11/14 19:28	JMO	TAL PIT
Soluble	Leach	DI Leach			160630	06/04/14 15:25	EYT	TAL PLS
Soluble	Analysis	314.0		1	160669	06/05/14 11:19	MJK	TAL PLS
Total/NA	Prep	3050B			160406	06/02/14 17:36	CTD	TAL PLS
Total/NA	Analysis	6010B		4	160583	06/03/14 22:02	SLK	TAL PLS
Total/NA	Prep	3050B			160406	06/02/14 17:36	CTD	TAL PLS
Total/NA	Analysis	6010B		4	160662	06/04/14 23:36	SLK	TAL PLS
Total/NA	Prep	7471A			160473	06/02/14 18:19	CTD	TAL PLS
Total/NA	Analysis	7471A		1	160547	06/03/14 14:18	EFH	TAL PLS

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-16

Laboratory: TestAmerica Pittsburgh

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-14 *
California	NELAP	9	4224CA	03-31-14 *
Connecticut	State Program	1	PH-0688	09-30-14
Florida	NELAP	4	E871008	06-30-14 *
Illinois	NELAP	5	002602	06-30-14 *
Kansas	NELAP	7	E-10350	01-31-15
Louisiana	NELAP	6	04041	06-30-14 *
New Hampshire	NELAP	1	203011	04-04-15
New Jersey	NELAP	2	PA005	06-30-14 *
New York	NELAP	2	11182	03-31-15
North Carolina DENR	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-15
South Carolina	State Program	4	89014	04-30-14 *
Texas	NELAP	6	T104704528	03-31-15
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	04-30-14 *
Virginia	NELAP	3	460189	09-14-14
West Virginia DEP	State Program	3	142	01-31-15
Wisconsin	State Program	5	998027800	08-31-14

* Certification renewal pending - certification considered valid.

Method Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PLS
8270C	Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	SW846	TAL PLS
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL PLS
8081A	Organochlorine Pesticides (GC)	SW846	TAL PLS
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL PLS
8141A	Organophosphorous Pesticides (GC)	SW846	TAL PIT
8151A	Herbicides (GC)	SW846	TAL PIT
314.0	Perchlorate (IC)	EPA	TAL PLS
6010B	Metals (ICP)	SW846	TAL PLS
7471A	Mercury (CVAA)	SW846	TAL PLS

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57743-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-57743-1	IDS-COMP	Solid	05/30/14 12:40	05/30/14 16:50

TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
phone 925.484.1919 fax

720-57743

Chain of Custody Record

154071

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

6/13/2014

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Dimple	Site Contact:	Date:	COC No:
Your Company Name here AMEC E&I	Tel/Fax:	Lab Contact:	Carrier:	1 of 1 COCs
Address 1465 N. McDowell, BLVD STE200	Analysis Turnaround Time			Sampler:
City/State/Zip Petaluma, CA 94954	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone (707) 792-3800	TAT if different from Below _____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Olin Morgan Hill	☑ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# REM H0034 (Invoice to ORG)	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH (DRO, GRO, MKO)	VOCs (8260 B)	PCBs (8082)	SVOCs (8270 C)	Organochlorine Pest	Organo Phos Pest	Chl Herb (8151 A)	CAM-17 + Pb (6010B)	Perchlorate	Sample Specific Notes:
IDS - COMP	5/30/14	1240	Comp.	Soil	2			X	X	X	X	X	X	X	X	X	

720-57743 Chain of Custody

Page 54 of 56

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

7.2°C

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Olin	30 May 14	[signature]	TAP	05/30/14 @ 1515
[signature]	TAP	05/30/14 @ 1650	[signature]	TAP	5/30/14 1650
			Received in Laboratory by:		

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 720-57743-1

Login Number: 57743

List Source: TestAmerica Pleasanton

List Number: 1

Creator: Bullock, Tracy

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

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 720-57743-1

Login Number: 57743
List Number: 2
Creator: Neri, Tom

List Source: TestAmerica Pittsburgh
List Creation: 06/03/14 06:52 PM

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-57813-1
Client Project/Site: Olin Site/Morgan Hill

For:
AMEC Environment & Infrastructure, Inc.
1465 North McDowell Blvd
Suite 200
Petaluma, California 94954

Attn: Laura Helliwell

Authorized for release by:
6/11/2014 4:10:15 PM
Afsaneh Salimpour, Senior Project Manager
afsaneh.salimpour@testamericainc.com

Designee for

Dimple Sharma, Senior Project Manager
(925)484-1919
dimple.sharma@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
*	RPD of the LCS and LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Job ID: 720-57813-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-57813-1

Comments

All samples were analyzed in accordance with OLIN QAPP.

No additional comments.

Receipt
The sample was received on 6/4/2014 5:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

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

GC/MS Semi VOA
Method(s) 8270C: The following analyte recovered outside control limits for the LCS/LCSD associated with batch #160693: Benzyl alcohol. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

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

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

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

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

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

Detection Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Client Sample ID: IDF

Lab Sample ID: 720-57813-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	3.3	J B	10	1.5	ug/L	1		8270C	Total/NA
Benzoic acid	3.2	J B	10	1.8	ug/L	1		8270C	Total/NA
Barium	0.055		0.0050	0.0014	mg/L	1		6010B	Total/NA
Molybdenum	0.012		0.010	0.0023	mg/L	1		6010B	Total/NA
Nickel	0.0032	J	0.010	0.00080	mg/L	1		6010B	Total/NA
Vanadium	0.0019	J	0.010	0.00070	mg/L	1		6010B	Total/NA
Zinc	0.013	J	0.020	0.0096	mg/L	1		6010B	Total/NA
Nitrate as NO3	12		1.0	0.26	mg/L	1		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: IDF

Lab Sample ID: 720-57813-1

Date Collected: 06/04/14 12:00

Matrix: Water

Date Received: 06/04/14 17:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50	0.069	ug/L			06/05/14 23:00	1
Acetone	ND		50	8.0	ug/L			06/05/14 23:00	1
Benzene	ND		0.50	0.25	ug/L			06/05/14 23:00	1
Dichlorobromomethane	ND		0.50	0.20	ug/L			06/05/14 23:00	1
Bromobenzene	ND		1.0	0.20	ug/L			06/05/14 23:00	1
Chlorobromomethane	ND		1.0	0.25	ug/L			06/05/14 23:00	1
Bromoform	ND		1.0	0.50	ug/L			06/05/14 23:00	1
Bromomethane	ND		1.0	0.49	ug/L			06/05/14 23:00	1
2-Butanone (MEK)	ND		50	8.4	ug/L			06/05/14 23:00	1
n-Butylbenzene	ND		1.0	0.30	ug/L			06/05/14 23:00	1
sec-Butylbenzene	ND		1.0	0.17	ug/L			06/05/14 23:00	1
tert-Butylbenzene	ND		1.0	0.20	ug/L			06/05/14 23:00	1
Carbon disulfide	ND		5.0	0.78	ug/L			06/05/14 23:00	1
Carbon tetrachloride	ND		0.50	0.11	ug/L			06/05/14 23:00	1
Chlorobenzene	ND		0.50	0.13	ug/L			06/05/14 23:00	1
Chloroethane	ND		1.0	0.17	ug/L			06/05/14 23:00	1
Chloroform	ND		1.0	0.40	ug/L			06/05/14 23:00	1
Chloromethane	ND		1.0	0.19	ug/L			06/05/14 23:00	1
2-Chlorotoluene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
4-Chlorotoluene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
Chlorodibromomethane	ND		0.50	0.10	ug/L			06/05/14 23:00	1
1,2-Dichlorobenzene	ND		0.50	0.21	ug/L			06/05/14 23:00	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
1,4-Dichlorobenzene	ND		0.50	0.16	ug/L			06/05/14 23:00	1
1,3-Dichloropropane	ND		1.0	0.17	ug/L			06/05/14 23:00	1
1,1-Dichloropropene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.30	ug/L			06/05/14 23:00	1
Ethylene Dibromide	ND		0.50	0.075	ug/L			06/05/14 23:00	1
Dibromomethane	ND		0.50	0.30	ug/L			06/05/14 23:00	1
Dichlorodifluoromethane	ND		0.50	0.10	ug/L			06/05/14 23:00	1
1,1-Dichloroethane	ND		0.50	0.11	ug/L			06/05/14 23:00	1
1,2-Dichloroethane	ND		0.50	0.077	ug/L			06/05/14 23:00	1
1,1-Dichloroethene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
cis-1,2-Dichloroethene	ND		0.50	0.076	ug/L			06/05/14 23:00	1
trans-1,2-Dichloroethene	ND		0.50	0.13	ug/L			06/05/14 23:00	1
1,2-Dichloropropane	ND		0.50	0.20	ug/L			06/05/14 23:00	1
cis-1,3-Dichloropropene	ND		0.50	0.10	ug/L			06/05/14 23:00	1
trans-1,3-Dichloropropene	ND		0.50	0.17	ug/L			06/05/14 23:00	1
Ethylbenzene	ND		0.50	0.13	ug/L			06/05/14 23:00	1
Hexachlorobutadiene	ND		1.0	0.27	ug/L			06/05/14 23:00	1
2-Hexanone	ND		50	3.0	ug/L			06/05/14 23:00	1
Isopropylbenzene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			06/05/14 23:00	1
Methylene Chloride	ND		5.0	1.5	ug/L			06/05/14 23:00	1
4-Methyl-2-pentanone (MIBK)	ND		50	4.5	ug/L			06/05/14 23:00	1
Naphthalene	ND		1.0	0.22	ug/L			06/05/14 23:00	1
N-Propylbenzene	ND		1.0	0.20	ug/L			06/05/14 23:00	1
Styrene	ND		0.50	0.075	ug/L			06/05/14 23:00	1
1,1,1,2-Tetrachloroethane	ND		0.50	0.067	ug/L			06/05/14 23:00	1

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Client Sample ID: IDF

Date Collected: 06/04/14 12:00
Date Received: 06/04/14 17:10

Lab Sample ID: 720-57813-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		0.50	0.074	ug/L			06/05/14 23:00	1
Tetrachloroethene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
Toluene	ND		0.50	0.17	ug/L			06/05/14 23:00	1
1,2,3-Trichlorobenzene	ND		1.0	0.21	ug/L			06/05/14 23:00	1
1,2,4-Trichlorobenzene	ND		1.0	0.13	ug/L			06/05/14 23:00	1
1,1,1-Trichloroethane	ND		0.50	0.20	ug/L			06/05/14 23:00	1
1,1,2-Trichloroethane	ND		0.50	0.11	ug/L			06/05/14 23:00	1
Trichloroethene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
Trichlorofluoromethane	ND		1.0	0.067	ug/L			06/05/14 23:00	1
1,2,3-Trichloropropane	ND		0.50	0.087	ug/L			06/05/14 23:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.091	ug/L			06/05/14 23:00	1
1,2,4-Trimethylbenzene	ND		0.50	0.20	ug/L			06/05/14 23:00	1
1,3,5-Trimethylbenzene	ND		0.50	0.17	ug/L			06/05/14 23:00	1
Vinyl acetate	ND		10	0.60	ug/L			06/05/14 23:00	1
Vinyl chloride	ND		0.50	0.20	ug/L			06/05/14 23:00	1
Xylenes, Total	ND		1.0	0.49	ug/L			06/05/14 23:00	1
2,2-Dichloropropane	ND		0.50	0.17	ug/L			06/05/14 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*67 - 130*		*06/05/14 23:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 130*		*06/05/14 23:00*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*06/05/14 23:00*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Bis(2-chloroethyl)ether	ND		2.0	0.31	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Chlorophenol	ND		4.1	0.40	ug/L		06/05/14 13:16	06/06/14 01:12	1
1,3-Dichlorobenzene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
1,4-Dichlorobenzene	ND		2.0	0.27	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzyl alcohol	ND	*	5.1	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
1,2-Dichlorobenzene	ND		2.0	0.26	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Methylphenol	ND		4.1	0.39	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Methylphenol	ND		8.2	0.66	ug/L		06/05/14 13:16	06/06/14 01:12	1
N-Nitrosodi-n-propylamine	ND		2.0	0.41	ug/L		06/05/14 13:16	06/06/14 01:12	1
Hexachloroethane	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Nitrobenzene	ND		2.0	0.37	ug/L		06/05/14 13:16	06/06/14 01:12	1
Isophorone	ND		4.1	0.61	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Nitrophenol	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,4-Dimethylphenol	ND		3.1	2.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Bis(2-chloroethoxy)methane	ND		5.1	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,4-Dichlorophenol	ND		5.1	0.30	ug/L		06/05/14 13:16	06/06/14 01:12	1
1,2,4-Trichlorobenzene	ND		2.0	0.46	ug/L		06/05/14 13:16	06/06/14 01:12	1
Naphthalene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Chloroaniline	ND		2.0	0.28	ug/L		06/05/14 13:16	06/06/14 01:12	1
Hexachlorobutadiene	ND		2.0	0.52	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Chloro-3-methylphenol	ND		5.1	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Methylnaphthalene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Hexachlorocyclopentadiene	ND		5.1	2.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,4,6-Trichlorophenol	ND		2.0	0.52	ug/L		06/05/14 13:16	06/06/14 01:12	1

Client Sample ID: IDF
Date Collected: 06/04/14 12:00
Date Received: 06/04/14 17:10

Lab Sample ID: 720-57813-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		4.1	0.38	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Chloronaphthalene	ND		4.1	0.46	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Nitroaniline	ND		10	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Dimethyl phthalate	ND		5.1	0.47	ug/L		06/05/14 13:16	06/06/14 01:12	1
Acenaphthylene	ND		4.1	0.44	ug/L		06/05/14 13:16	06/06/14 01:12	1
3-Nitroaniline	ND		5.1	0.94	ug/L		06/05/14 13:16	06/06/14 01:12	1
Acenaphthene	ND		2.0	0.29	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,4-Dinitrophenol	ND		10	2.1	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Nitrophenol	ND		10	2.1	ug/L		06/05/14 13:16	06/06/14 01:12	1
Dibenzofuran	ND		4.1	0.52	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,4-Dinitrotoluene	ND		4.1	0.37	ug/L		06/05/14 13:16	06/06/14 01:12	1
2,6-Dinitrotoluene	ND		5.1	0.43	ug/L		06/05/14 13:16	06/06/14 01:12	1
Diethyl phthalate	ND		5.1	0.58	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Chlorophenyl phenyl ether	ND		5.1	0.39	ug/L		06/05/14 13:16	06/06/14 01:12	1
Fluorene	ND		4.1	0.50	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Nitroaniline	ND		10	2.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
2-Methyl-4,6-dinitrophenol	ND		10	2.1	ug/L		06/05/14 13:16	06/06/14 01:12	1
N-Nitrosodiphenylamine	ND		2.0	0.37	ug/L		06/05/14 13:16	06/06/14 01:12	1
4-Bromophenyl phenyl ether	ND		5.1	0.28	ug/L		06/05/14 13:16	06/06/14 01:12	1
Hexachlorobenzene	ND		2.0	0.33	ug/L		06/05/14 13:16	06/06/14 01:12	1
Pentachlorophenol	ND		10	0.82	ug/L		06/05/14 13:16	06/06/14 01:12	1
Phenanthrene	ND		2.0	0.35	ug/L		06/05/14 13:16	06/06/14 01:12	1
Anthracene	ND		2.0	0.30	ug/L		06/05/14 13:16	06/06/14 01:12	1
Di-n-butyl phthalate	ND		5.1	0.38	ug/L		06/05/14 13:16	06/06/14 01:12	1
Fluoranthene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Pyrene	ND		2.0	0.32	ug/L		06/05/14 13:16	06/06/14 01:12	1
Butyl benzyl phthalate	ND		5.1	0.31	ug/L		06/05/14 13:16	06/06/14 01:12	1
3,3'-Dichlorobenzidine	ND		5.1	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzo[a]anthracene	ND		5.1	0.66	ug/L		06/05/14 13:16	06/06/14 01:12	1
Bis(2-ethylhexyl) phthalate	**3.3**	**J B**	10	1.5	ug/L		06/05/14 13:16	06/06/14 01:12	1
Chrysene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Di-n-octyl phthalate	ND		5.1	0.66	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzo[b]fluoranthene	ND		2.0	0.35	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzo[a]pyrene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzo[k]fluoranthene	ND		2.0	0.32	ug/L		06/05/14 13:16	06/06/14 01:12	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.40	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzo[g,h,i]perylene	ND		2.0	0.39	ug/L		06/05/14 13:16	06/06/14 01:12	1
Benzoic acid	**3.2**	**J B**	10	1.8	ug/L		06/05/14 13:16	06/06/14 01:12	1
Azobenzene	ND		2.0	0.30	ug/L		06/05/14 13:16	06/06/14 01:12	1
Dibenz(a,h)anthracene	ND		2.0	0.41	ug/L		06/05/14 13:16	06/06/14 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*66*		*16 - 72*	*06/05/14 13:16*	*06/06/14 01:12*	*1*
2-Fluorobiphenyl	*63*		*10 - 101*	*06/05/14 13:16*	*06/06/14 01:12*	*1*
Terphenyl-d14	*87*		*42 - 112*	*06/05/14 13:16*	*06/06/14 01:12*	*1*
2-Fluorophenol	*34*		*10 - 65*	*06/05/14 13:16*	*06/06/14 01:12*	*1*
Phenol-d5	*22*		*10 - 46*	*06/05/14 13:16*	*06/06/14 01:12*	*1*
2,4,6-Tribromophenol	*95*		*17 - 100*	*06/05/14 13:16*	*06/06/14 01:12*	*1*

