



December 23, 2015  
Cardno 1052000015.S14

Mr. Doug Kirkland  
Pima County – Regional Wastewater Reclamation Department  
Technical Services Section, Industrial Wastewater Control  
2955 West Calle Agua Nueva  
Tucson, Arizona 85745

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**SUBJECT Industrial Wastewater Discharge Permit Self-Monitoring Report Form**

City of Tucson Fire and Police Headquarters  
UST Facility ID 0-005176  
LUST File No. 3208.01  
PCWW Permit No. 12916  
265 South Church Avenue, Tucson, Arizona

Mr. Kirkland:

Cardno, on behalf of the City of Tucson – Environmental Services (COT-ES), hereby submits this Industrial Wastewater Discharge Permit Self-monitoring Report Form (SMRF) for discharge of treated water at the above-noted Site (Appendix A). This SMRF is submitted for discharges at the permitted discharge location (Permit No. 12916) for the reporting period of September 1, 2015 through November 30, 2015. Compliance samples were collected on November 24, 2015, and submitted to Accutest Laboratories of Phoenix, Arizona, a state-certified laboratory, under chain of custody protocol (Appendix B). Monitored parameters did not exceed the permit limits during the reporting period (Appendix C).

**LIMITATIONS**

For any documents cited that were not generated by Cardno, the data taken from those documents is used “as is” and is assumed to be accurate. Cardno does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document was prepared in accordance with generally accepted standards of environmental, geological, and engineering practices in Arizona at the time of investigation. No soil engineering geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at

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the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please call Mr. Justin T. Patton with Cardno at (602) 909-3448 or Mr. Richard Byrd with the City of Tucson at (520) 837-3710 with questions regarding this Site.

Respectfully submitted,



Justin T. Patton  
Project Manager  
for Cardno  
Direct Line 602 909 3448  
Email: justin.patton@cardno.com

Enclosures:

Table 1        Flow Calculations  
Table 2        Historical Data

Appendix A    Pima County Regional Wastewater Reclamation Department Industrial Waste Water  
                  Control Self-Monitoring Reporting Form  
Appendix B    Laboratory Analytical Report and Chain-of-Custody Record  
Appendix C    Field Data Sheet

cc:        Richard Byrd, COT-ES

**TABLE 1  
FLOW CALCULATIONS**

City of Tucson Police/Fire Station Headquarters  
265 South Church Avenue, Tucson, Arizona  
UST Facility ID 0-005176; LUST File No. 3208.01  
PCWW Permit No. 12916

*Operational Period (September 1, 2015 through November 30, 2015)*

<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
324	08/31/15 - 09/06/15	1,964,604	1,969,005	4,401	3	1,467
325	09/07/15 - 09/13/15	1,969,005	1,970,949	1,944	9	216
326-335 <sup>1</sup>	09/14/15 - 11/22/15	1,970,949	1,970,949	0	0	0
336 <sup>2</sup>	11/23/15 - 11/29/15	1,970,949	1,970,960	11	1	11
337 <sup>1</sup>	11/30/15 - 12/06/15	1,970,960	1,970,960	0	0	0
Operational Period Average Flowrate (GPD)						424

Notes:

GPD = gallons per day

<sup>1</sup> On September 9, 2015, the system was shut down and groundwater pumps were removed from monitor wells HQUST-523A and HQUST-524A to assess free product recovery, groundwater conditions, and collect quarterly groundwater samples.

<sup>2</sup> On November 24, 2015 the system was cycled on to collect discharge compliance samples.