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Client Sample ID: IDF

Date Collected: 06/04/14 12:00
Date Received: 06/04/14 17:10

Lab Sample ID: 720-57813-1

Matrix: Water

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.061	0.0051	ug/L		06/10/14 13:39	06/11/14 02:50	1
Dieldrin	ND		0.061	0.0091	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endrin aldehyde	ND		0.061	0.016	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endrin	ND		0.061	0.011	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endrin ketone	ND		0.061	0.010	ug/L		06/10/14 13:39	06/11/14 02:50	1
Heptachlor	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
Heptachlor epoxide	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
4,4'-DDT	ND		0.061	0.023	ug/L		06/10/14 13:39	06/11/14 02:50	1
4,4'-DDE	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
4,4'-DDD	ND		0.061	0.015	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endosulfan I	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endosulfan II	ND		0.061	0.014	ug/L		06/10/14 13:39	06/11/14 02:50	1
alpha-BHC	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
beta-BHC	ND		0.061	0.010	ug/L		06/10/14 13:39	06/11/14 02:50	1
gamma-BHC (Lindane)	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
delta-BHC	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
Endosulfan sulfate	ND		0.061	0.010	ug/L		06/10/14 13:39	06/11/14 02:50	1
Methoxychlor	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1
Toxaphene	ND		1.0	0.40	ug/L		06/10/14 13:39	06/11/14 02:50	1
Chlordane (technical)	ND		1.0	0.41	ug/L		06/10/14 13:39	06/11/14 02:50	1
alpha-Chlordane	ND		0.061	0.0081	ug/L		06/10/14 13:39	06/11/14 02:50	1
gamma-Chlordane	ND		0.061	0.0061	ug/L		06/10/14 13:39	06/11/14 02:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*36 - 112*	*06/10/14 13:39*	*06/11/14 02:50*	*1*
DCB Decachlorobiphenyl	*86*		*14 - 103*	*06/10/14 13:39*	*06/11/14 02:50*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dicamba	ND		1.0	0.078	ug/L		06/10/14 10:27	06/11/14 13:08	1
Dichlorprop	ND		1.0	0.37	ug/L		06/10/14 10:27	06/11/14 13:08	1
2,4-D	ND		1.0	0.47	ug/L		06/10/14 10:27	06/11/14 13:08	1
Silvex (2,4,5-TP)	ND		1.0	0.29	ug/L		06/10/14 10:27	06/11/14 13:08	1
2,4,5-T	ND		1.0	0.44	ug/L		06/10/14 10:27	06/11/14 13:08	1
2,4-DB	ND		1.0	0.12	ug/L		06/10/14 10:27	06/11/14 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*82*		*30 - 129*	*06/10/14 10:27*	*06/11/14 13:08*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.010	0.0027	mg/L		06/05/14 13:22	06/06/14 00:49	1
Arsenic	ND		0.010	0.0026	mg/L		06/05/14 13:22	06/06/14 00:49	1
Barium	**0.055**		0.0050	0.0014	mg/L		06/05/14 13:22	06/06/14 00:49	1
Beryllium	ND		0.0020	0.00033	mg/L		06/05/14 13:22	06/06/14 00:49	1
Cadmium	ND		0.0025	0.0013	mg/L		06/05/14 13:22	06/06/14 00:49	1
Chromium	ND		0.010	0.0015	mg/L		06/05/14 13:22	06/06/14 00:49	1
Cobalt	ND		0.0020	0.0012	mg/L		06/05/14 13:22	06/06/14 00:49	1
Copper	ND		0.020	0.0015	mg/L		06/05/14 13:22	06/06/14 00:49	1
Lead	ND		0.0050	0.0023	mg/L		06/05/14 13:22	06/06/14 00:49	1

Client Sample ID: IDF

Lab Sample ID: 720-57813-1

Date Collected: 06/04/14 12:00

Matrix: Water

Date Received: 06/04/14 17:10

Method: 6010B - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.012		0.010	0.0023	mg/L		06/05/14 13:22	06/06/14 00:49	1
Nickel	0.0032	J	0.010	0.00080	mg/L		06/05/14 13:22	06/06/14 00:49	1
Selenium	ND		0.020	0.0071	mg/L		06/05/14 13:22	06/06/14 00:49	1
Silver	ND		0.0050	0.0012	mg/L		06/05/14 13:22	06/06/14 00:49	1
Thallium	ND		0.010	0.0035	mg/L		06/05/14 13:22	06/06/14 00:49	1
Vanadium	0.0019	J	0.010	0.00070	mg/L		06/05/14 13:22	06/06/14 00:49	1
Zinc	0.013	J	0.020	0.0096	mg/L		06/05/14 13:22	06/06/14 00:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		06/06/14 07:55	06/06/14 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as NO3	12		1.0	0.26	mg/L			06/05/14 02:09	1

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

Lab Sample ID: MB 720-160723/4
Matrix: Water
Analysis Batch: 160723

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50	0.069	ug/L			06/05/14 20:24	1
Acetone	ND		50	8.0	ug/L			06/05/14 20:24	1
Benzene	ND		0.50	0.25	ug/L			06/05/14 20:24	1
Dichlorobromomethane	ND		0.50	0.20	ug/L			06/05/14 20:24	1
Bromobenzene	ND		1.0	0.20	ug/L			06/05/14 20:24	1
Chlorobromomethane	ND		1.0	0.25	ug/L			06/05/14 20:24	1
Bromoform	ND		1.0	0.50	ug/L			06/05/14 20:24	1
Bromomethane	ND		1.0	0.49	ug/L			06/05/14 20:24	1
2-Butanone (MEK)	ND		50	8.4	ug/L			06/05/14 20:24	1
n-Butylbenzene	ND		1.0	0.30	ug/L			06/05/14 20:24	1
sec-Butylbenzene	ND		1.0	0.17	ug/L			06/05/14 20:24	1
tert-Butylbenzene	ND		1.0	0.20	ug/L			06/05/14 20:24	1
Carbon disulfide	ND		5.0	0.78	ug/L			06/05/14 20:24	1
Carbon tetrachloride	ND		0.50	0.11	ug/L			06/05/14 20:24	1
Chlorobenzene	ND		0.50	0.13	ug/L			06/05/14 20:24	1
Chloroethane	ND		1.0	0.17	ug/L			06/05/14 20:24	1
Chloroform	ND		1.0	0.40	ug/L			06/05/14 20:24	1
Chloromethane	ND		1.0	0.19	ug/L			06/05/14 20:24	1
2-Chlorotoluene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
4-Chlorotoluene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
Chlorodibromomethane	ND		0.50	0.10	ug/L			06/05/14 20:24	1
1,2-Dichlorobenzene	ND		0.50	0.21	ug/L			06/05/14 20:24	1
1,3-Dichlorobenzene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
1,4-Dichlorobenzene	ND		0.50	0.16	ug/L			06/05/14 20:24	1
1,3-Dichloropropane	ND		1.0	0.17	ug/L			06/05/14 20:24	1
1,1-Dichloropropene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.30	ug/L			06/05/14 20:24	1
Ethylene Dibromide	ND		0.50	0.075	ug/L			06/05/14 20:24	1
Dibromomethane	ND		0.50	0.30	ug/L			06/05/14 20:24	1
Dichlorodifluoromethane	ND		0.50	0.10	ug/L			06/05/14 20:24	1
1,1-Dichloroethane	ND		0.50	0.11	ug/L			06/05/14 20:24	1
1,2-Dichloroethane	ND		0.50	0.077	ug/L			06/05/14 20:24	1
1,1-Dichloroethene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
cis-1,2-Dichloroethene	ND		0.50	0.076	ug/L			06/05/14 20:24	1
trans-1,2-Dichloroethene	ND		0.50	0.13	ug/L			06/05/14 20:24	1
1,2-Dichloropropane	ND		0.50	0.20	ug/L			06/05/14 20:24	1
cis-1,3-Dichloropropene	ND		0.50	0.10	ug/L			06/05/14 20:24	1
trans-1,3-Dichloropropene	ND		0.50	0.17	ug/L			06/05/14 20:24	1
Ethylbenzene	ND		0.50	0.13	ug/L			06/05/14 20:24	1
Hexachlorobutadiene	ND		1.0	0.27	ug/L			06/05/14 20:24	1
2-Hexanone	ND		50	3.0	ug/L			06/05/14 20:24	1
Isopropylbenzene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			06/05/14 20:24	1
Methylene Chloride	ND		5.0	1.5	ug/L			06/05/14 20:24	1
4-Methyl-2-pentanone (MIBK)	ND		50	4.5	ug/L			06/05/14 20:24	1
Naphthalene	ND		1.0	0.22	ug/L			06/05/14 20:24	1
N-Propylbenzene	ND		1.0	0.20	ug/L			06/05/14 20:24	1
Styrene	ND		0.50	0.075	ug/L			06/05/14 20:24	1

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

Lab Sample ID: MB 720-160723/4
Matrix: Water
Analysis Batch: 160723

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.067	ug/L			06/05/14 20:24	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.074	ug/L			06/05/14 20:24	1
Tetrachloroethene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
Toluene	ND		0.50	0.17	ug/L			06/05/14 20:24	1
1,2,3-Trichlorobenzene	ND		1.0	0.21	ug/L			06/05/14 20:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.13	ug/L			06/05/14 20:24	1
1,1,1-Trichloroethane	ND		0.50	0.20	ug/L			06/05/14 20:24	1
1,1,2-Trichloroethane	ND		0.50	0.11	ug/L			06/05/14 20:24	1
Trichloroethene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
Trichlorofluoromethane	ND		1.0	0.067	ug/L			06/05/14 20:24	1
1,2,3-Trichloropropane	ND		0.50	0.087	ug/L			06/05/14 20:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.091	ug/L			06/05/14 20:24	1
1,2,4-Trimethylbenzene	ND		0.50	0.20	ug/L			06/05/14 20:24	1
1,3,5-Trimethylbenzene	ND		0.50	0.17	ug/L			06/05/14 20:24	1
Vinyl acetate	ND		10	0.60	ug/L			06/05/14 20:24	1
Vinyl chloride	ND		0.50	0.20	ug/L			06/05/14 20:24	1
Xylenes, Total	ND		1.0	0.49	ug/L			06/05/14 20:24	1
2,2-Dichloropropane	ND		0.50	0.17	ug/L			06/05/14 20:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*67 - 130*		*06/05/14 20:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 130*		*06/05/14 20:24*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*06/05/14 20:24*	*1*

Lab Sample ID: LCS 720-160723/5
Matrix: Water
Analysis Batch: 160723

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	25.0	24.7		ug/L		99	62 - 130
Acetone	125	130		ug/L		104	26 - 180
Benzene	25.0	25.7		ug/L		103	79 - 130
Dichlorobromomethane	25.0	26.9		ug/L		108	70 - 130
Bromobenzene	25.0	25.8		ug/L		103	70 - 130
Chlorobromomethane	25.0	25.9		ug/L		104	70 - 130
Bromoform	25.0	25.1		ug/L		101	68 - 136
Bromomethane	25.0	27.2		ug/L		109	43 - 151
2-Butanone (MEK)	125	123		ug/L		99	54 - 130
n-Butylbenzene	25.0	27.8		ug/L		111	70 - 142
sec-Butylbenzene	25.0	26.4		ug/L		106	70 - 134
tert-Butylbenzene	25.0	26.4		ug/L		106	70 - 135
Carbon disulfide	25.0	25.6		ug/L		103	58 - 130
Carbon tetrachloride	25.0	29.2		ug/L		117	70 - 146
Chlorobenzene	25.0	24.7		ug/L		99	70 - 130
Chloroethane	25.0	26.4		ug/L		106	62 - 138
Chloroform	25.0	26.1		ug/L		104	70 - 130
Chloromethane	25.0	25.4		ug/L		101	52 - 175
2-Chlorotoluene	25.0	26.4		ug/L		106	70 - 130

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

Lab Sample ID: LCS 720-160723/5
Matrix: Water
Analysis Batch: 160723

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chlorotoluene	25.0	26.4		ug/L		106	70 - 130
Chlorodibromomethane	25.0	28.3		ug/L		113	70 - 145
1,2-Dichlorobenzene	25.0	25.6		ug/L		102	70 - 130
1,3-Dichlorobenzene	25.0	26.3		ug/L		105	70 - 130
1,4-Dichlorobenzene	25.0	25.5		ug/L		102	70 - 130
1,3-Dichloropropane	25.0	25.8		ug/L		103	70 - 130
1,1-Dichloropropene	25.0	29.3		ug/L		117	70 - 130
1,2-Dibromo-3-Chloropropane	25.0	27.0		ug/L		108	70 - 136
Ethylene Dibromide	25.0	26.7		ug/L		107	70 - 130
Dibromomethane	25.0	26.4		ug/L		106	70 - 130
Dichlorodifluoromethane	25.0	31.2		ug/L		125	34 - 132
1,1-Dichloroethane	25.0	25.8		ug/L		103	70 - 130
1,2-Dichloroethane	25.0	24.7		ug/L		99	61 - 132
1,1-Dichloroethene	25.0	25.4		ug/L		102	64 - 128
cis-1,2-Dichloroethene	25.0	25.6		ug/L		103	70 - 130
trans-1,2-Dichloroethene	25.0	25.8		ug/L		103	68 - 130
1,2-Dichloropropane	25.0	26.4		ug/L		105	70 - 130
cis-1,3-Dichloropropene	25.0	27.5		ug/L		110	70 - 130
trans-1,3-Dichloropropene	25.0	29.3		ug/L		117	70 - 140
Ethylbenzene	25.0	24.4		ug/L		98	80 - 120
Hexachlorobutadiene	25.0	25.4		ug/L		102	70 - 130
2-Hexanone	125	127		ug/L		102	60 - 164
Isopropylbenzene	25.0	25.5		ug/L		102	70 - 130
4-Isopropyltoluene	25.0	26.6		ug/L		106	70 - 130
Methylene Chloride	25.0	26.6		ug/L		107	70 - 147
4-Methyl-2-pentanone (MIBK)	125	128		ug/L		102	58 - 130
Naphthalene	25.0	27.4		ug/L		110	70 - 130
N-Propylbenzene	25.0	27.1		ug/L		108	70 - 130
Styrene	25.0	25.6		ug/L		102	70 - 130
1,1,1,2-Tetrachloroethane	25.0	27.2		ug/L		109	70 - 130
1,1,2,2-Tetrachloroethane	25.0	27.0		ug/L		108	70 - 130
Tetrachloroethene	25.0	26.0		ug/L		104	70 - 130
Toluene	25.0	24.3		ug/L		97	78 - 120
1,2,3-Trichlorobenzene	25.0	25.6		ug/L		102	70 - 130
1,2,4-Trichlorobenzene	25.0	26.2		ug/L		105	70 - 130
1,1,1-Trichloroethane	25.0	27.6		ug/L		110	70 - 130
1,1,2-Trichloroethane	25.0	25.9		ug/L		104	70 - 130
Trichloroethene	25.0	26.8		ug/L		107	70 - 130
Trichlorofluoromethane	25.0	28.5		ug/L		114	66 - 132
1,2,3-Trichloropropane	25.0	26.6		ug/L		106	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroetha ne	25.0	24.7		ug/L		99	42 - 162
1,2,4-Trimethylbenzene	25.0	26.3		ug/L		105	70 - 132
1,3,5-Trimethylbenzene	25.0	26.8		ug/L		107	70 - 130
Vinyl acetate	50.0	66.0		ug/L		132	43 - 163
Vinyl chloride	25.0	29.5		ug/L		118	54 - 135
m-Xylene & p-Xylene	25.0	24.9		ug/L		100	70 - 142
o-Xylene	25.0	23.8		ug/L		95	70 - 130

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

Lab Sample ID: LCS 720-160723/5
Matrix: Water
Analysis Batch: 160723

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	25.0	30.1		ug/L		120	70 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*94*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Lab Sample ID: LCSD 720-160723/6
Matrix: Water
Analysis Batch: 160723

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether	25.0	24.6		ug/L		98	62 - 130	0	20
Acetone	125	130		ug/L		104	26 - 180	0	30
Benzene	25.0	25.0		ug/L		100	79 - 130	3	20
Dichlorobromomethane	25.0	25.8		ug/L		103	70 - 130	4	20
Bromobenzene	25.0	25.1		ug/L		100	70 - 130	3	20
Chlorobromomethane	25.0	25.1		ug/L		100	70 - 130	3	20
Bromoform	25.0	24.3		ug/L		97	68 - 136	4	20
Bromomethane	25.0	27.6		ug/L		110	43 - 151	1	20
2-Butanone (MEK)	125	140		ug/L		112	54 - 130	13	20
n-Butylbenzene	25.0	26.4		ug/L		106	70 - 142	5	20
sec-Butylbenzene	25.0	25.4		ug/L		102	70 - 134	4	20
tert-Butylbenzene	25.0	25.6		ug/L		102	70 - 135	3	20
Carbon disulfide	25.0	24.4		ug/L		98	58 - 130	5	20
Carbon tetrachloride	25.0	27.5		ug/L		110	70 - 146	6	20
Chlorobenzene	25.0	23.8		ug/L		95	70 - 130	4	20
Chloroethane	25.0	27.3		ug/L		109	62 - 138	3	20
Chloroform	25.0	24.8		ug/L		99	70 - 130	5	20
Chloromethane	25.0	25.8		ug/L		103	52 - 175	2	20
2-Chlorotoluene	25.0	25.4		ug/L		101	70 - 130	4	20
4-Chlorotoluene	25.0	25.1		ug/L		100	70 - 130	5	20
Chlorodibromomethane	25.0	26.8		ug/L		107	70 - 145	5	20
1,2-Dichlorobenzene	25.0	24.5		ug/L		98	70 - 130	4	20
1,3-Dichlorobenzene	25.0	25.1		ug/L		101	70 - 130	4	20
1,4-Dichlorobenzene	25.0	24.5		ug/L		98	70 - 130	4	20
1,3-Dichloropropane	25.0	24.9		ug/L		100	70 - 130	4	20
1,1-Dichloropropene	25.0	28.0		ug/L		112	70 - 130	5	20
1,2-Dibromo-3-Chloropropane	25.0	25.6		ug/L		102	70 - 136	5	20
Ethylene Dibromide	25.0	26.2		ug/L		105	70 - 130	2	20
Dibromomethane	25.0	25.6		ug/L		102	70 - 130	3	20
Dichlorodifluoromethane	25.0	30.3		ug/L		121	34 - 132	3	20
1,1-Dichloroethane	25.0	24.8		ug/L		99	70 - 130	4	20
1,2-Dichloroethane	25.0	23.3		ug/L		93	61 - 132	6	20
1,1-Dichloroethene	25.0	24.7		ug/L		99	64 - 128	3	20
cis-1,2-Dichloroethene	25.0	24.7		ug/L		99	70 - 130	4	20
trans-1,2-Dichloroethene	25.0	25.2		ug/L		101	68 - 130	3	20
1,2-Dichloropropane	25.0	25.2		ug/L		101	70 - 130	4	20

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

Lab Sample ID: LCSD 720-160723/6
Matrix: Water
Analysis Batch: 160723

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	25.0	26.7		ug/L		107	70 - 130	3	20
trans-1,3-Dichloropropene	25.0	27.9		ug/L		111	70 - 140	5	20
Ethylbenzene	25.0	23.3		ug/L		93	80 - 120	5	20
Hexachlorobutadiene	25.0	25.0		ug/L		100	70 - 130	2	20
2-Hexanone	125	128		ug/L		102	60 - 164	0	20
Isopropylbenzene	25.0	24.3		ug/L		97	70 - 130	5	20
4-Isopropyltoluene	25.0	25.4		ug/L		102	70 - 130	4	20
Methylene Chloride	25.0	25.3		ug/L		101	70 - 147	5	20
4-Methyl-2-pentanone (MIBK)	125	129		ug/L		103	58 - 130	1	20
Naphthalene	25.0	26.4		ug/L		105	70 - 130	4	20
N-Propylbenzene	25.0	26.1		ug/L		104	70 - 130	4	20
Styrene	25.0	24.9		ug/L		99	70 - 130	3	20
1,1,1,2-Tetrachloroethane	25.0	26.5		ug/L		106	70 - 130	2	20
1,1,2,2-Tetrachloroethane	25.0	26.5		ug/L		106	70 - 130	2	20
Tetrachloroethene	25.0	24.8		ug/L		99	70 - 130	5	20
Toluene	25.0	23.6		ug/L		94	78 - 120	3	20
1,2,3-Trichlorobenzene	25.0	24.6		ug/L		98	70 - 130	4	20
1,2,4-Trichlorobenzene	25.0	25.2		ug/L		101	70 - 130	4	20
1,1,1-Trichloroethane	25.0	25.5		ug/L		102	70 - 130	8	20
1,1,2-Trichloroethane	25.0	25.6		ug/L		102	70 - 130	1	20
Trichloroethene	25.0	25.5		ug/L		102	70 - 130	5	20
Trichlorofluoromethane	25.0	27.7		ug/L		111	66 - 132	3	20
1,2,3-Trichloropropane	25.0	26.4		ug/L		106	70 - 130	1	20
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	23.6		ug/L		94	42 - 162	4	20
1,2,4-Trimethylbenzene	25.0	25.1		ug/L		100	70 - 132	5	20
1,3,5-Trimethylbenzene	25.0	25.7		ug/L		103	70 - 130	4	20
Vinyl acetate	50.0	67.2		ug/L		134	43 - 163	2	20
Vinyl chloride	25.0	29.3		ug/L		117	54 - 135	1	20
m-Xylene & p-Xylene	25.0	23.9		ug/L		96	70 - 142	4	20
o-Xylene	25.0	23.0		ug/L		92	70 - 130	4	20
2,2-Dichloropropane	25.0	28.2		ug/L		113	70 - 140	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*92*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Lab Sample ID: 720-57826-A-12 MS
Matrix: Water
Analysis Batch: 160723

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	ND		25.0	25.3		ug/L		101	60 - 138
Acetone	ND		125	117		ug/L		93	60 - 140
Benzene	ND		25.0	25.3		ug/L		101	60 - 140
Dichlorobromomethane	ND		25.0	26.2		ug/L		105	60 - 140
Bromobenzene	ND		25.0	25.6		ug/L		103	60 - 140

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

Lab Sample ID: 720-57826-A-12 MS
Matrix: Water
Analysis Batch: 160723

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobromomethane	ND		25.0	25.8		ug/L		103	60 - 140
Bromoform	ND		25.0	24.7		ug/L		99	56 - 140
Bromomethane	ND		25.0	24.8		ug/L		99	23 - 140
2-Butanone (MEK)	ND		125	113		ug/L		90	60 - 140
n-Butylbenzene	ND		25.0	25.4		ug/L		102	60 - 140
sec-Butylbenzene	ND		25.0	24.8		ug/L		99	60 - 140
tert-Butylbenzene	ND		25.0	24.8		ug/L		99	60 - 140
Carbon disulfide	ND		25.0	24.9		ug/L		100	38 - 140
Carbon tetrachloride	5.0		25.0	31.8		ug/L		107	60 - 140
Chlorobenzene	ND		25.0	24.1		ug/L		96	60 - 140
Chloroethane	ND		25.0	25.1		ug/L		101	51 - 140
Chloroform	5.3		25.0	30.4		ug/L		100	60 - 140
Chloromethane	ND		25.0	20.8		ug/L		83	52 - 140
2-Chlorotoluene	ND		25.0	25.4		ug/L		102	60 - 140
4-Chlorotoluene	ND		25.0	25.2		ug/L		101	60 - 140
Chlorodibromomethane	ND		25.0	27.8		ug/L		111	60 - 140
1,2-Dichlorobenzene	ND		25.0	25.1		ug/L		100	60 - 140
1,3-Dichlorobenzene	ND		25.0	25.5		ug/L		102	60 - 140
1,4-Dichlorobenzene	ND		25.0	24.6		ug/L		98	60 - 140
1,3-Dichloropropane	0.26	J	25.0	25.6		ug/L		102	60 - 140
1,1-Dichloropropene	ND		25.0	27.1		ug/L		108	60 - 140
1,2-Dibromo-3-Chloropropane	ND		25.0	24.1		ug/L		97	60 - 140
Ethylene Dibromide	ND		25.0	26.7		ug/L		107	60 - 140
Dibromomethane	ND		25.0	26.0		ug/L		104	60 - 140
Dichlorodifluoromethane	ND		25.0	26.5		ug/L		106	38 - 140
1,1-Dichloroethane	ND		25.0	25.0		ug/L		100	60 - 140
1,2-Dichloroethane	0.31	J	25.0	23.8		ug/L		94	60 - 140
1,1-Dichloroethene	0.29	J	25.0	24.5		ug/L		97	60 - 140
cis-1,2-Dichloroethene	0.093	J	25.0	24.8		ug/L		99	60 - 140
trans-1,2-Dichloroethene	ND		25.0	25.6		ug/L		102	60 - 140
1,2-Dichloropropane	ND		25.0	26.6		ug/L		106	60 - 140
cis-1,3-Dichloropropene	ND		25.0	27.0		ug/L		108	60 - 140
trans-1,3-Dichloropropene	ND		25.0	29.1		ug/L		116	60 - 140
Ethylbenzene	ND		25.0	23.2		ug/L		93	60 - 140
Hexachlorobutadiene	ND		25.0	24.4		ug/L		98	60 - 140
2-Hexanone	ND		125	111		ug/L		89	60 - 140
Isopropylbenzene	ND		25.0	24.0		ug/L		96	60 - 140
4-Isopropyltoluene	ND		25.0	24.8		ug/L		99	60 - 140
Methylene Chloride	ND		25.0	26.9		ug/L		108	40 - 140
4-Methyl-2-pentanone (MIBK)	ND		125	114		ug/L		92	58 - 130
Naphthalene	ND		25.0	26.0		ug/L		104	56 - 140
N-Propylbenzene	ND		25.0	25.4		ug/L		102	60 - 140
Styrene	ND		25.0	25.3		ug/L		101	60 - 140
1,1,1,2-Tetrachloroethane	ND		25.0	26.7		ug/L		107	60 - 140
1,1,2,2-Tetrachloroethane	ND		25.0	26.4		ug/L		106	60 - 140
Tetrachloroethene	ND		25.0	24.4		ug/L		98	60 - 140
Toluene	ND		25.0	23.8		ug/L		95	60 - 140
1,2,3-Trichlorobenzene	ND		25.0	25.0		ug/L		100	60 - 140

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

Lab Sample ID: 720-57826-A-12 MS
Matrix: Water
Analysis Batch: 160723

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	ND		25.0	25.7		ug/L		103	60 - 140
1,1,1-Trichloroethane	ND		25.0	24.7		ug/L		99	60 - 140
1,1,2-Trichloroethane	ND		25.0	26.6		ug/L		106	60 - 140
Trichloroethene	0.33	J	25.0	25.8		ug/L		102	60 - 140
Trichlorofluoromethane	ND		25.0	23.9		ug/L		95	60 - 140
1,2,3-Trichloropropane	ND		25.0	25.0		ug/L		100	60 - 140
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25.0	22.9		ug/L		91	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	25.1		ug/L		100	60 - 140
1,3,5-Trimethylbenzene	ND		25.0	25.3		ug/L		101	60 - 140
Vinyl acetate	ND		50.0	62.3		ug/L		125	40 - 140
Vinyl chloride	ND		25.0	25.7		ug/L		103	58 - 140
m-Xylene & p-Xylene	ND		25.0	23.6		ug/L		94	60 - 140
o-Xylene	ND		25.0	23.0		ug/L		92	60 - 140
2,2-Dichloropropane	ND		25.0	25.3		ug/L		101	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene	*94*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Lab Sample ID: 720-57826-A-12 MSD
Matrix: Water
Analysis Batch: 160723

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether	ND		25.0	25.4		ug/L		102	60 - 138	0	20
Acetone	ND		125	109		ug/L		87	60 - 140	7	20
Benzene	ND		25.0	25.3		ug/L		101	60 - 140	0	20
Dichlorobromomethane	ND		25.0	25.7		ug/L		103	60 - 140	2	20
Bromobenzene	ND		25.0	26.5		ug/L		106	60 - 140	3	20
Chlorobromomethane	ND		25.0	25.5		ug/L		102	60 - 140	1	20
Bromoform	ND		25.0	24.3		ug/L		97	56 - 140	2	20
Bromomethane	ND		25.0	24.9		ug/L		100	23 - 140	0	20
2-Butanone (MEK)	ND		125	111		ug/L		89	60 - 140	2	20
n-Butylbenzene	ND		25.0	25.4		ug/L		101	60 - 140	0	20
sec-Butylbenzene	ND		25.0	25.0		ug/L		100	60 - 140	1	20
tert-Butylbenzene	ND		25.0	25.3		ug/L		101	60 - 140	2	20
Carbon disulfide	ND		25.0	24.9		ug/L		99	38 - 140	0	20
Carbon tetrachloride	5.0		25.0	31.1		ug/L		105	60 - 140	2	20
Chlorobenzene	ND		25.0	23.9		ug/L		96	60 - 140	0	20
Chloroethane	ND		25.0	24.9		ug/L		100	51 - 140	1	20
Chloroform	5.3		25.0	30.0		ug/L		99	60 - 140	1	20
Chloromethane	ND		25.0	20.8		ug/L		83	52 - 140	0	20
2-Chlorotoluene	ND		25.0	25.9		ug/L		103	60 - 140	2	20
4-Chlorotoluene	ND		25.0	25.3		ug/L		101	60 - 140	0	20
Chlorodibromomethane	ND		25.0	27.2		ug/L		109	60 - 140	2	20
1,2-Dichlorobenzene	ND		25.0	25.0		ug/L		100	60 - 140	0	20

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

Lab Sample ID: 720-57826-A-12 MSD
Matrix: Water
Analysis Batch: 160723

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichlorobenzene	ND		25.0	25.8		ug/L		103	60 - 140	1	20
1,4-Dichlorobenzene	ND		25.0	24.8		ug/L		99	60 - 140	1	20
1,3-Dichloropropane	0.26	J	25.0	25.3		ug/L		100	60 - 140	2	20
1,1-Dichloropropene	ND		25.0	26.8		ug/L		107	60 - 140	1	20
1,2-Dibromo-3-Chloropropane	ND		25.0	23.7		ug/L		95	60 - 140	2	20
Ethylene Dibromide	ND		25.0	25.9		ug/L		104	60 - 140	3	20
Dibromomethane	ND		25.0	25.5		ug/L		102	60 - 140	2	20
Dichlorodifluoromethane	ND		25.0	25.6		ug/L		102	38 - 140	3	20
1,1-Dichloroethane	ND		25.0	25.0		ug/L		100	60 - 140	0	20
1,2-Dichloroethane	0.31	J	25.0	22.8		ug/L		90	60 - 140	4	20
1,1-Dichloroethene	0.29	J	25.0	24.4		ug/L		97	60 - 140	0	20
cis-1,2-Dichloroethene	0.093	J	25.0	24.7		ug/L		98	60 - 140	0	20
trans-1,2-Dichloroethene	ND		25.0	25.3		ug/L		101	60 - 140	1	20
1,2-Dichloropropane	ND		25.0	26.5		ug/L		106	60 - 140	0	20
cis-1,3-Dichloropropene	ND		25.0	27.2		ug/L		109	60 - 140	1	20
trans-1,3-Dichloropropene	ND		25.0	28.3		ug/L		113	60 - 140	3	20
Ethylbenzene	ND		25.0	22.9		ug/L		92	60 - 140	1	20
Hexachlorobutadiene	ND		25.0	23.6		ug/L		94	60 - 140	4	20
2-Hexanone	ND		125	108		ug/L		86	60 - 140	3	20
Isopropylbenzene	ND		25.0	23.5		ug/L		94	60 - 140	2	20
4-Isopropyltoluene	ND		25.0	24.7		ug/L		99	60 - 140	1	20
Methylene Chloride	ND		25.0	27.3		ug/L		109	40 - 140	2	20
4-Methyl-2-pentanone (MIBK)	ND		125	111		ug/L		88	58 - 130	3	20
Naphthalene	ND		25.0	25.3		ug/L		101	56 - 140	3	20
N-Propylbenzene	ND		25.0	25.9		ug/L		103	60 - 140	2	20
Styrene	ND		25.0	25.3		ug/L		101	60 - 140	0	20
1,1,1,2-Tetrachloroethane	ND		25.0	26.8		ug/L		107	60 - 140	0	20
1,1,2,2-Tetrachloroethane	ND		25.0	26.5		ug/L		106	60 - 140	0	20
Tetrachloroethene	ND		25.0	24.2		ug/L		97	60 - 140	1	20
Toluene	ND		25.0	23.7		ug/L		95	60 - 140	0	20
1,2,3-Trichlorobenzene	ND		25.0	24.4		ug/L		98	60 - 140	3	20
1,2,4-Trichlorobenzene	ND		25.0	24.8		ug/L		99	60 - 140	4	20
1,1,1-Trichloroethane	ND		25.0	24.2		ug/L		97	60 - 140	2	20
1,1,2-Trichloroethane	ND		25.0	26.1		ug/L		104	60 - 140	2	20
Trichloroethene	0.33	J	25.0	25.4		ug/L		100	60 - 140	2	20
Trichlorofluoromethane	ND		25.0	23.0		ug/L		92	60 - 140	4	20
1,2,3-Trichloropropane	ND		25.0	24.7		ug/L		99	60 - 140	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25.0	22.8		ug/L		91	60 - 140	0	20
1,2,4-Trimethylbenzene	ND		25.0	25.4		ug/L		102	60 - 140	1	20
1,3,5-Trimethylbenzene	ND		25.0	25.8		ug/L		103	60 - 140	2	20
Vinyl acetate	ND		50.0	60.6		ug/L		121	40 - 140	3	20
Vinyl chloride	ND		25.0	26.1		ug/L		104	58 - 140	1	20
m-Xylene & p-Xylene	ND		25.0	23.4		ug/L		93	60 - 140	1	20
o-Xylene	ND		25.0	22.7		ug/L		91	60 - 140	1	20
2,2-Dichloropropane	ND		25.0	25.1		ug/L		101	60 - 140	1	20

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

Lab Sample ID: 720-57826-A-12 MSD
Matrix: Water
Analysis Batch: 160723

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

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene	*91*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 130*
Toluene-d8 (Surr)	*100*		*70 - 130*

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

Lab Sample ID: MB 720-160693/1-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160693

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Bis(2-chloroethyl)ether	ND		2.0	0.30	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Chlorophenol	ND		4.0	0.39	ug/L		06/05/14 13:16	06/06/14 00:48	1
1,3-Dichlorobenzene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
1,4-Dichlorobenzene	ND		2.0	0.27	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzyl alcohol	ND		5.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
1,2-Dichlorobenzene	ND		2.0	0.26	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Methylphenol	ND		4.0	0.38	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Methylphenol	ND		8.0	0.65	ug/L		06/05/14 13:16	06/06/14 00:48	1
N-Nitrosodi-n-propylamine	ND		2.0	0.40	ug/L		06/05/14 13:16	06/06/14 00:48	1
Hexachloroethane	ND		2.0	0.99	ug/L		06/05/14 13:16	06/06/14 00:48	1
Nitrobenzene	ND		2.0	0.36	ug/L		06/05/14 13:16	06/06/14 00:48	1
Isophorone	ND		4.0	0.60	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Nitrophenol	ND		2.0	0.99	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4-Dimethylphenol	ND		3.0	1.9	ug/L		06/05/14 13:16	06/06/14 00:48	1
Bis(2-chloroethoxy)methane	ND		5.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4-Dichlorophenol	ND		5.0	0.29	ug/L		06/05/14 13:16	06/06/14 00:48	1
1,2,4-Trichlorobenzene	ND		2.0	0.45	ug/L		06/05/14 13:16	06/06/14 00:48	1
Naphthalene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Chloroaniline	ND		2.0	0.27	ug/L		06/05/14 13:16	06/06/14 00:48	1
Hexachlorobutadiene	ND		2.0	0.51	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Chloro-3-methylphenol	ND		5.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Methylnaphthalene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Hexachlorocyclopentadiene	ND		5.0	2.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4,6-Trichlorophenol	ND		2.0	0.51	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4,5-Trichlorophenol	ND		4.0	0.37	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Chloronaphthalene	ND		4.0	0.45	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Nitroaniline	ND		10	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Dimethyl phthalate	ND		5.0	0.46	ug/L		06/05/14 13:16	06/06/14 00:48	1
Acenaphthylene	ND		4.0	0.43	ug/L		06/05/14 13:16	06/06/14 00:48	1
3-Nitroaniline	ND		5.0	0.92	ug/L		06/05/14 13:16	06/06/14 00:48	1
Acenaphthene	ND		2.0	0.28	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4-Dinitrophenol	ND		10	2.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Nitrophenol	ND		10	2.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Dibenzofuran	ND		4.0	0.51	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,4-Dinitrotoluene	ND		4.0	0.36	ug/L		06/05/14 13:16	06/06/14 00:48	1
2,6-Dinitrotoluene	ND		5.0	0.42	ug/L		06/05/14 13:16	06/06/14 00:48	1

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

Lab Sample ID: MB 720-160693/1-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160693