**TABLE 2  
HISTORICAL DATA**

City of Tucson Police/Fire Station Headquarters  
265 South Church Avenue, Tucson, Arizona  
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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
1 thru 4 <sup>1</sup>	6/11/09 - 7/5/09	0	6,099	6,099	6	1,017
5 <sup>2</sup>	7/6/09 - 7/12/09	6,099	8,897	2,798	2	1,399
6 <sup>3</sup>	7/13/09 - 7/19/09	8,897	26,264	17,367	5	3,473
7 <sup>4</sup>	7/20/09 - 7/26/09	17,367	39,543	22,176	5	4,435
8 <sup>5</sup>	7/27/09 - 8/2/09	39,543	42,685	3,142	2	1,571
9 <sup>6</sup>	8/3/09 - 8/9/09	42,685	42,685	0	0	0
10 <sup>7</sup>	8/10/09 - 8/23/09	42,685	42,685	0	0	0
11 <sup>8</sup>	8/24/09 - 8/31/09	42,685	43,179	494	3	165
12 thru 15 <sup>9</sup>	9/1/09 - 9/28/09	43,178	43,178	0	0	0
16	9/29/09 - 10/5/09	43,178	48,812	5,634	6	1,024
17	10/6/09 - 10/12/09	48,812	56,291	7,479	7	1,151
18 <sup>10</sup>	10/13/09 - 10/19/09	56,291	56,391	100	1	200
19 <sup>11</sup>	10/20/09 - 10/26/09	56,391	60,202	3,811	3	1,270
20	10/27/09 - 11/2/09	60,202	69,162	8,960	6	1,493
21 <sup>12</sup>	11/3/09 - 11/9/09	69,162	81,224	12,062	3	4,021
22 <sup>13</sup>	11/10/09 - 11/16/09	81,224	83,198	1,974	1	1,974
23-24 <sup>14</sup>	11/17/09 - 11/30/09	60,202	83,198	22,996	0	0
25-26 <sup>15</sup>	12/1/09 - 12/14/09	83,198	83,198	0	0	0
27-28	12/15/09 - 12/28/09	83,198	107,435	24,237	12	2,020
29-37 <sup>16</sup>	12/29/09 - 2/28/10	107,435	107,435	0	0	0
38-41 <sup>17</sup>	3/1/10 - 3/28/10	107,435	107,897	462	1	462
42-43 <sup>18</sup>	3/29/10 - 4/11/10	107,897	137,822	29,925	8	3,741
44-45 <sup>19</sup>	4/12/10 - 4/25/10	137,822	156,941	19,119	5	3,824
46-47	4/26/10 - 5/9/10	156,941	208,684	51,743	12	4,312
48-49	5/10/10 - 5/23/10	208,684	239,591	30,907	10	3,091
50	5/24/10 - 5/30/10	239,591	247,010	7,419	2	3,710
51	6/1/10 - 6/6/10	247,010	250,100	3,090	6	515
52	6/7/10 - 6/13/10	250,100	257,200	7,100	7	1,014

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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
53	6/14/10 - 6/20/10	257,200	274,200	17,000	7	2,429
54	6/21/10 - 6/27/10	274,200	284,100	9,900	7	1,414
55	6/28/10 - 7/4/10	284,100	298,400	14,300	7	2,043
56	7/5/10 - 7/11/10	298,400	326,000	27,600	7	3,943
57	7/18/10 - 7/25/10	326,000	356,700	30,700	7	4,386
58	7/26/10 - 8/1/10	356,700	380,000	23,300	7	3,329
59-63 <sup>20</sup>	8/1/10 - 8/27/10	380,000	383,468	3,468	2	2,312
64	9/06/10 - 9/12/10	383,468	420,192	36,724	7	5,246
65	9/13/10 - 9/19/10	420,192	431,481	11,289	4	2,822
66	9/20/10 - 9/26/10	431,481	443,113	11,632	6	1,939
67	9/27/10 - 10/3/10	443,113	462,381	19,268	2	9,634
68	10/4/10 - 10/10/10	462,381	466,814	4,433	4	1,108
69 <sup>21</sup>	10/11/10 - 10/17/10	466,814	467,868	1,054	7	151
70 <sup>21</sup>	10/18/10 - 10/24/10	467,868	472,010	4,142	7	592
71	10/25/10 - 10/31/10	472,010	475,563	3,553	7	508
72	11/1/10 - 11/7/10	475,563	476,500	937	7	134
73	11/8/10 - 11/14/10	476,500	478,638	2,138	2	1,069
74	11/15/10 - 11/21/10	478,638	478,638	0	0	0
75	11/22/10 - 11/28/10	478,638	482,211	3,573	6	596
76	11/29/10 - 12/5/10	478,638	482,211	3,573	7	510
77	12/6/2010 - 12/12/10	482,211	488,222	6,011	6.5	925
78	12/13/10 - 12/19/10	488,222	492,024	3,802	7	543
79	12/20/10 - 12/26/10	492,024	492,838	814	7	116
80	12/27/10 - 01/02/11	492,838	498,188	5,350	7	764
81	1/03/11 - 1/09/11	498,188	498,853	665	7	95
82	1/10/11 - 1/16/11	498,853	502,826	3,973	7	568
83	1/17/11 - 1/23/11	502,826	505,253	2,427	7	347
84-85	1/24/11 - 2/06/11	505,253	507,480	2,227	14	159