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diethyl phthalate	ND		5.0	0.57	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Chlorophenyl phenyl ether	ND		5.0	0.38	ug/L		06/05/14 13:16	06/06/14 00:48	1
Fluorene	ND		4.0	0.49	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Nitroaniline	ND		10	2.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
2-Methyl-4,6-dinitrophenol	ND		10	2.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
N-Nitrosodiphenylamine	ND		2.0	0.36	ug/L		06/05/14 13:16	06/06/14 00:48	1
4-Bromophenyl phenyl ether	ND		5.0	0.27	ug/L		06/05/14 13:16	06/06/14 00:48	1
Hexachlorobenzene	ND		2.0	0.32	ug/L		06/05/14 13:16	06/06/14 00:48	1
Pentachlorophenol	ND		10	0.80	ug/L		06/05/14 13:16	06/06/14 00:48	1
Phenanthrene	ND		2.0	0.34	ug/L		06/05/14 13:16	06/06/14 00:48	1
Anthracene	ND		2.0	0.29	ug/L		06/05/14 13:16	06/06/14 00:48	1
Di-n-butyl phthalate	ND		5.0	0.37	ug/L		06/05/14 13:16	06/06/14 00:48	1
Fluoranthene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Pyrene	ND		2.0	0.32	ug/L		06/05/14 13:16	06/06/14 00:48	1
Butyl benzyl phthalate	ND		5.0	0.30	ug/L		06/05/14 13:16	06/06/14 00:48	1
3,3'-Dichlorobenzidine	ND		5.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzo[a]anthracene	ND		5.0	0.65	ug/L		06/05/14 13:16	06/06/14 00:48	1
Bis(2-ethylhexyl) phthalate	2.66	J	10	1.5	ug/L		06/05/14 13:16	06/06/14 00:48	1
Chrysene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Di-n-octyl phthalate	ND		5.0	0.64	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzo[b]fluoranthene	ND		2.0	0.34	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzo[a]pyrene	ND		2.0	1.0	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzo[k]fluoranthene	ND		2.0	0.31	ug/L		06/05/14 13:16	06/06/14 00:48	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.39	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzo[g,h,i]perylene	ND		2.0	0.38	ug/L		06/05/14 13:16	06/06/14 00:48	1
Benzoic acid	3.11	J	10	1.7	ug/L		06/05/14 13:16	06/06/14 00:48	1
Azobenzene	ND		2.0	0.30	ug/L		06/05/14 13:16	06/06/14 00:48	1
Dibenz(a,h)anthracene	ND		2.0	0.40	ug/L		06/05/14 13:16	06/06/14 00:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*67*		*16 - 72*	*06/05/14 13:16*	*06/06/14 00:48*	*1*
2-Fluorobiphenyl	*64*		*10 - 101*	*06/05/14 13:16*	*06/06/14 00:48*	*1*
Terphenyl-d14	*89*		*42 - 112*	*06/05/14 13:16*	*06/06/14 00:48*	*1*
2-Fluorophenol	*33*		*10 - 65*	*06/05/14 13:16*	*06/06/14 00:48*	*1*
Phenol-d5	*21*		*10 - 46*	*06/05/14 13:16*	*06/06/14 00:48*	*1*
2,4,6-Tribromophenol	*83*		*17 - 100*	*06/05/14 13:16*	*06/06/14 00:48*	*1*

Lab Sample ID: LCS 720-160693/2-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160693

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	40.0	10.6		ug/L		27	10 - 115
Bis(2-chloroethyl)ether	40.0	26.6		ug/L		67	12 - 115
2-Chlorophenol	40.0	26.3		ug/L		66	14 - 115
1,3-Dichlorobenzene	40.0	25.2		ug/L		63	13 - 115
1,4-Dichlorobenzene	40.0	25.5		ug/L		64	14 - 115
Benzyl alcohol	40.0	48.6	*	ug/L		122	19 - 115

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

Lab Sample ID: LCS 720-160693/2-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160693

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	40.0	25.4		ug/L		63	10 - 115
2-Methylphenol	40.0	22.9		ug/L		57	13 - 115
4-Methylphenol	40.0	21.8		ug/L		54	10 - 115
N-Nitrosodi-n-propylamine	40.0	27.5		ug/L		69	17 - 115
Hexachloroethane	40.0	25.1		ug/L		63	9 - 115
Nitrobenzene	40.0	27.7		ug/L		69	18 - 115
Isophorone	40.0	26.8		ug/L		67	18 - 134
2-Nitrophenol	40.0	28.5		ug/L		71	14 - 115
2,4-Dimethylphenol	40.0	26.6		ug/L		67	10 - 119
Bis(2-chloroethoxy)methane	40.0	26.4		ug/L		66	10 - 119
2,4-Dichlorophenol	40.0	26.8		ug/L		67	13 - 118
1,2,4-Trichlorobenzene	40.0	24.9		ug/L		62	10 - 115
Naphthalene	40.0	26.1		ug/L		65	12 - 115
4-Chloroaniline	40.0	23.5		ug/L		59	26 - 115
Hexachlorobutadiene	40.0	24.7		ug/L		62	12 - 115
4-Chloro-3-methylphenol	40.0	28.1		ug/L		70	19 - 128
2-Methylnaphthalene	40.0	26.3		ug/L		66	16 - 115
Hexachlorocyclopentadiene	40.0	24.2		ug/L		60	10 - 115
2,4,6-Trichlorophenol	40.0	28.5		ug/L		71	20 - 120
2,4,5-Trichlorophenol	40.0	28.9		ug/L		72	22 - 117
2-Chloronaphthalene	40.0	26.9		ug/L		67	17 - 115
2-Nitroaniline	40.0	32.2		ug/L		81	37 - 119
Dimethyl phthalate	40.0	32.5		ug/L		81	48 - 127
Acenaphthylene	40.0	27.0		ug/L		68	29 - 129
3-Nitroaniline	40.0	32.7		ug/L		82	40 - 115
Acenaphthene	40.0	28.7		ug/L		72	25 - 115
2,4-Dinitrophenol	80.0	78.1		ug/L		98	44 - 116
4-Nitrophenol	80.0	30.7		ug/L		38	20 - 115
Dibenzofuran	40.0	28.6		ug/L		72	28 - 115
2,4-Dinitrotoluene	40.0	34.8		ug/L		87	42 - 115
2,6-Dinitrotoluene	40.0	32.1		ug/L		80	46 - 119
Diethyl phthalate	40.0	32.6		ug/L		81	44 - 115
4-Chlorophenyl phenyl ether	40.0	29.7		ug/L		74	32 - 115
Fluorene	40.0	30.5		ug/L		76	39 - 115
4-Nitroaniline	40.0	31.0		ug/L		78	46 - 115
2-Methyl-4,6-dinitrophenol	80.0	69.6		ug/L		87	42 - 135
N-Nitrosodiphenylamine	40.0	31.2		ug/L		78	41 - 115
4-Bromophenyl phenyl ether	40.0	30.3		ug/L		76	42 - 115
Hexachlorobenzene	40.0	31.7		ug/L		79	49 - 115
Pentachlorophenol	80.0	73.1		ug/L		91	42 - 121
Phenanthrene	40.0	33.1		ug/L		83	54 - 115
Anthracene	40.0	32.9		ug/L		82	54 - 115
Di-n-butyl phthalate	40.0	32.2		ug/L		80	58 - 115
Fluoranthene	40.0	33.6		ug/L		84	65 - 115
Pyrene	40.0	34.8		ug/L		87	53 - 115
Butyl benzyl phthalate	40.0	35.2		ug/L		88	37 - 115
3,3'-Dichlorobenzidine	40.0	31.3		ug/L		78	24 - 110
Benzo[a]anthracene	40.0	34.1		ug/L		85	56 - 115

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

Lab Sample ID: LCS 720-160693/2-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160693

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	40.0	39.5		ug/L		99	59 - 115
Chrysene	40.0	35.9		ug/L		90	50 - 115
Di-n-octyl phthalate	40.0	38.2		ug/L		95	12 - 115
Benzo[b]fluoranthene	40.0	30.1		ug/L		75	50 - 115
Benzo[a]pyrene	40.0	33.2		ug/L		83	55 - 115
Benzo[k]fluoranthene	40.0	35.9		ug/L		90	60 - 115
Indeno[1,2,3-cd]pyrene	40.0	33.7		ug/L		84	49 - 117
Benzo[g,h,i]perylene	40.0	34.5		ug/L		86	54 - 115
Benzoic acid	40.0	15.3		ug/L		38	10 - 115
Azobenzene	40.0	30.0		ug/L		75	42 - 115
Dibenz(a,h)anthracene	40.0	34.2		ug/L		85	47 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*70*		*16 - 72*
2-Fluorobiphenyl	*67*		*10 - 101*
Terphenyl-d14	*89*		*42 - 112*
2-Fluorophenol	*37*		*10 - 65*
Phenol-d5	*24*		*10 - 46*
2,4,6-Tribromophenol	*94*		*17 - 100*

Lab Sample ID: LCSD 720-160693/3-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160693

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	40.0	9.94		ug/L		25	10 - 115	7	51
Bis(2-chloroethyl)ether	40.0	24.6		ug/L		61	12 - 115	8	35
2-Chlorophenol	40.0	24.5		ug/L		61	14 - 115	7	40
1,3-Dichlorobenzene	40.0	23.6		ug/L		59	13 - 115	7	40
1,4-Dichlorobenzene	40.0	24.5		ug/L		61	14 - 115	4	41
Benzyl alcohol	40.0	29.1	*	ug/L		73	19 - 115	50	35
1,2-Dichlorobenzene	40.0	24.1		ug/L		60	10 - 115	5	35
2-Methylphenol	40.0	21.7		ug/L		54	13 - 115	6	35
4-Methylphenol	40.0	20.4		ug/L		51	10 - 115	6	35
N-Nitrosodi-n-propylamine	40.0	25.6		ug/L		64	17 - 115	7	34
Hexachloroethane	40.0	23.4		ug/L		59	9 - 115	7	35
Nitrobenzene	40.0	26.2		ug/L		65	18 - 115	6	43
Isophorone	40.0	25.0		ug/L		62	18 - 134	7	39
2-Nitrophenol	40.0	26.6		ug/L		67	14 - 115	7	46
2,4-Dimethylphenol	40.0	24.0		ug/L		60	10 - 119	11	44
Bis(2-chloroethoxy)methane	40.0	24.6		ug/L		61	10 - 119	7	46
2,4-Dichlorophenol	40.0	24.8		ug/L		62	13 - 118	8	38
1,2,4-Trichlorobenzene	40.0	23.3		ug/L		58	10 - 115	7	51
Naphthalene	40.0	24.8		ug/L		62	12 - 115	5	42
4-Chloroaniline	40.0	22.2		ug/L		55	26 - 115	6	49
Hexachlorobutadiene	40.0	22.9		ug/L		57	12 - 115	8	46
4-Chloro-3-methylphenol	40.0	26.6		ug/L		66	19 - 128	5	40
2-Methylnaphthalene	40.0	24.3		ug/L		61	16 - 115	8	45

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

Lab Sample ID: LCSD 720-160693/3-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160693

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachlorocyclopentadiene			40.0	22.1		ug/L		55	10 - 115	9	63
2,4,6-Trichlorophenol			40.0	26.1		ug/L		65	20 - 120	9	43
2,4,5-Trichlorophenol			40.0	27.3		ug/L		68	22 - 117	6	41
2-Chloronaphthalene			40.0	25.4		ug/L		63	17 - 115	6	49
2-Nitroaniline			40.0	31.1		ug/L		78	37 - 119	4	29
Dimethyl phthalate			40.0	31.8		ug/L		80	48 - 127	2	29
Acenaphthylene			40.0	25.3		ug/L		63	29 - 129	7	40
3-Nitroaniline			40.0	32.4		ug/L		81	40 - 115	1	30
Acenaphthene			40.0	27.0		ug/L		68	25 - 115	6	40
2,4-Dinitrophenol			80.0	77.3		ug/L		97	44 - 116	1	21
4-Nitrophenol			80.0	31.3		ug/L		39	20 - 115	2	32
Dibenzofuran			40.0	26.8		ug/L		67	28 - 115	7	46
2,4-Dinitrotoluene			40.0	35.2		ug/L		88	42 - 115	1	19
2,6-Dinitrotoluene			40.0	31.4		ug/L		78	46 - 119	2	26
Diethyl phthalate			40.0	32.3		ug/L		81	44 - 115	1	24
4-Chlorophenyl phenyl ether			40.0	28.3		ug/L		71	32 - 115	5	38
Fluorene			40.0	29.5		ug/L		74	39 - 115	3	39
4-Nitroaniline			40.0	31.5		ug/L		79	46 - 115	2	23
2-Methyl-4,6-dinitrophenol			80.0	69.8		ug/L		87	42 - 135	0	19
N-Nitrosodiphenylamine			40.0	30.7		ug/L		77	41 - 115	2	27
4-Bromophenyl phenyl ether			40.0	29.6		ug/L		74	42 - 115	2	29
Hexachlorobenzene			40.0	31.1		ug/L		78	49 - 115	2	28
Pentachlorophenol			80.0	72.1		ug/L		90	42 - 121	1	22
Phenanthrene			40.0	33.5		ug/L		84	54 - 115	1	35
Anthracene			40.0	32.0		ug/L		80	54 - 115	3	25
Di-n-butyl phthalate			40.0	33.1		ug/L		83	58 - 115	3	26
Fluoranthene			40.0	34.7		ug/L		87	65 - 115	3	26
Pyrene			40.0	34.7		ug/L		87	53 - 115	0	22
Butyl benzyl phthalate			40.0	35.1		ug/L		88	37 - 115	0	21
3,3'-Dichlorobenzidine			40.0	31.1		ug/L		78	24 - 110	1	30
Benzo[a]anthracene			40.0	34.6		ug/L		86	56 - 115	1	24
Bis(2-ethylhexyl) phthalate			40.0	40.1		ug/L		100	59 - 115	2	30
Chrysene			40.0	36.9		ug/L		92	50 - 115	3	24
Di-n-octyl phthalate			40.0	37.7		ug/L		94	12 - 115	1	27
Benzo[b]fluoranthene			40.0	31.6		ug/L		79	50 - 115	5	31
Benzo[a]pyrene			40.0	34.5		ug/L		86	55 - 115	4	23
Benzo[k]fluoranthene			40.0	36.1		ug/L		90	60 - 115	0	39
Indeno[1,2,3-cd]pyrene			40.0	33.9		ug/L		85	49 - 117	0	19
Benzo[g,h,i]perylene			40.0	35.5		ug/L		89	54 - 115	3	35
Benzoic acid			40.0	14.2		ug/L		36	10 - 115	7	56
Azobenzene			40.0	29.6		ug/L		74	42 - 115	1	35
Dibenz(a,h)anthracene			40.0	34.0		ug/L		85	47 - 127	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*66*		*16 - 72*
2-Fluorobiphenyl	*62*		*10 - 101*
Terphenyl-d14	*89*		*42 - 112*
2-Fluorophenol	*34*		*10 - 65*

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

Lab Sample ID: LCSD 720-160693/3-A
Matrix: Water
Analysis Batch: 160711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160693

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5	*22*		*10 - 46*
2,4,6-Tribromophenol	*92*		*17 - 100*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 720-160936/1-A
Matrix: Water
Analysis Batch: 160979

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.060	0.0050	ug/L		06/10/14 13:39	06/11/14 01:09	1
Dieldrin	ND		0.060	0.0090	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endrin aldehyde	ND		0.060	0.016	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endrin	ND		0.060	0.011	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endrin ketone	ND		0.060	0.010	ug/L		06/10/14 13:39	06/11/14 01:09	1
Heptachlor	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
Heptachlor epoxide	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
4,4'-DDT	ND		0.060	0.023	ug/L		06/10/14 13:39	06/11/14 01:09	1
4,4'-DDE	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
4,4'-DDD	ND		0.060	0.015	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endosulfan I	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endosulfan II	ND		0.060	0.014	ug/L		06/10/14 13:39	06/11/14 01:09	1
alpha-BHC	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
beta-BHC	ND		0.060	0.010	ug/L		06/10/14 13:39	06/11/14 01:09	1
gamma-BHC (Lindane)	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
delta-BHC	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
Endosulfan sulfate	ND		0.060	0.010	ug/L		06/10/14 13:39	06/11/14 01:09	1
Methoxychlor	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1
Toxaphene	ND		1.0	0.39	ug/L		06/10/14 13:39	06/11/14 01:09	1
Chlordane (technical)	ND		1.0	0.40	ug/L		06/10/14 13:39	06/11/14 01:09	1
alpha-Chlordane	ND		0.060	0.0080	ug/L		06/10/14 13:39	06/11/14 01:09	1
gamma-Chlordane	ND		0.060	0.0060	ug/L		06/10/14 13:39	06/11/14 01:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*74*		*36 - 112*	*06/10/14 13:39*	*06/11/14 01:09*	*1*
DCB Decachlorobiphenyl	*98*		*14 - 103*	*06/10/14 13:39*	*06/11/14 01:09*	*1*

Lab Sample ID: LCS 720-160936/2-A
Matrix: Water
Analysis Batch: 160979

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.500	0.338		ug/L		68	44 - 120
Dieldrin	0.500	0.476		ug/L		95	43 - 120
Endrin	0.500	0.476		ug/L		95	15 - 138
Heptachlor	0.500	0.329		ug/L		66	17 - 128
4,4'-DDT	0.500	0.527		ug/L		105	46 - 120

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 720-160936/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160979 — **Prep Batch: 160936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
gamma-BHC (Lindane)	0.500	0.365		ug/L		73	46 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*68*		*36 - 112*
DCB Decachlorobiphenyl	*104*	*X*	*14 - 103*

Lab Sample ID: LCSD 720-160936/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160979 — **Prep Batch: 160936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	0.500	0.376		ug/L		75	44 - 120	11	20
Dieldrin	0.500	0.453		ug/L		91	43 - 120	5	20
Endrin	0.500	0.450		ug/L		90	15 - 138	6	20
Heptachlor	0.500	0.360		ug/L		72	17 - 128	9	20
4,4'-DDT	0.500	0.482		ug/L		96	46 - 120	9	20
gamma-BHC (Lindane)	0.500	0.395		ug/L		79	46 - 121	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*76*		*36 - 112*
DCB Decachlorobiphenyl	*94*		*14 - 103*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-240167/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 240411 — **Prep Batch: 240167**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dicamba	ND		1.0	0.077	ug/L		06/10/14 10:27	06/11/14 12:02	1
Dichlorprop	ND		1.0	0.37	ug/L		06/10/14 10:27	06/11/14 12:02	1
2,4-D	ND		1.0	0.47	ug/L		06/10/14 10:27	06/11/14 12:02	1
Silvex (2,4,5-TP)	ND		1.0	0.29	ug/L		06/10/14 10:27	06/11/14 12:02	1
2,4,5-T	ND		1.0	0.43	ug/L		06/10/14 10:27	06/11/14 12:02	1
2,4-DB	ND		1.0	0.12	ug/L		06/10/14 10:27	06/11/14 12:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*84*		*30 - 129*	*06/10/14 10:27*	*06/11/14 12:02*	*1*

Lab Sample ID: LCS 500-240167/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 240411 — **Prep Batch: 240167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dicamba	4.02	3.18		ug/L		79	53 - 120
Dichlorprop	4.00	3.05		ug/L		76	32 - 110
2,4-D	4.00	2.96		ug/L		74	20 - 115

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 500-240167/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 240411 — **Prep Batch: 240167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silvex (2,4,5-TP)	4.02	3.14		ug/L		78	32 - 131
2,4,5-T	4.02	2.88		ug/L		71	30 - 133
2,4-DB	4.03	3.16		ug/L		79	30 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*83*		*30 - 129*

Lab Sample ID: LCSD 500-240167/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 240411 — **Prep Batch: 240167**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dicamba	4.02	3.10		ug/L		77	53 - 120	3	20
Dichlorprop	4.00	2.88		ug/L		72	32 - 110	6	20
2,4-D	4.00	2.80		ug/L		70	20 - 115	6	20
Silvex (2,4,5-TP)	4.02	2.97		ug/L		74	32 - 131	5	20
2,4,5-T	4.02	2.71		ug/L		67	30 - 133	6	20
2,4-DB	4.03	3.03		ug/L		75	30 - 137	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*79*		*30 - 129*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 720-160688/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.010	0.0027	mg/L		06/05/14 12:18	06/05/14 23:14	1
Arsenic	ND		0.010	0.0026	mg/L		06/05/14 12:18	06/05/14 23:14	1
Barium	ND		0.0050	0.0014	mg/L		06/05/14 12:18	06/05/14 23:14	1
Beryllium	ND		0.0020	0.00033	mg/L		06/05/14 12:18	06/05/14 23:14	1
Cadmium	ND		0.0025	0.0013	mg/L		06/05/14 12:18	06/05/14 23:14	1
Chromium	ND		0.010	0.0015	mg/L		06/05/14 12:18	06/05/14 23:14	1
Cobalt	ND		0.0020	0.0012	mg/L		06/05/14 12:18	06/05/14 23:14	1
Copper	ND		0.020	0.0015	mg/L		06/05/14 12:18	06/05/14 23:14	1
Lead	ND		0.0050	0.0023	mg/L		06/05/14 12:18	06/05/14 23:14	1
Molybdenum	ND		0.010	0.0023	mg/L		06/05/14 12:18	06/05/14 23:14	1
Nickel	ND		0.010	0.00080	mg/L		06/05/14 12:18	06/05/14 23:14	1
Selenium	ND		0.020	0.0071	mg/L		06/05/14 12:18	06/05/14 23:14	1
Silver	ND		0.0050	0.0012	mg/L		06/05/14 12:18	06/05/14 23:14	1
Thallium	ND		0.010	0.0035	mg/L		06/05/14 12:18	06/05/14 23:14	1
Vanadium	ND		0.010	0.00070	mg/L		06/05/14 12:18	06/05/14 23:14	1
Zinc	ND		0.020	0.0096	mg/L		06/05/14 12:18	06/05/14 23:14	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 720-160688/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	1.00	0.963		mg/L		96	80 - 120
Arsenic	1.00	0.959		mg/L		96	80 - 120
Barium	1.00	0.966		mg/L		97	80 - 120
Beryllium	1.00	0.956		mg/L		96	80 - 120
Cadmium	1.00	0.978		mg/L		98	80 - 120
Chromium	1.00	0.983		mg/L		98	80 - 120
Cobalt	1.00	0.981		mg/L		98	80 - 120
Copper	1.00	0.974		mg/L		97	80 - 120
Lead	1.00	0.992		mg/L		99	80 - 120
Molybdenum	1.00	0.997		mg/L		100	80 - 120
Nickel	1.00	0.982		mg/L		98	80 - 120
Selenium	1.00	0.946		mg/L		95	80 - 120
Silver	0.500	0.488		mg/L		98	80 - 120
Thallium	1.00	0.997		mg/L		100	80 - 120
Vanadium	1.00	0.970		mg/L		97	80 - 120
Zinc	1.00	0.969		mg/L		97	80 - 120

Lab Sample ID: LCSD 720-160688/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	1.00	1.01		mg/L		101	80 - 120	4	20
Arsenic	1.00	0.983		mg/L		98	80 - 120	2	20
Barium	1.00	0.992		mg/L		99	80 - 120	3	20
Beryllium	1.00	0.996		mg/L		100	80 - 120	4	20
Cadmium	1.00	1.01		mg/L		101	80 - 120	3	20
Chromium	1.00	1.03		mg/L		103	80 - 120	4	20
Cobalt	1.00	0.999		mg/L		100	80 - 120	2	20
Copper	1.00	1.01		mg/L		101	80 - 120	3	20
Lead	1.00	1.01		mg/L		101	80 - 120	2	20
Molybdenum	1.00	1.03		mg/L		103	80 - 120	3	20
Nickel	1.00	1.01		mg/L		101	80 - 120	3	20
Selenium	1.00	0.980		mg/L		98	80 - 120	4	20
Silver	0.500	0.506		mg/L		101	80 - 120	4	20
Thallium	1.00	1.02		mg/L		102	80 - 120	2	20
Vanadium	1.00	1.00		mg/L		100	80 - 120	3	20
Zinc	1.00	0.993		mg/L		99	80 - 120	2	20

Lab Sample ID: 720-57767-B-8-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0042	J	1.00	0.965		mg/L		96	75 - 125
Arsenic	0.0033	J	1.00	0.976		mg/L		97	75 - 125
Barium	0.035		1.00	0.983		mg/L		95	75 - 125
Beryllium	ND		1.00	0.955		mg/L		96	75 - 125

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 720-57767-B-8-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		1.00	0.957		mg/L		96	75 - 125
Chromium	0.0088	J	1.00	0.979		mg/L		97	75 - 125
Cobalt	ND		1.00	0.923		mg/L		92	75 - 125
Copper	0.0019	J	1.00	0.951		mg/L		95	75 - 125
Lead	ND		1.00	0.925		mg/L		93	75 - 125
Molybdenum	0.011		1.00	0.994		mg/L		98	75 - 125
Nickel	0.0049	J	1.00	0.936		mg/L		93	75 - 125
Selenium	ND		1.00	0.950		mg/L		95	75 - 125
Silver	ND		0.500	0.492		mg/L		98	75 - 125
Thallium	ND		1.00	0.908		mg/L		91	75 - 125
Vanadium	0.012		1.00	0.986		mg/L		97	75 - 125
Zinc	ND		1.00	0.948		mg/L		95	75 - 125

Lab Sample ID: 720-57767-B-8-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160741 — **Prep Batch: 160688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.0042	J	1.00	0.968		mg/L		96	75 - 125	0	20
Arsenic	0.0033	J	1.00	0.970		mg/L		97	75 - 125	1	20
Barium	0.035		1.00	0.973		mg/L		94	75 - 125	1	20
Beryllium	ND		1.00	0.937		mg/L		94	75 - 125	2	20
Cadmium	ND		1.00	0.947		mg/L		95	75 - 125	1	20
Chromium	0.0088	J	1.00	0.955		mg/L		95	75 - 125	2	20
Cobalt	ND		1.00	0.919		mg/L		92	75 - 125	0	20
Copper	0.0019	J	1.00	0.932		mg/L		93	75 - 125	2	20
Lead	ND		1.00	0.924		mg/L		92	75 - 125	0	20
Molybdenum	0.011		1.00	0.991		mg/L		98	75 - 125	0	20
Nickel	0.0049	J	1.00	0.926		mg/L		92	75 - 125	1	20
Selenium	ND		1.00	0.936		mg/L		94	75 - 125	1	20
Silver	ND		0.500	0.482		mg/L		96	75 - 125	2	20
Thallium	ND		1.00	0.908		mg/L		91	75 - 125	0	20
Vanadium	0.012		1.00	0.968		mg/L		96	75 - 125	2	20
Zinc	ND		1.00	0.938		mg/L		94	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 720-160744/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160779 — **Prep Batch: 160744**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		06/06/14 07:54	06/06/14 14:01	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 720-160744/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160779 — **Prep Batch: 160744**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0100	0.00994		mg/L		99	85 - 115

Lab Sample ID: LCSD 720-160744/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160779 — **Prep Batch: 160744**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0100	0.0105		mg/L		105	85 - 115	5	20

Lab Sample ID: 720-57790-C-4-E MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160779 — **Prep Batch: 160744**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.0100	0.00970		mg/L		97	70 - 130

Lab Sample ID: 720-57790-C-4-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160779 — **Prep Batch: 160744**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0100	0.00958		mg/L		96	70 - 130	1	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 720-160588/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as NO3	ND		1.0	0.26	mg/L			06/04/14 12:05	1

Lab Sample ID: LCS 720-160588/14 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as NO3	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: 720-57781-A-10 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as NO3	310		1000	1270		mg/L		96	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 720-57781-A-10 MSD
Matrix: Water
Analysis Batch: 160588

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as NO3	310		1000	1270		mg/L		96	80 - 120	0	20

QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

GC/MS VOA

Analysis Batch: 160723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	8260B	
720-57826-A-12 MS	Matrix Spike	Total/NA	Water	8260B	
720-57826-A-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 720-160723/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 720-160723/6	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 720-160723/4	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 160693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	3510C	
LCS 720-160693/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 720-160693/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 720-160693/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 160711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	8270C	160693
LCS 720-160693/2-A	Lab Control Sample	Total/NA	Water	8270C	160693
LCSD 720-160693/3-A	Lab Control Sample Dup	Total/NA	Water	8270C	160693
MB 720-160693/1-A	Method Blank	Total/NA	Water	8270C	160693

GC Semi VOA

Prep Batch: 160936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	3510C	
LCS 720-160936/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 720-160936/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 720-160936/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 160979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	8081A	160936
LCS 720-160936/2-A	Lab Control Sample	Total/NA	Water	8081A	160936
LCSD 720-160936/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	160936
MB 720-160936/1-A	Method Blank	Total/NA	Water	8081A	160936

Prep Batch: 240167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	8151A	
LCS 500-240167/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 500-240167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 500-240167/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 240411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57813-1	IDF	Total/NA	Water	8151A	240167
LCS 500-240167/2-A	Lab Control Sample	Total/NA	Water	8151A	240167

GC Semi VOA (Continued)

Analysis Batch: 240411 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 500-240167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	240167
MB 500-240167/1-A	Method Blank	Total/NA	Water	8151A	240167

Metals

Prep Batch: 160688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57767-B-8-B MS	Matrix Spike	Total/NA	Water	3010A	
720-57767-B-8-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	
720-57813-1	IDF	Total/NA	Water	3010A	
LCS 720-160688/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 720-160688/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
MB 720-160688/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 160741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57767-B-8-B MS	Matrix Spike	Total/NA	Water	6010B	160688
720-57767-B-8-C MSD	Matrix Spike Duplicate	Total/NA	Water	6010B	160688
720-57813-1	IDF	Total/NA	Water	6010B	160688
LCS 720-160688/2-A	Lab Control Sample	Total/NA	Water	6010B	160688
LCSD 720-160688/3-A	Lab Control Sample Dup	Total/NA	Water	6010B	160688
MB 720-160688/1-A	Method Blank	Total/NA	Water	6010B	160688

Prep Batch: 160744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57790-C-4-E MS	Matrix Spike	Total/NA	Water	7470A	
720-57790-C-4-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	
720-57813-1	IDF	Total/NA	Water	7470A	
LCS 720-160744/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 720-160744/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
MB 720-160744/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 160779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57790-C-4-E MS	Matrix Spike	Total/NA	Water	7470A	160744
720-57790-C-4-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	160744
720-57813-1	IDF	Total/NA	Water	7470A	160744
LCS 720-160744/2-A	Lab Control Sample	Total/NA	Water	7470A	160744
LCSD 720-160744/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	160744
MB 720-160744/1-A	Method Blank	Total/NA	Water	7470A	160744

General Chemistry

Analysis Batch: 160588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57781-A-10 MS	Matrix Spike	Total/NA	Water	300.0	
720-57781-A-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
720-57813-1	IDF	Total/NA	Water	300.0	
LCS 720-160588/14	Lab Control Sample	Total/NA	Water	300.0	
MB 720-160588/13	Method Blank	Total/NA	Water	300.0	

Lab Chronicle

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Client Sample ID: IDF

Lab Sample ID: 720-57813-1

Date Collected: 06/04/14 12:00

Matrix: Water

Date Received: 06/04/14 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	160723	06/05/14 23:00	PDR	TAL PLS
Total/NA	Prep	3510C			160693	06/05/14 13:16	NDU	TAL PLS
Total/NA	Analysis	8270C		1	160711	06/06/14 01:12	MQL	TAL PLS
Total/NA	Prep	3510C			160936	06/10/14 13:39	NDU	TAL PLS
Total/NA	Analysis	8081A		1	160979	06/11/14 02:50	MQL	TAL PLS
Total/NA	Prep	8151A			240167	06/10/14 10:27	AAS	TAL CHI
Total/NA	Analysis	8151A		1	240411	06/11/14 13:08	SAW	TAL CHI
Total/NA	Prep	3010A			160688	06/05/14 13:22	ECT	TAL PLS
Total/NA	Analysis	6010B		1	160741	06/06/14 00:49	SLK	TAL PLS
Total/NA	Prep	7470A			160744	06/06/14 07:55	ECT	TAL PLS
Total/NA	Analysis	7470A		1	160779	06/06/14 14:30	EFH	TAL PLS
Total/NA	Analysis	300.0		1	160588	06/05/14 02:09	MJK	TAL PLS

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-16

Laboratory: TestAmerica Chicago

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40461	04-30-15
California	State Program	9	2903	04-30-15
Georgia	State Program	4	N/A	04-30-15
Georgia	State Program	4	939	04-30-15
Hawaii	State Program	9	N/A	04-30-15
Illinois	NELAP	5	100201	04-30-15
Indiana	State Program	5	C-IL-02	04-30-15
Iowa	State Program	7	82	04-30-14 *
Kansas	NELAP	7	E-10161	10-31-14
Kentucky (UST)	State Program	4	66	04-30-15
Kentucky (WW)	State Program	4	KY90023	12-31-14
Louisiana	NELAP	6	30720	06-30-14 *
Massachusetts	State Program	1	M-IL035	06-30-14 *
Mississippi	State Program	4	N/A	04-30-15
New York	NELAP	2	IL00035	03-31-15
North Carolina DENR	State Program	4	291	12-31-14
North Dakota	State Program	8	R-194	04-30-14 *
Oklahoma	State Program	6	8908	08-31-14
South Carolina	State Program	4	77001	04-30-14 *
USDA	Federal		P330-12-00038	02-06-15
Wisconsin	State Program	5	999580010	08-31-14
Wyoming	State Program	8	8TMS-Q	04-30-14 *

* Certification renewal pending - certification considered valid.

Method Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PLS
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PLS
8081A	Organochlorine Pesticides (GC)	SW846	TAL PLS
8151A	Herbicides (GC)	SW846	TAL CHI
6010B	Metals (ICP)	SW846	TAL PLS
7470A	Mercury (CVAA)	SW846	TAL PLS
300.0	Anions, Ion Chromatography	MCAWW	TAL PLS

Protocol References:

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

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

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-57813-1	IDF	Water	06/04/14 12:00	06/04/14 17:10

TestAmerica
ANALYTICAL TESTING CORPORATION

1220 Quarry Lane, Pleasanton, CA 94566
Phone: (925) 484-1919
FAX: (925) 600-3002

CHAIN OF CUSTODY

720-57813

154141

6/11/2014

Company Name: AMEC ENVIRONMENT & INFRASTRUCTURE

Mailing Address: 1465 NORTH MCDOWELL BOULEVARD, SUITE 200

City: PETALUMA State: CA Zip: 94954

Phone: (707) 793-3800 FAX (707) 793-3900

Report To: Laura Helliwell Email Address: Laura.Helliwell@amec.com

Project: OLIN MORGAN HILL

PO #: **REMH0034 (Invoice to Olin)**

QC Data (check one): ☐ **Level IV (Standard for Perchlorate)** ☑ Level II **(All Other Analytes)**

Samplers: Dane G.

Notes to Samplers: Analyze domestic well samples by EPA method 331.0, all other perchlorate samples by EPA 314.0. Analyze raw domestic IX system samples by EPA method 314.0 Domestic well perchlorate samples (including domestic IX system raw water samples) go on separate COC (w/DUPS okay). Domestic wells in both the MRP and RWP will be counted as MRP wells unless they are being sampled solely for RWP purpose. Perchlorate samples require QC Data Level IV. All other analytes require QC Data Level II Anion and nitrate samples must go on separate COC (w/DUPS okay).

Date/Time Results Required:

Test America Work Order #.

Turnaround Time (check one):
- ☐ 10-15 Working Days
- ☐ 7 Working Days
- ☑ 5 Working Days (**standard**)
- ☐ 72 Hours
- ☐ 48 Hours
- ☐ 24 Hours
- ☐ 2-8 Hours

Mandatory (check one).
- ☑ SDWA (Drinking Water, **standard**)
- ☐ CWA (Waste Water)
- ☐ RCRA (Hazardous Waste)
- ☐ Other.

ANALYSIS REQUESTED

Client Sample ID	Date/Time Sampled	Matrix Desc	# of Cont.	Container Type	Test America Sample #	**Perchlorate** (MOD EPA 314.0)	**Perchlorate** (EPA 331.0)	**Anions** EPA 300/ (Cl, SO_4 NO_3)	**Nitrate Only** EPA 300 (NO_3)	Organochlorine Pesticides	VOC's	CAM-17 METALS	SVOC's	Herbicides		Zone/Comments
1. IDF	4 Jun 14 / 1200	H_2O	11	varies					X	X	X	X	X	X		Zone A
2.																
3.																
4.																
5																
6.																
7.																

720-57813 Chain of Custody

Remarks:

Relinquished By / Co.: D-R / OLIN		Received By / Co.: TAP		Date / Time / Temp.: 06/04/14 @ 1540	
Relinquished By / Co.:		Received By / Co.:		Date / Time / Temp.: 06/04/14 @ 1710	

Were Samples Received in Good Condition? ☐ Yes, ☐ No

Samples on Ice? ☐ Yes ☐ No

2.2°C

Method of Shipment: CLIENT

Page 1 of 1

White, Test America

Yellow Amec

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 720-57813-1

Login Number: 57813

List Source: TestAmerica Pleasanton

List Number: 1

Creator: Gonzales, Justinn

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

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 720-57813-1

Login Number: 57813
List Number: 2
Creator: Kelsey, Shawn M

List Source: TestAmerica Chicago
List Creation: 06/10/14 10:15 AM

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-57817-1
Client Project/Site: Olin Site/Morgan Hill

For:
AMEC Environment & Infrastructure, Inc.
1465 North McDowell Blvd
Suite 200
Petaluma, California 94954

Attn: Laura Helliwell

Authorized for release by:
6/10/2014 3:57:21 PM

Dimple Sharma, Senior Project Manager
(925)484-1919
dimple.sharma@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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Glossary

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

Case Narrative

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Job ID: 720-57817-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-57817-1

Comments
All samples were analyzed in accordance with OLIN QAPP.