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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
86 <sup>22</sup>	2/07/11 - 2/13/11	507,480	507,624	144	0	0
87	2/14/11 - 2/20/11	507,624	519,500	11,876	7	1,697
88 <sup>23</sup>	2/21/11 - 2/27/11	519,500	520,935	1,435	1	1,435
89 <sup>24</sup>	2/28/11 - 3/06/11	520,935	520,935	0	0	0
90 <sup>24</sup>	3/07/11 - 3/13/11	520,935	520,935	0	0	0
91 <sup>24</sup>	3/14/11 - 3/20/11	520,935	520,935	0	0	0
92	3/21/11 - 3/27/11	520,935	524,743	3,808	2	1,731
93	3/28/11 - 4/03/11	524,743	535,683	10,940	7	1,563
94	4/04/11 - 4/10/11	535,683	547,289	11,606	7	1,658
95	4/11/11 - 4/17/11	547,289	557,001	9,712	7	1,387
96	4/18/11 - 4/24/11	557,001	565,437	8,436	7	1,205
97	4/25/11 - 5/01/11	565,437	572,853	7,416	7	1,059
98	5/02/11 - 5/08/11	572,853	576,644	3,791	7	542
99-101 <sup>25</sup>	5/9/11 - 5/29/11	576,644	576,984	340	3	113
102	5/30/11 - 6/05/11	576,984	594,342	17,358	7	2,480
103	6/06/11 - 6/12/11	594,342	604,988	10,646	7	1,521
104	6/13/11 - 6/19/11	604,988	615,449	10,460	7	1,494
105	6/20/11 - 6/26/11	615,449	626,388	10,940	7	1,563
106	6/27/11 - 7/03/11	626,388	637,170	10,782	7	1,540
107	7/04/11 - 7/10/11	637,170	648,171	11,001	7	1,572
108	7/11/11 - 7/17/11	648,171	660,652	12,481	7	1,783
109	7/18/11 - 7/24/11	660,652	673,118	12,466	7	1,781
110	7/25/11 - 7/31/11	673,118	686,024	12,906	7	1,844
111	8/01/11 - 8/07/11	686,024	698,681	12,657	7	1,808
112	8/08/11 - 8/14/11	698,681	706,220	7,539	7	1,077
113	8/15/11 - 8/21/11	706,220	711,929	5,709	7	816
114 <sup>26</sup>	8/22/11 - 8/28/11	711,929	713,612	1,683	7	240
115-116 <sup>27</sup>	08/29/11 - 09/11/11	713,612	715,787	2,175	14	155

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117 <sup>28</sup>	09/12/11 - 09/18/11	715,787	716,366	578	7	83
118 <sup>28</sup>	09/19/11 - 09/25/11	716,366	717,136	771	7	110
119 <sup>28</sup>	09/26/11 - 10/02/11	717,136	717,597	461	7	66
120 <sup>28</sup>	10/03/11 - 10/09/11	717,597	717,639	41	7	6
121 <sup>28</sup>	10/10/11 - 10/16/11	717,639	717,767	128	7	18
122	10/17/11 - 10/23/11	717,767	728,705	10,938	7	1,563
123	10/24/11 - 10/30/11	728,705	743,617	14,912	7	2,130
124	10/31/11 - 11/06/11	743,617	752,756	9,139	7	1,306
125	11/07/11 - 11/13/11	752,756	766,463	13,707	7	1,958
126 <sup>29</sup>	11/14/11 - 11/20/11	766,463	768,288	1,825	1	1,825
127 <sup>29</sup>	11/21/11 - 11/27/11	768,288	768,288	0	0	0
128 <sup>29</sup>	11/28/11 - 12/04/11	768,288	768,288	0	0	0
129 <sup>29</sup>	12/05/11 - 12/11/11	768,288	778,260	9,972	6	1662
130	12/12/11 - 12/18/11	778,260	786,866	8,606	7	1229
131	12/19/11 - 12/25/11	786,866	801,536	14,671	7	2157
132	12/26/11 - 01/01/12	801,536	816,699	15,163	7	2166
133	01/02/12 - 01/08/12	816,699	834,132	17,432	7	2490
134	01/09/12 - 01/15/12	834,132	849,913	15,781	7	2254
135-136	01/16/12 - 01/29/12	849,913	881,200	31,287	14	2235
137	01/30/12 - 02/05/12	881,200	896,731	15,531	7	2219
138	02/06/12 - 02/12/12	896,731	909,539	12,808	7	1830
139	02/13/12 - 02/19/12	909,539	921,154	11,615	7	1659
140 <sup>30</sup>	02/20/12 - 02/26/12	921,154	936,511	15,356	7	2194
141 <sup>31</sup>	02/27/12 - 03/04/12	936,511	951,910	15,399	7	2,200
142 <sup>31</sup>	03/05/12 - 03/11/12	951,910	967,310	15,400	7	2,200
143	03/12/12 - 03/18/12	967,310	991,742	24,432	7	3,490
144	03/19/12 - 03/25/12	991,742	1,019,635	27,893	7	3,985
145	03/26/12 - 04/01/12	1,019,635	1,048,934	29,299	7	4,186