Receipt
The sample was received on 6/4/2014 5:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

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

Detection Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Client Sample ID: IDF

Lab Sample ID: 720-57817-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	6.0		4.0	0.75	ug/L	1		314.0	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Client Sample ID: IDF

Lab Sample ID: 720-57817-1

Date Collected: 06/04/14 12:00

Matrix: Water

Date Received: 06/04/14 17:10

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	6.0		4.0	0.75	ug/L			06/06/14 10:56	1

QC Sample Results

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 720-160749/5
Matrix: Water
Analysis Batch: 160749

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.75	ug/L			06/06/14 10:19	1

Lab Sample ID: LCS 720-160749/6
Matrix: Water
Analysis Batch: 160749

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate			10.0	10.2		ug/L		102	85 - 115		

Lab Sample ID: 720-57815-A-5 MS
Matrix: Water
Analysis Batch: 160749

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perchlorate	100		100	199		ug/L		100	80 - 120		

Lab Sample ID: 720-57815-A-5 MSD
Matrix: Water
Analysis Batch: 160749

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	100		100	199		ug/L		99	80 - 120	0	15

QC Association Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

HPLC/IC

Analysis Batch: 160749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-57815-A-5 MS	Matrix Spike	Total/NA	Water	314.0	
720-57815-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	
720-57817-1	IDF	Total/NA	Water	314.0	
LCS 720-160749/6	Lab Control Sample	Total/NA	Water	314.0	
MB 720-160749/5	Method Blank	Total/NA	Water	314.0	

Lab Chronicle

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Client Sample ID: IDF

Date Collected: 06/04/14 12:00
Date Received: 06/04/14 17:10

Lab Sample ID: 720-57817-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	314.0		1	160749	06/06/14 10:56	MJK	TAL PLS

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-16

Method Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Method	Method Description	Protocol	Laboratory
314.0	Perchlorate (IC)	EPA	TAL PLS

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: AMEC Environment & Infrastructure, Inc.
Project/Site: Olin Site/Morgan Hill

TestAmerica Job ID: 720-57817-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-57817-1	IDF	Water	06/04/14 12:00	06/04/14 17:10

TestAmerica
ANALYTICAL TESTING CORPORATION
1220 Quarry Lane, Pleasanton, CA 94566
Phone. (925) 484-1919
FAX: (925) 600-3002

CHAIN OF CUSTODY

154143

6/10/2014

Company Name: AMEC ENVIRONMENT & INFRASTRUCTURE
Mailing Address: 1465 NORTH MCDOWELL BOULEVARD, SUITE 200
City: PETALUMA State: CA Zip: 94954
Phone: (707) 793-3800 FAX (707) 793-3900
Report To: Laura Helliwell Email Address: Laura.Helliwell@amec.com
Project: OLIN MORGAN HILL
PO #: **REMH0034 (Invoice to Olin)**
QC Data (check one): ☑ **Level IV (Standard for Perchlorate)** ☐ Level II **(All Other Analytes)**

Samplers: Dane G.

Notes to Samplers: Analyze domestic well samples by EPA method 331.0, all other perchlorate samples by EPA 314.0. Analyze raw domestic IX system samples by EPA method 314 0 Domestic well perchlorate samples (including domestic IX system raw water samples) go on separate COC (w/DUPS okay). Domestic wells in both the MRP and RWP will be counted as MRP wells unless they are being sampled solely for RWP purpose. Perchlorate samples require QC Data Level IV. All other analytes require QC Data Level II. Anion and nitrate samples must go on separate COC (w/DUPS okay)

Date/Time Results Required:
Test America Work Order #:

Turnaround Time (check one):
☐ 10-15 Working Days
☐ 7 Working Days
☑ 5 Working Days (**standard**)
☐ 72 Hours
☐ 48 Hours
☐ 24 Hours
☐ 2-8 Hours

Mandatory (check one):
☑ SDWA (Drinking Water, **standard**)
☐ CWA (Waste Water)
☐ RCRA (Hazardous Waste)
☐ Other:

ANALYSIS REQUESTED

Client Sample ID	Date/Time Sampled	Matrix Desc.	# of Cont.	Container Type	Test America Sample #	**Perchlorate** (MOD EPA 314.0)	**Perchlorate** (EPA 331 0)	**Anions** EPA 300/ (Cl, SO_4 NO_3)	**Nitrate Only** EPA 300 (NO_3)							Zone/Comments
1 IDF	4 Jun 14 / 1200	H_2O	1	~~Poly~~ Pic 250 mL		X										Zone A
2.																
3.																
4.																
5																
6.																
7.																

720-57817 Chain of Custody

Remarks:

Relinquished By / Co.: Dane / Olin	Received By / Co.: TAP	Date / Time / Temp.: 06/04/14 @ 1540
Relinquished By / Co.:	Received By / Co.:	Date / Time / Temp: 06/04/14 @ 1710

Were Samples Received in Good Condition? ☐ Yes, ☐ No
Samples on Ice? ☐ Yes ☐ No 2-2°C
Method of Shipment: CLIENT
Page 1 of 1

White: Test America
Yellow: Amec

TestAmerica
ANALYTICAL TESTING CORPORATION

1220 Quarry Lane, Pleasanton, CA 94566
Phone: (925) 484-1919
FAX: (925) 600-3002

CHAIN OF CUSTODY

720-57817

154143

6/10/2014

Company Name AMEC ENVIRONMENT & INFRASTRUCTURE	Samplers: Dane G.
Mailing Address: 1465 NORTH MCDOWELL BOULEVARD, SUITE 200	**Notes to Samplers:** Analyze domestic well samples by EPA method 331.0, all other perchlorate samples by EPA 314.0. Analyze raw domestic IX system samples by EPA method 314.0. Domestic well perchlorate samples (including domestic IX system raw water samples) go on separate COC (w/DUPS okay). Domestic wells in both the MRP and RWP will be counted as MRP wells unless they are being sampled solely for RWP purpose Perchlorate samples require QC Data Level IV All other analytes require QC Data Level II. Anion and nitrate samples must go on separate COC (w/DUPS okay).
City: PETALUMA State: CA Zip: 94954	
Phone: (707) 793-3800 FAX (707) 793-3900	
Report To: Laura Helliwell Email Address: Laura.Helliwell@amec.com	
Project: OLIN MORGAN HILL	
PO #. **REMH0034 (Invoice to Olin)**	
QC Data (check one): ☑ **Level IV (Standard for Perchlorate)** ☐ Level II **(All Other Analytes)**	Date/Time Results Required: / Test America Work Order #:

Turnaround Time (check one):
- ☐ 10-15 Working Days
- ☐ 7 Working Days
- ☑ 5 Working Days (**standard**)
- ☐ 72 Hours
- ☐ 48 Hours
- ☐ 24 Hours
- ☐ 2-8 Hours

Mandatory (check one):
- ☑ SDWA (Drinking Water, **standard**)
- ☐ CWA (Waste Water)
- ☐ RCRA (Hazardous Waste)
- ☐ Other _____

ANALYSIS REQUESTED

Client Sample ID	Date/Time Sampled	Matrix Desc.	# of Cont.	Container Type	Test America Sample #	**Perchlorate** (MOD EPA 314 0)	**Perchlorate** (EPA 331.0)	**Anions** EPA 300/ (Cl, SO_4 NO_3)	**Nitrate Only** EPA 300 (NO_3)							Zone/Comments
1. IDF	4 Jun 14 / 1200	H_2O	1	~~Vanity~~ Poly 250 mL		X										Zone A
2.																
3.																
4.																
5.																
6.																
7.																

720-57817 Chain of Custody

Remarks:

Relinquished By / Co : D. Gr / 02in	Received By / Co.: TAP	Date / Time / Temp.: 06/04/14 @ 1540
Relinquished By / Co .	Received By / Co.:	Date / Time / Temp : 06/04/14 @ 1710

Were Samples Received in Good Condition? ☐ Yes, ☐ No

Samples on Ice? ☐ Yes ☐ No 2-2°C

Method of Shipment: CLIENT

Page 1 of 1

White: Test America

Yellow: Amec

Login Sample Receipt Checklist

Client: AMEC Environment & Infrastructure, Inc.

Job Number: 720-57817-1

Login Number: 57817

List Source: TestAmerica Pleasanton

List Number: 1

Creator: Gonzales, Justinn

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	NOT REQUIRED FOR 314.0 METHOD
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX E

Well Survey Report

Virgil Chavez Land Surveying
721 Tuolumne Street
Vallejo, California 94590
(707) 553-2476 • Fax (707) 553-8698

June 12, 2014
Project No.: 2730-00

Haely Young
AMEC
180 Grand Ave., Suite 1100
Oakland, CA 94612

Subject: Monitoring Well Survey
Olin/ Standard Fuse Site
Morgan Hill, Ca.

Dear Haely:

This is to confirm that we have proceeded at your request to survey the new ground water monitoring wells located at the above referenced location. The survey was completed on June 3, 2014. The benchmark for this survey was a catch basin at the northeast corner of Tennant & Butterfield. The latitude, longitude and coordinates are for top of casings and are based on the California State Coordinate System, Zone III (NAD83).
Benchmark Elevation = 329.56 feet (NGVD 29).

Latitude	Longitude	Northing	Easting	Elev.	Desc.
				332.05	RIM PMW-06
37.1196958	-121.6281943	1868038.20	6232725.92	331.54	TOC PMW-06-416
37.1196954	-121.6281949	1868038.05	6232725.75	331.64	TOC PMW-06-445
				330.93	RIM MW-75
37.1174732	-121.6314616	1867240.50	6231763.54	330.62	TOC MW-75-85
37.1174726	-121.6314614	1867240.30	6231763.60	330.60	TOC MW-75-120
				328.52	RIM MW-74
37.1168625	-121.6347611	1867029.82	6230798.84	328.04	TOC MW-74-84
37.1168625	-121.6347602	1867029.82	6230799.10	328.03	TOC MW-74-142
37.1171214	-121.6338453	1867120.83	6231067.02	328.28	SB21
37.1174900	-121.6314383	1867246.55	6231770.40	330.79	SB22

LICENSED LAND SURVEYOR
VIRGIL D. CHAVEZ
No. 6323
Exp. 12-31-14
STATE OF CALIFORNIA

Sincerely,

Virgil D. Chavez, PLS 6323

APPENDIX B

Analytical Reports and Chain-of-Custody Records for Groundwater Samples
[provided separately]

APPENDIX C

Field Sampling Data

TABLE C1

MONITORING WELL PURGE DATA
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well	Sample Date	Sample Time	Purge Method	Micro Purge?	Depth to Water	Purge Volume	Purge Volume Units	Flow Rate (ml/min)	Temp (ºC)	Specific Conductivity (µmhos/CM)	Dissolved Oxygen (mg/L)	pH (SI)	Oxygen Reduction Potential (mV)	Turbidity (NTU)
MP-04-038	5/2/2014	12:55	Micro-purge by Double Valve Pump	yes	33.76	Initial	ml	100	19.82	289	7.22	7.02	66.3	53.3
MP-04-038	5/2/2014		Micro-purge by Double Valve Pump	yes										
MP-04-038	5/2/2014		Micro-purge by Double Valve Pump	yes										
MP-04-038	5/2/2014		Micro-purge by Double Valve Pump	yes										
MP-04-295	5/2/2014	14:10	3 well vol. purge by Waterra Pump	yes	62.82	Initial	ml	170	18.71	314	8.80	7.03	160.4	21.3
MP-04-295	5/2/2014		3 well vol. purge by Waterra Pump	yes										
MP-04-295	5/2/2014		3 well vol. purge by Waterra Pump	yes										
MP-04-295	5/2/2014		3 well vol. purge by Waterra Pump	yes										
MW-74-084	6/3/2014	11:00	3 well vol. purge by Waterra Pump	no	50.62	Initial	gal	NA	18.77	427	9.57	6.89	205.2	54
MW-74-084	6/3/2014	11:05	3 well vol. purge by Waterra Pump	no	NM	3	gal	NA	17.86	406	7.84	6.73	204.3	999
MW-74-084	6/3/2014	11:10	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.79	403	7.81	6.68	204.2	85
MW-74-084	6/3/2014	11:17	3 well vol. purge by Waterra Pump	no	NM	9	gal	NA	17.81	403	7.88	6.66	204.6	41
MW-74-142	6/3/2014	11:34	3 well vol. purge by Waterra Pump	no	52.06	Initial	gal	NA	18.77	494	5.53	7.01	203.2	2.6
MW-74-142	6/3/2014	11:39	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	17.89	481	6.59	6.78	204.4	5.2
MW-74-142	6/3/2014	11:44	3 well vol. purge by Waterra Pump	no	NM	8	gal	NA	17.88	480	6.77	6.75	204.6	4.6
MW-74-142	6/3/2014	11:48	3 well vol. purge by Waterra Pump	no	NM	12	gal	NA	17.87	479	6.88	6.75	203.7	4.4
MW-75-085	6/3/2014	13:12	3 well vol. purge by Waterra Pump	no	54.28	Initial	gal	NA	19.06	468	7.99	7.67	63.6	35
MW-75-085	6/3/2014	13:17	3 well vol. purge by Waterra Pump	no	NM	2	gal	NA	17.28	534	7.87	7.55	93.6	3.1
MW-75-085	6/3/2014	13:22	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	17.76	493	8.07	7.36	98.0	13
MW-75-085	6/3/2014	13:28	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.72	466	8.39	7.27	103.1	9
MW-75-120	6/3/2014	13:39	3 well vol. purge by Waterra Pump	no	54.43	Initial	gal	NA	19.96	485	6.62	7.30	114.5	1.1
MW-75-120	6/3/2014	13:41	3 well vol. purge by Waterra Pump	no	NM	3	gal	NA	17.61	452	6.67	7.10	125.3	2.7
MW-75-120	6/3/2014	13:46	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.58	450	6.66	6.90	128.4	3.31
MW-75-120	6/3/2014	13:50	3 well vol. purge by Waterra Pump	no	NM	9	gal	NA	17.56	450	6.53	7.00	128.6	4
MW-75-085	6/13/2014	12:00	3 well vol. purge by Waterra Pump	no	55.72	Initial	gal	NA	22.09	482	9.83	7.57	123.9	11
MW-75-085	6/13/2014	12:03	3 well vol. purge by Waterra Pump	no	NM	2	gal	NA	18.11	536	6.31	7.29	140.2	2.2
MW-75-085	6/13/2014	12:07	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	17.95	502	6.17	7.23	144.0	5.3
MW-75-085	6/13/2014	12:11	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.86	469	6.87	7.11	147.7	4.3
MW-60-082	4/29/2014	14:40	3 well vol. purge by Waterra Pump	no	34.82	Initial	gal	NA	18.12	436	8.93	7.12	-66.2	78
MW-60-082	4/29/2014	14:47	3 well vol. purge by Waterra Pump	no	NM	3	gal	NA	17.96	457	9.02	6.90	24.1	17.1
MW-60-082	4/29/2014	14:54	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.71	458	8.99	6.84	51.6	4.14
MW-60-082	4/29/2014	15:01	3 well vol. purge by Waterra Pump	no	NM	9	gal	NA	17.64	458	8.80	6.82	68.2	1.31

TABLE C1

MONITORING WELL PURGE DATA
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well	Sample Date	Sample Time	Purge Method	Micro Purge?	Depth to Water	Purge Volume	Purge Volume Units	Flow Rate (ml/min)	Temp (ºC)	Specific Conductivity (µmhos/CM)	Dissolved Oxygen (mg/L)	pH (SI)	Oxygen Reduction Potential (mV)	Turbidity (NTU)
MW-71-075	4/30/2014	10:10	3 well vol. purge by Waterra Pump	no	34.77	Initial	gal	NA	19.35	381	6.27	6.52	133.7	11
MW-71-075	4/30/2014	10:15	3 well vol. purge by Waterra Pump	no	NM	2	gal	NA	17.33	374	6.99	6.34	116.2	7.03
MW-71-075	4/30/2014	10:20	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	17.27	372	7.56	6.28	114.1	5
MW-71-075	4/30/2014	10:25	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.19	370	7.90	6.19	115.5	4.73
MW-71-115	4/30/2014	10:35	3 well vol. purge by Waterra Pump	no	35.49	Initial	gal	NA	20.81	426	6.43	6.34	145.8	54.1
MW-71-115	4/30/2014	10:42	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	17.26	436	2.61	6.34	117.9	17.3
MW-71-115	4/30/2014	10:49	3 well vol. purge by Waterra Pump	no	NM	8	gal	NA	17.49	456	6.12	6.32	111.6	19.4
MW-71-115	4/30/2014	10:56	3 well vol. purge by Waterra Pump	no	NM	12	gal	NA	17.58	457	6.49	6.35	118.1	7.03
MW-72-070	4/29/2014	15:40	3 well vol. purge by Waterra Pump	no	31.13	Initial	gal	NA	21.29	212	2.82	6.44	-174.6	999
MW-72-070	4/29/2014	15:45	3 well vol. purge by Waterra Pump	no	NM	2	gal	NA	18.75	302	6.18	6.28	-24.8	33.1
MW-72-070	4/29/2014	15:51	3 well vol. purge by Waterra Pump	no	NM	4	gal	NA	18.63	304	6.90	5.99	58.5	7.03
MW-72-070	4/29/2014	15:57	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	18.70	305	7.05	6.07	78.2	7.13
MW-72-145	4/29/2014	16:12	3 well vol. purge by Waterra Pump	no	35.70	Initial	gal	NA	21.10	528	3.35	6.23	85.4	17.3
MW-72-145	4/29/2014	16:20	3 well vol. purge by Waterra Pump	no	NM	5	gal	NA	18.50	556	5.87	6.12	92.6	5.89
MW-72-145	4/29/2014	16:29	3 well vol. purge by Waterra Pump	no	NM	10	gal	NA	18.46	557	6.44	6.14	100.7	4.04
MW-72-145	4/29/2014	16:38	3 well vol. purge by Waterra Pump	no	NM	15	gal	NA	18.48	558	6.58	6.16	106.0	2.33
PMW-04-090	5/1/2014	10:17	3 well vol. purge by Waterra Pump	no	39.41	Initial	gal	NA	19.10	484	4.64	7.54	49.2	18.3
PMW-04-090	5/1/2014	10:21	3 well vol. purge by Waterra Pump	no	NM	3	gal	NA	17.26	491	6.17	6.86	66.0	7.03
PMW-04-090	5/1/2014	10:25	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	17.23	492	6.28	6.78	75.6	4.13
PMW-04-090	5/1/2014	10:29	3 well vol. purge by Waterra Pump	no	NM	9	gal	NA	17.24	492	6.30	6.71	86.0	4.02
PMW-05-090	4/30/2014	11:19	3 well vol. purge by Waterra Pump	no	34.45	Initial	gal	NA	19.73	486	2.52	6.38	143.7	21.1
PMW-05-090	4/30/2014	11:24	3 well vol. purge by Waterra Pump	no	NM	3	gal	NA	18.31	465	5.14	6.39	136.5	30.6
PMW-05-090	4/30/2014	11:29	3 well vol. purge by Waterra Pump	no	NM	6	gal	NA	18.27	465	6.34	6.40	133.5	19.9
PMW-05-090	4/30/2014	11:35	3 well vol. purge by Waterra Pump	no	NM	9	gal	NA	18.25	468	6.59	6.41	131.8	9.37
MW-73-395	5/1/2014	11:00	3 well vol. purge by Waterra Pump	no	72.28	Initial	gal	NA	17.76	341	9.99	6.94	163.5	999
MW-73-395	5/1/2014	11:14	3 well vol. purge by Waterra Pump	no	NM	13	gal	NA	18.63	507	4.83	6.73	131.4	74.3
MW-73-395	5/1/2014	11:29	3 well vol. purge by Waterra Pump	no	NM	26	gal	NA	19.17	511	3.10	6.81	126.1	12
MW-73-395	5/1/2014	11:47	3 well vol. purge by Waterra Pump	no	NM	38	gal	NA	19.23	512	3.21	6.91	121.5	6.53
PMW-05-305	4/30/2014	11:40	3 well vol. purge by Waterra Pump	no	58.93	Initial	gal	NA	18.53	415	0.40	6.62	109.5	999
PMW-05-305	4/30/2014	11:54	3 well vol. purge by Waterra Pump	no	NM	10.5	gal	NA	18.26	416	1.67	6.70	100.8	34.3
PMW-05-305	4/30/2014	12:10	3 well vol. purge by Waterra Pump	no	NM	21	gal	NA	18.52	418	4.19	6.73	97.1	18.4
PMW-05-305	4/30/2014	12:24	3 well vol. purge by Waterra Pump	no	NM	31	gal	NA	18.61	419	5.20	6.71	99.3	7.44

TABLE C1

MONITORING WELL PURGE DATA
Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well	Sample Date	Sample Time	Purge Method	Micro Purge?	Depth to Water	Purge Volume	Purge Volume Units	Flow Rate (ml/min)	Temp (ºC)	Specific Conductivity (µmhos/CM)	Dissolved Oxygen (mg/L)	pH (SI)	Oxygen Reduction Potential (mV)	Turbidity (NTU)
PMW-06-416	5/28/2014	09:10	3 well vol. purge by Waterra Pump	no	104.25	Initial	gal	NA	18.14	723	2.78	8.18	225.3	44.3
PMW-06-416	5/28/2014	09:27	3 well vol. purge by Waterra Pump	no	NM	13	gal	NA	18.82	624	2.92	7.63	202.4	max
PMW-06-416	5/28/2014	09:41	3 well vol. purge by Waterra Pump	no	NM	26	gal	NA	19.23	607	3.11	7.74	176.9	max
PMW-06-416	5/28/2014	10:00	3 well vol. purge by Waterra Pump	no	NM	39	gal	NA	19.44	605	3.89	7.84	174.6	max
PMW-06-445	5/27/2014	11:06	3 well vol. purge by Waterra Pump	no	NM	Initial	gal	NA	20.46	2030	2.75	8.65	-74.2	34.1
PMW-06-445	5/27/2014	11:26	3 well vol. purge by Waterra Pump	no	NM	14	gal	NA	20.11	745	1.41	7.75	213.6	max
PMW-06-445	5/27/2014	12:06	3 well vol. purge by Waterra Pump	no	NM	43	gal	NA	19.97	609	3.92	7.30	224.0	max
PMW-06-445	5/27/2014	13:00	3 well vol. purge by Waterra Pump	no	NM	62	gal	NA	21.33	600	4.39	7.40	211.8	986

Abbreviations
µmhos/CM = micromhos per centimeter
ºC = degrees Celsius
gal = gallons
max = turbidity above upper limit of turbidimeter measurement capability
mg/L = milligrams per liter
ml = milliliters
ml/min = milliliters per minute
mV = millivolts
NA = not applicable
NM = not measured after initial measurement
NTU = nephelometric turbidity units
SI = International System of Units

APPENDIX D

Analytical Results, Microsoft Access Database
[provided separately]

APPENDIX E

Remediation Performance Monitoring

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34G002-A**	Date & Time Arrived Site: 4/9/14 @1305

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
System Bypassed

Section III – System Status

Is the IX system bypassed/offline?	
(Yes)	*No*

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	*No*	3.	Is the site properly secured (e.g. gated & locked)?	*Yes*	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	*Yes*	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☐	*Yes*	*No*		
2. Post-Inlet Filter (Pre-Lead Vessel)	☐	*Yes*	*No*		
3. Mid-Point (Post-lead/pre-Lag Vessel)	☐	*Yes*	*No*		
4. Post-Lag Vessel	☐	*Yes*	*No*		

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y N

Sample Collected: Y N Duplicate Collected: Y N Check By-pass Valve: Y N

Signature of Inspector: D. R. G. Time Departed Site: 1370

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34G002-B**	Date & Time Arrived Site: 4/9/14 @ 1319

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
06467570 / 06447620

Section III – System Status

Is the IX system bypassed/offline?	
Yes	*No*

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	54	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	49	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	42	
4. Post-Lag Vessel	☑	(Yes)	*No*	38	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: (Y) N Duplicate Collected: Y (N) Check By-pass Valve: (Y) N

Signature of Inspector: D. R. [illegible] Time Departed Site: 1330

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34G001**	Date & Time Arrived Site: 4/9/14 @ 1340

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
05809180 / 05809190

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	69	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	48	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	40	
4. Post-Lag Vessel	☑	(Yes)	*No*	36	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Well pump off. Started pump to fill feed tank and run system to collect samples.

Sediment Filter Changed: Y (N)

Sample Collected: (Y) N Duplicate Collected: Y (N) Check By-pass Valve: (Y) N

Signature of Inspector: [signature] Time Departed Site: 1403

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34C003**	Date & Time Arrived Site: 4/9/14 @ 1410

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
02055050 / 02095058

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	49	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	40	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	34	
4. Post-Lag Vessel	☑	(Yes)	*No*	30	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: (Y) N Duplicate Collected: (Y) N Check By-pass Valve: (Y) N

Signature of Inspector: D-RS Time Departed Site: 1435

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: : Monthly Insp.	State Well ID: **09S03E34G002-A**	Date & Time Arrived Site: 9 MAY 14 @ 1305

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
SYSTEM BYPASSED

Section III – System Status

Is the IX system bypassed/offline?	
(Yes)	No

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	D ~~No~~	3.	Is the site properly secured (e.g. gated & locked)?	*Yes*	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	*Yes*	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	❑	*Yes*	*No*		
2. Post-Inlet Filter (Pre-Lead Vessel)	❑	*Yes*	*No*		
3. Mid-Point (Post-lead/pre-Lag Vessel)	❑	*Yes*	*No*		
4. Post-Lag Vessel	❑	*Yes*	*No*		

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.

1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y N

Sample Collected: Y N Duplicate Collected: Y N

Check By-pass Valve: Y N

Signature of Inspector: D-R

Time Departed Site: 1310

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34G002-B**	Date & Time Arrived Site: 9 MAY 14 @ 1310

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
06480650 / 06480671

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	51	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	48	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	44	
4. Post-Lag Vessel	☑	(Yes)	*No*	39	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: Y (N) Duplicate Collected: Y (N) Check By-pass Valve: (Y) N

Signature of Inspector: D-R

Time Departed Site: 1333

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: :	State Well ID: **09S03E34C003**	Date & Time Arrived Site: 9 MAY 14 @ 1340

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
02071052 / 02071080

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	50 / 52	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	43 / 47	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	40 / 40	
4. Post-Lag Vessel	☑	(Yes)	*No*	38 / 39	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.

1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: Y (N) Duplicate Collected: Y (N) Check By-pass Valve: (Y) N

Signature of Inspector: D. R. [illegible] Time Departed Site: 1354

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: : Monthly Insp.	State Well ID: 09S03E34G001	Date & Time Arrived Site: 9 MAY 14 @ 1400

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
Running 05874006

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	47	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	45	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	33	
4. Post-Lag Vessel	☑	(Yes)	*No*	32	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: Y (N) Duplicate Collected: Y (N)

Check By-pass Valve: (Y) N

Signature of Inspector: [signature]

Time Departed Site: 1411

Olin

Inspection Log

Section I – General Information

Project Name:	Property Name & Address:	Inspected By:
Olin/Standard Fusee		Dane Grimshaw
Project & Task Number: :	State Well ID:	Date & Time Arrived Site:
Monthly Insp.	09S03E34G002-A	6 Jun 14 1018

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
offline

Section III – System Status

Is the IX system bypassed/offline?	
(Yes)	No

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	*No*	3.	Is the site properly secured (e.g. gated & locked)?	*Yes*	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	*Yes*	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?	Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☐	*Yes* *No*		
2. Post-Inlet Filter (Pre-Lead Vessel)	☐	*Yes* *No*		
3. Mid-Point (Post-lead/pre-Lag Vessel)	☐	*Yes* *No*		
4. Post-Lag Vessel	☐	*Yes* *No*		

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y N

Sample Collected: Y N Duplicate Collected: Y N Check By-pass Valve: Y N

Signature of Inspector: [signature] Time Departed Site: 1019

Olin Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: : Monthly Insp.	State Well ID: **09S03E34G001**	Date & Time Arrived Site: 6 Jun 14 1022

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
0 5592616 / 0 5592650

Section III – System Status

Is the IX system bypassed/offline?	
Yes	*No*

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	*No*	3.	Is the site properly secured (e.g. gated & locked)?	*Yes*	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	*Yes*	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	*Yes*	*No*	73/75	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	*Yes*	*No*	59/60	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	*Yes*	*No*	44/45	
4. Post-Lag Vessel	☑	*Yes*	*No*	40/41	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Changed sediment filter.

Sediment Filter Changed: Y N

Sample Collected: Y N Duplicate Collected: Y N Check By-pass Valve: Y N

Signature of Inspector: [signature] Time Departed Site: 1039

Olin

Inspection Log

Section I – General Information

Project Name:	Property Name & Address:	Inspected By:
Olin/Standard Fusee		Dane Grimshaw
Project & Task Number: :	State Well ID:	Date & Time Arrived Site:
Monthly Insp.	09S03E34C003	6 Jun 14 1045

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
02090480 / 02090500

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	*Yes*	*No*	52/53	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	*Yes*	*No*	40/41	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	*Yes*	*No*	35/35	
4. Post-Lag Vessel	☑	*Yes*	*No*	31/31	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: Y (N) Duplicate Collected: Y (N) Check By-pass Valve: (Y) N

Signature of Inspector: D. R. Time Departed Site: 1053

Olin

Inspection Log

Section I – General Information

Project Name: Olin/Standard Fusee	Property Name & Address:	Inspected By: Dane Grimshaw
Project & Task Number: : Monthly Insp.	State Well ID: 09S03E34G002-B	Date & Time Arrived Site: 6 Jun 14 :1000

Section II – Treated Water Totalizer Reading

Gallons Treated (Initial/Final)
0649073 Running

Section III – System Status

Is the IX system bypassed/offline?	
Yes	(No)

Section IV – General Site Inspection (circle *Yes* or *No*)

1.	Are there any unmitigated Health & Safety hazards on the site?	*Yes* (explain in Section VI)	(No)	3.	Is the site properly secured (e.g. gated & locked)?	(Yes)	*No* (explain in Section VI)
2.	Is general housekeeping acceptable (e.g. no loose trash, high weeds etc.)?	(Yes)	*No* (explain in Section VI)				

Section V – System Operating Pressures

While the pump is running record the IX system operating pressures. During the observation period if pressures are fluctuating, note the minimum and maximum pressures, and any miscellaneous observations. If differential pressure between Pre-Inlet Filter and Post-Inlet Filter readings is >15 psi, change the sediment filter.

Gauge Location	Pump On?	Gauge Operational?		Pressure Range (PSI)	Observations
1. Pre-Inlet Filter	☑	(Yes)	*No*	64	
2. Post-Inlet Filter (Pre-Lead Vessel)	☑	(Yes)	*No*	50	
3. Mid-Point (Post-lead/pre-Lag Vessel)	☑	(Yes)	*No*	49	
4. Post-Lag Vessel	☑	(Yes)	*No*	42	

Section VI – Irresolvable Maintenance Issues (continue on rear if necessary)

Describe system maintenance issues such as leaks, broken gauges, or any other conditions that require Siemens' attention.
1.
2.
3.
4.
5.
6.

Section VII – Describe any light maintenance and housekeeping performed. General comments & observations (continue on rear if necessary):

Sediment Filter Changed: Y (N)

Sample Collected: Y (N) Duplicate Collected: Y (N)

Check By-pass Valve: (Y) N

Signature of Inspector: D. Z. [illegible]

Time Departed Site: 1017

TABLE E1

GROUNDWATER EXTRACTION WELL FIELD PARAMETERS[1]

Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Well ID	Date	Temperature (°C)	pH (SI)	Specific Conductivity (µS/cm)	Total Dissolved Solids (mg/L)
EW-01A	4/2/2014	18.73	6.47	371	240
EW-02A	4/2/2014	19.04	6.58	374	243
EW-01B1	4/2/2014	18.90	6.68	367	238
EW-01B1	5/6/2014	18.71	6.89	393	256
EW-01B1	6/4/2014	17.79	6.97	392	259
IEW-1R	4/2/2014	17.40	6.71	376	241
IEW-1R	5/6/2014	18.82	6.67	449	292
IEW-1R	6/4/2014	17.42	6.68	459	300
DEW-1	4/2/2014	17.91	6.67	368	239
DEW-1	5/6/2014	19.44	7.03	471	306
DEW-1	6/4/2014	17.48	6.95	498	324

Notes
1. Parameters presented are the last readings recorded prior to sampling.

Abbreviations
°C = degrees Celsius
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter
SI = International System of Units

TABLE E2

GROUNDWATER TREATMENT SYSTEM MONITORING DATA[1]

Second Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

Date		4/30/14	5/31/14	6/30/14
Effluent pH	pH (SI)	6.50	6.55	6.70
Effluent Nitrate	mg/L	29.0	29.0	29.0
IEW-1R Nitrate	mg/L	34.0	34.0	34.0
DEW-1 Nitrate	mg/L	31.0	33.0	31.0

Notes

1. System flow rates and monthly extracted volume summarized on Table 7.

Abbreviations

mg/L = milligrams per liter
SI = International System of Units

APPENDIX F

Data Validation and Precision Assessment Results

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Table F1 Field Duplicate Relative Percent Differences

F1 DATA ACCURACY AND PRECISION

Second Quarter 2014 (2Q14) data validation and precision assessments were performed in accordance with the procedures specified in the *USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review* (National Functional Guidelines [USEPA, 2010]), the QAPP (MACTEC, 2010), and quality control (QC) criteria specified in the analytical methods and *Monitoring and Reporting Program* (MRP) *No. R3-2008-0028* (Water Board, 2014). Results of the data validation and precision assessment indicated the following:

- Analytical accuracy was evaluated by reviewing laboratory control sample recoveries, matrix spike/matrix spike duplicate (MS/MSD) recoveries, holding times, and blank results for samples collected in 2Q14. QC criteria were met for the laboratory and field QC samples associated with the project.
- Relative percent differences (RPDs) were calculated for both field duplicate samples and internal laboratory MS/MSD samples. Specific results for perchlorate are:
    - RPD values calculated for six field duplicate sample pairs ranged from 0 to 2.0 percent, with an overall average of 1.5 percent. These results met the project-specific RPD criterion of 25 percent. Table F1 presents the field duplicate RPDs.
    - RPD values calculated for eleven project related MS/MSD pairs ranged from 0 to 4 percent, with an overall average of 1 percent, which meets the QAPP specified 15 percent acceptance criterion.

Based upon the data review, the 2Q14 results are considered valid and usable to support project decisions. Data completeness (the number of successful analyses relative to the number of requested analyses) was 100 percent for 2Q14 samples

F2 REFERENCES

MACTEC Engineering and Consulting, Inc. (MACTEC), 2010. Quality Assurance Project Plan (QAPP), Olin/Standard Fusee Site, 425 Tennant Avenue, Morgan Hill, California. Revised March.

Central Coast Regional Water Quality Control Board (Water Board), 2014. Monitoring and Reporting Program No. R3-2008-0028 for Olin Corporation, 425 Tennant Avenue, Morgan Hill, Santa Clara County. March 5.

U.S. Environmental Protection Agency (USEPA), 2010. USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review. January.

TABLE F1

FIELD DUPLICATE RELATIVE PERCENT DIFFERENCES
Olin Site
Morgan Hill, California

Well	Sample Date	Sample Type	Perchlorate Concentration (µg/L)	MDL (µg/L)	Relative Percent Difference
Onsite Wells					
EW-01A	4/2/2014	Primary	ND < 4.0	0.75	
EW-01A-DUP	4/2/2014	Field Duplicate	0.99 J	0.75	N/A
SV-200	5/6/2014	Primary	ND < 4.0	0.75	
SV-200-DUP	5/6/2014	Field Duplicate	ND < 4.0	0.75	N/A
EW-01B1	6/4/2014	Primary	98	7.5	
EW-01B1-DUP	6/4/2014	Field Duplicate	100	7.5	2.0%
Offsite Wells					
09S03E34C003	4/9/2014	Primary	51	3.8	
09S03E34C003-DUP	4/9/2014	Field Duplicate	50	3.8	2.0%
10S03E14A002	5/9/2014	Primary	5.0	0.75	
10S03E14A002-DUP	5/9/2014	Field Duplicate	5.1	0.75	2.0%
10S04E29F007	5/13/2014	Primary	5.0	0.75	
10S04E29F007-DUP	5/13/2014	Field Duplicate	5.0	0.75	0.0%
				Maximum RPD	2.0%
				Minimum RPD	0%
				Average RPD	1.5%

Abbreviations

µg/L = micrograms per liter
J = concentration between the method detection limit and the reporting limit
MDL = method detection limit
ND < = not detected at or above the reporing limit shown
N/A = not applicable; RPDs are not calculated for results less than the reporting limit
RPD = relative percent difference

APPENDIX G

Response to Water Board Comments –2013 Annual Cleanup Progress Report and First Quarter 2014 Groundwater Monitoring Report

July 30, 2014

Project 6107140012

Mr. Dean Thomas
Engineering Geologist
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

Subject: Response to Water Board Comments –2013 Annual Cleanup Progress Report and First Quarter 2014 Groundwater Monitoring Report
Olin Site
425 Tennant Avenue
Morgan Hill, California

Dear Mr. Thomas:

In a letter dated May 14, 2014, the Central Coast Regional Water Quality Control Board (the "Water Board") provided comments[1] on the 2013 Annual Cleanup Progress Status Report[2] ("2013 CPSR") and the First Quarter 2014 Groundwater Monitoring Report ("1Q14 GMR") for the Olin Site located at 425 Tennant Avenue in Morgan Hill, California (the "Site"). Olin Corporation (Olin) submitted an email response on May 19, 2014 to meet the requirements stated in the Water Board's Comment #1 regarding the 1Q14 GMR. On behalf of Olin, AMEC Environment & Infrastructure, Inc. (AMEC) has prepared this letter to provide Olin's responses to the Water Board's comments on the 2013 CPSR; Olin's previous response to the 1Q14 GMR comment is also provided. The Water Board's comments are provide verbatim in italic font followed by Olin's responses.

2013 Annual Cleanup Progress Status Report

Comment 1.

Section 5.1, 2013 Groundwater Treatment System Operation (GWTS) and Performance, page 10, first paragraph states that concentrations in monitoring wells MW-65 and MW-71 are not expected to decline until after second quarter 2014 (two years after startup of the offsite groundwater extraction and treatment system). These wells in the intermediate aquifer are nearly 2,000 feet downgradient of intermediate zone extraction well IEW-1R and within the plume centerline in the intermediate aquifer. Performance monitoring well PMW-05-90 is located

[1] Central Coast Regional Water Quality Control Board (Water Board), 2014. Site Cleanup Program: Olin Corporation, 425 Tennant Avenue, Morgan Hill, Santa Clara County – Response to 2013 Annual Cleanup Progress Report and First Quarter 2014 Groundwater Monitoring Report. May 14.

[2] AMEC Environment & Infrastructure, Inc. (AMEC), 2014. 2013 Annual Cleanup Progress Status Report, Fourth Quarter 2013 Groundwater Monitoring Report, Olin Site, 425 Tennant Avenue, Morgan Hill, California. January 30.

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closer to IEW-1R at less than 1,000 feet down/crossgradient from IEW-1R; however, it is east of the plume centerline. Baseline perchlorate concentrations have often been below Priority Zone B (PZB) concentrations in this monitoring well, so it is not an ideal monitoring well location to verify hydraulic control and treatment of the PZB plume. In addition to waiting for the effects of pumping on perchlorate concentrations at MW-65/-71, as discussed during our March 23, 2014 conference call with Olin and AMEC, Water Board staff requested that Olin evaluate reactivation of monitoring at former Replacement Water Program well 09S03E34H005, which is now owned by the City of Morgan Hill. Perchlorate concentrations detected in samples collected from this intermediate aquifer well were increasing and above PZB when Olin last sampled it in 2011. This well is located approximately 500 feet downgradient from IEW-1R and it is closer to the plume centerline compared to PMW-05-90, and therefore potentially could be used to help monitor hydraulic control and treatment of PZB in areas downgradient of IEW-1R. During our conference call, Olin committed to pursuing the reactivation of monitoring at well 09S03E34H005.

> **Response 1.** Olin has initiated contact with the City of Morgan Hill (the "City") to gain access to well 09S03E34H005 for sampling, and are currently working with the City on revisions to the proposed Access Agreement. On April 8, 2014, Olin visited the City property to observe the condition of the well, and found that the property is surrounded by barbed wire with "No Trespassing" signs. The well is a 10-inch diameter well with no pump or riser installed. Once access to sample the well is granted by the City, Olin will attempt to determine the total depth, screened interval, and condition of the well casing since construction details for this well are unknown. If this evaluation determines that well 09S03E34H005 is capable of measuring response to IEW-1R pumping, Olin will collect a sample from this well for perchlorate analysis and submit the analytical results to the Water Board.

Comment 2.

Section 5.1, 2013 GWTS Operation and Performance, page 10, second to last paragraph states that extraction well DEW-1's average extraction rate of 109 gallons per minute (gpm) is sufficient to provide hydraulic capture of PZA in the middle deep aquifer. Water Board staff does not completely agree with this statement. We agree that groundwater having PZA concentrations that is flowing southeast (towards southern portions of the Llagas Subbasin) is hydraulically captured, as indicated by modeling and potentiometric surface maps. However, recent potentiometric surface maps indicate that the potentiometric surface of the middle-deep aquifer has a "saddle-like" geometry. The geometry indicates that there may be upgradient areas both north-northeast and west-northwest of DEW-1. Hydrologic principles suggest that these areas are captured by DEW-1. Conversely, the plume centerline northwest of DEW-1 (towards the Olin site) is downgradient of DEW-1, and therefore groundwater in this area may flow northwest, uncaptured by DEW-1. As documented by the Annual Report, perchlorate concentrations remain fairly stable in the plume core areas of the middle and lower deep aquifers, as indicated by the plume series maps and attenuation rates. Perchlorate concentration control charts for the deep aquifer as a whole (e.g., figures G.92, G.93), indicate a "leveling off" at approximately 25 and 12 micrograms per liter, for PZA and PZB concentrations, respectively. The Annual Report states that the northward gradient occurs seasonally during dry

periods but that the plume in the middle deep does not appear to be moving northward and that concentrations are expected to decline in response to current and planned remedial actions. Given that the perchlorate concentrations are leveling off and there may be reversing gradients during dry periods, in the middle aquifer, Water Board staff requires Olin to provide by ***July 30, 2014****, further analysis and details on the middle deep cleanup, cleanup timeframes, and potential response actions in accordance with the approved Remedial Contingency Plan included in the Llagas Subbasin Cleanup Workplan (Mactec, 2007). Please include expected timeframes for perchlorate concentrations to respond to the current remedial action, and potential actions should they not respond (i.e., the plume remains stable for longer than expected).*

Response 2. A review of historical potentiometric surface maps presented in past GMR and CPSR documents demonstrates the presence of a transient groundwater divide (referred to as "saddle-like" geometry in the comment) in the middle deep aquifer zone within the area shown in those figures. This divide is most prominent during periods of seasonally low groundwater elevations (i.e. third and fourth quarters), and is less evident during periods of greater seasonal precipitation (i.e. first and second quarters). The relative position of this divide does not appear to be stationary; a review of transducer data from middle deep aquifer zone wells indicates that the divide shifts toward the north during the wet season and towards the south in the dry season.

The 2007 Llagas Subbasin Cleanup Work Plan[3] included a Hydraulic Containment Performance Monitoring Program and Remedial Contingency Plan (RCP) to evaluate hydraulic containment performance and the need for possible contingency measures. DEW-1 is operating at its maximum capacity given physical system limitations and current drought conditions. The subsequent decision point of the RCP asks whether additional data collection is needed to evaluate potential corrective actions or confirm the status of hydraulic containment. Currently, the effect of the divide and its seasonal variability on the capture efficiency of DEW-1 is not fully understood. Therefore, the following data collection and evaluation activities are proposed:

- A comprehensive review of the groundwater flow model is being performed. Specifically, the groundwater flow model is being recalibrated to hydraulic head data that are more representative of recent conditions within the Llagas Subbasin. In addition, updates to the model framework (e.g., boundary conditions, model layer geometry, etc.) are being evaluated. Data acquired through the collection activities described subsequently will be incorporated into the model update process. It is anticipated that the recalibrated/updated groundwater flow model will better simulate the observed groundwater divide and

[3] MACTEC and Geosyntec, 2007. Llagas Subbasin Cleanup Work Plan, Olin/Standard Fusee Site, Morgan Hill California. June 15.

capture zone of DEW-1. The recalibrated/updated groundwater flow model will be utilized to generate hydraulic capture zone figures in future CPSRs.

- The existing network of submersible transducers deployed in site monitoring wells has been expanded to a total of 19 locations in the upper, middle, and lower deep aquifer zones. The simultaneous groundwater elevation data acquired through this expanded network will be used to better understand the transient nature of the divide, to develop more representative potentiometric surfaces, and to evaluate well screen zone assignments in the deep aquifer. The data will also prove valuable toward understanding interaction between the upper, middle, and lower deep aquifer zones and for making further refinements to the groundwater flow model.
- During the Third Quarter 2014 groundwater monitoring event, additional water level measurements were collected from 17 additional wells to allow for a comprehensive “snapshot” of groundwater elevations within the deep aquifer. Results from this analysis will augment transducer data and will be used to further refine aquifer assignments of deep aquifer monitoring wells near the groundwater divide.
- The site conceptual model (SCM) will be refined for the deep aquifer zones. For example, a review of historical groundwater elevation differences between nested monitoring well locations within the deep aquifer indicates that several monitoring wells may be reassigned from the upper deep to the middle deep aquifer zone. The reassignment of these wells, in addition to the evaluation of vertical gradients, is anticipated to provide a better understanding of groundwater flow potential within the deep aquifer zone and a clearer depiction of the groundwater divide in the middle deep aquifer zone. In addition, cross-sections in the area of interest will be refined to better depict fine-grained confining units in their relation to vertical hydraulic head differences. Based on preliminary findings, the reassignment of well categories is not anticipated to change the depiction of the perchlorate distribution within the deep aquifer zones.

This data collection effort is underway now and is expected to continue through the remainder of 2014. New data will be reported in the quarterly groundwater monitoring reports, as required by the MRP. Based on an evaluation of the data collected, an updated SCM and any recommendations regarding middle deep hydraulic capture will be provided in the 2014 CPSR.

Comment 3.

Section 7, Characterization Update includes a discussion on the newly identified domestic wells located in the Llagas Subbasin. Water Board staff has worked with Olin in selecting 12 domestic wells for further investigation based on their locations relative to the perchlorate plumes in the Llagas Subbasin, and historical perchlorate data provided by Santa Clara County Department of Environmental Health. Olin has obtained perchlorate data for seven of the 12 domestic wells; all wells are screened in the upper and/or middle deep aquifer and generally outside of the intermediate plume footprint. With exception of one domestic well, all wells appear to have

concentrations below the perchlorate maximum contaminant level (MCL). Three wells were retained for collecting additional groundwater samples to confirm the initial perchlorate concentrations. Olin is currently providing bottled water to one well owner where perchlorate is above the MCL. This well was recently placed in service for domestic purposes. Olin has not been able to obtain access agreements from owners of four of the newly identified domestic wells, as the owners have not responded to Olin's request for access. Going forward, Water Board staff requires that Olin obtain information on new well permits from the Santa Clara County Water District on a minimum of an annual basis and report the findings and recommendations in Olin's groundwater monitoring reports.

Response 3. As requested, Olin will request information regarding newly installed domestic wells in the Llagas Subbasin on an annual basis. On April 15, 2014, Olin requested that the Water Board assist with obtaining information from the Santa Clara Valley Water District ("Water District") on newly installed domestic wells within the area of interest. On May 30, 2014 the Water District responded via email with a list of 8 new domestic wells in the Llagas Subbasin. After review of the well locations, it was determined that 2 of the wells were outside of the area of interest, and Olin requested in a June 4, 2014 email that the Water Board request the well construction information on the 6 remaining wells from the Water District. This information was provided by the Water Board in an email dated July 25, 2014. Once the well construction information is reviewed, Olin will provide recommendations on which wells to sample, then will proceed to work with the property owners to gain access to the domestic wells identified in the 2014 domestic well survey for perchlorate sampling.

First Quarter 2014 Groundwater Monitoring Report

Comment 1.

There is a discrepancy between the average flow rates reported in Table 7 and Appendix D1 for the first quarter groundwater extraction rate at IEW-1R. The text references an average flow rate of 201 gallons per minute, apparently the same as reported in Appendix D1. Table 7 indicates an average flow rate of 233 gallons per minute. Within one week from the date of this letter, please provide Water Board staff the reason for the discrepancy and recalibrate appropriate instruments as necessary.

Response 1. This comment was addressed in Olin's email communication to the Water Board dated May 19, 2014. In the email, Olin explained that the data was reviewed and it was confirmed that the average flow rates shown in Table 7 of the 1Q14 GMR are correct and were calculated by dividing the total volumetric flow by the number of days in a given month (giving an average flow rate). The issue has been resolved and a corrected Appendix D1 and page 5 of the text was attached to the May 19th email communication, and are also attached to this letter. Please note that the subject sensors are not used for the recording or reporting data to the Water District; no correction or meter calibration is necessary.

Please contact Mr. Rick McClure at (423) 336-4576 if you have questions regarding these responses.

Sincerely yours,
AMEC Environment & Infrastructure, Inc.

Sean Culkin, PG, CHG
Senior Hydrogeologist

Mari Gilmore, PG
Project Manager

Michael D. Taraszki, PG, CHG, PMP
Project Principal

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Enclosures: Revised Page 5 of 1Q14 GMR
Revised Appendix D1 of 1Q14 GMR

data, or using four data points, whichever data set is larger (Table 5). Of the 87 wells sampled in 1Q14 that meet the criteria for Mann Kendall analysis, the results are as follows:

- 51 domestic and monitoring wells (approximately 59 percent) exhibit either a *decreasing*, *probably decreasing*, or *stable* trend.
- 31 wells (approximately 30 percent) exhibit *no trend*.
- 5 wells exhibit *increasing* trends.

Of the 5 wells with increasing trends, two wells (domestic well 09S03E34G002 and MW-56-433) had a perchlorate concentration above the MCL. Domestic well 09S03E34G002 is within the capture zone of extraction well IEW-1R, has an IX system installed, and is sampled quarterly pursuant to the RWP. Lower deep aquifer zone well MW-56-433 had a perchlorate concentration of 6.1 ug/L. This well will continue to be sampled semiannually pursuant to the MRP.

Groundwater samples were also analyzed for nitrate using EPA Test Method 300.0, in accordance with the MRP (Water Board, 2013). The analytical results are provided in Table 6 and are comparable to previously observed concentrations and expected concentration trends associated with GWTS operation.

TREATMENT SYSTEM OPERATIONS AND PERFORMANCE

The GWTS is operating as designed and provides hydraulic containment and remediation of perchlorate in the plume core areas of the intermediate aquifer and upper and middle deep aquifer zones; treated groundwater is recharged to the Llagas Subbasin. The monthly flow rates and flow volumes recorded by the GES and OSR system flowmeters are provided in Table 7.

Three GES extraction wells were operated during 1Q14: off-site extraction wells IEW-1R and DEW-1 and on-site extraction well EW-01B1. Perchlorate concentration results for these extraction wells are presented in Table 2.

The calculated 1Q14 average extraction rates for IEW-1R and DEW-1 are 233 gpm and 117 gpm, respectively (Table 7). As indicated in the 2013 Cleanup Progress Status Report, simulated average annual groundwater flow conditions and average annual extraction rates indicate that IEW-1R is capturing PZA and the majority of PZB concentrations in the intermediate aquifer as designed (AMEC, 2014b). PZB concentrations in the intermediate aquifer cross-gradient and slightly downgradient from the estimated IEW-1R capture zone continue to be monitored. At cross-gradient wells MW-60-082 and MW-72-070, perchlorate concentrations have declined to PZC levels since IEW-1R operations began. As shown on Figure 3, perchlorate concentrations for wells within the IEW-1R capture zone generally exhibited stable trends or had no trends in 1Q14, while most wells downgradient of the capture zone exhibited stable, probably decreasing, or decreasing trends. The average extraction rate at DEW-1 achieves capture for a portion of PZA concentrations in the middle deep aquifer zone, based on simulated average annual groundwater flow conditions for 2013 (AMEC, 2014b). Evaluation of the DEW-1 capture zone and aquifer characterization is ongoing.

TABLE D1

GROUNDWATER TREATMENT SYSTEM MONITORING DATA
First Quarter 2014 Groundwater Monitoring Report
Olin Site
Morgan Hill, California

	Date	1/31/14	2/28/14	3/31/14
Effluent pH	pH units	7.50	7.50	6.80
Effluent Nitrate [1]	mg/L	29.1	12.5	27.2
IEW-1R Nitrate	mg/L	26.1	32.0	32.7
DEW-1 Nitrate	mg/L	27.9	32.2	32.1
EW-01A Totalizer	gal	728,927	733,184	733,224
EW-01A Average Flowrate	gpm	0.009	0.106	0.001
EW-02A Totalizer	gal	494,233	494,233	494,294
EW-02A Average Flowrate	gpm	0.004	0	0.001
EW-01B1 Totalizer	gal	10,660,611	11,236,146	11,871,060
EW-01B1 Average Flowrate	gpm	14	14	14
IEW-1R Totalizer [2]	gal	132,310,000	140,247,504	149,672,576
IEW-1R Average Flowrate [2]	gpm	230	216	254
DEW-1 Totalizer	gal	88,356,256	93,040,872	98,200,944
DEW-1 Average Flowrate	gpm	118	116	116
Combined Offsite Totalizer (FE-400)	gal	272,821,248	286,835,104	303,326,592
Combined Offsite Average Flowrate	gpm	348	348	369
INJ-001 Totalizer Reading	gal	40,563,580	42,725,968	45,309,380
INJ-001 Average Flow Rate	gpm	50	54	58
INJ-002 Totalizer Reading	gal	23,313,544	24,380,692	25,642,288
INJ-002 Average Flow Rate	gpm	25	26	28
INJ-003 Totalizer Reading	gal	77,919,808	82,008,824	86,771,312
INJ-003 Average Flow Rate	gpm	97	101	107
INJ-004 Totalizer Reading	gal	83,734,184	88,403,576	93,587,488
INJ-004 Average Flow Rate	gpm	111	116	116
INJ-005 Totalizer Reading	gal	46,013,292	48,111,728	50,612,020
INJ-005 Average Flow Rate	gpm	50	52	56
INJ-006 Totalizer Reading	gal	11,739,363	12,427,087	13,165,990
INJ-006 Average Flow Rate	gpm	15	17	17

Abbreviations
gal = gallons
gpm = gallons per minute
mg/L = milligrams per liter

Notes
1. In January 2014, there was a malfunction between the effluent nitrate display and the sensor that recorded the data. The effluent nitrate sensor and display were functioning properly, but the data transmitted for data storage was incorrect. The meters and sensors were recalibrated and repaired by March 2014.
2. The 1Q14 IEW-1R flow rates and flow volumes were calculated based on the main off-site influent flow meter (FE-400), which measures the combined flow from IEW-1R and DEW-1, and the DEW-1 process control flow meter (FE-100).