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146	04/02/12 - 04/08/12	1,048,934	1,073,527	24,593	7	3,513
147	04/09/12 - 04/15/12	1,073,527	1,098,624	25,097	7	3,585
148	04/16/12 - 04/22/12	1,098,624	1,119,880	21,256	7	3,037
149	04/23/12 - 04/29/12	1,119,880	1,134,604	14,724	7	2,103
150	04/30/12 - 05/06/12	1,134,604	1,159,385	24,781	7	3,540
151 <sup>32</sup>	05/07/12 - 05/13/12	1,159,385	1,175,193	15,808	3	5,269
152-180 <sup>32</sup>	05/14/12 - 12/02/12	1,175,193	1,175,193	0	0	0
181	12/03/12 - 12/09/12	1,175,193	1,177,608	2,415	2	1,208
182	12/10/12 - 12/16/12	1,177,608	1,192,146	14,538	7	2,077
183	12/17/12 - 12/23/12	1,192,146	1,205,512	13,366	7	1,909
184	12/24/12 - 12/30/12	1,205,512	1,223,296	17,784	7	2,541
185	12/31/12 - 01/06/13	1,223,296	1,234,797	11,501	7	1,643
186 <sup>33</sup>	01/07/13 - 01/13/13	1,234,797	1,248,826	14,029	4	3,507
187 <sup>33</sup>	01/14/13 - 01/20/13	1,248,826	1,248,826	0	0	0
188 <sup>33</sup>	01/21/13 - 01/27/13	1,248,826	1,248,826	0	0	0
189	01/28/13 - 02/03/13	1,248,826	1,251,438	2,612	7	373
190-191	02/04/13 - 02/17/13	1,251,438	1,274,104	22,666	14	1,619
192	02/18/13 - 02/24/13	1,274,104	1,294,556	20,452	7	2,922
193	02/25/13 - 03/03/13	1,294,556	1,296,842	2,286	7	327
194-197 <sup>34</sup>	03/04/13 - 03/31/13	1,296,842	1,296,842	0	0	0
198	04/01/13 - 04/07/13	1,296,842	1,315,743	18,901	10	1,890
199	04/08/13 - 04/14/13	1,315,743	1,321,002	5,259	3	1,753
200	04/15/13 - 04/21/13	1,321,002	1,338,303	17,301	10	1,730
201	04/22/13 - 04/28/13	1,338,303	1,350,271	11,968	7	1,710
202 <sup>35</sup>	04/29/13 - 05/05/13	1,350,271	1,350,384	113	1	113
203 <sup>35</sup>	05/06/13 - 05/12/13	1,350,384	1,350,520	136	1	136
204	05/13/13 - 05/19/13	1,350,520	1,361,086	10,566	7	1,509
205	05/20/13 - 05/26/13	1,361,086	1,371,441	10,355	6	1,726

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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
206	05/27/13 - 06/02/13	1,371,441	1,384,244	12,803	10	1,280
207	06/03/13 - 06/09/13	1,384,244	1,387,673	3,429	5	686
208 <sup>36</sup>	06/10/13 - 06/16/13	1,387,673	1,387,673	0	0	0
209	06/17/13 - 06/23/13	1,387,673	1,404,318	16,645	10	1,665
210	06/24/13 - 06/30/13	1,404,318	1,411,709	7,391	4	1,848
211	07/01/13 - 07/07/13	1,411,709	1,421,303	9,594	6	1,599
212	07/08/13 - 07/14/13	1,421,303	1,427,382	6,079	7	868
213	07/15/13 - 07/21/13	1,427,382	1,427,803	421	11	38
214	07/22/13 - 07/28/13	1,427,803	1,428,778	975	6	163
215	07/29/13 - 08/04/13	1,428,778	1,429,568	790	5	158
216	08/05/13 - 08/11/13	1,429,568	1,443,307	13,739	6	2,290
217	08/12/13 - 08/18/13	1,443,307	1,443,783	476	7	68
218	08/19/13 - 08/25/13	1,443,783	1,451,604	7,821	7	1,117
219	08/26/13 - 09/01/13	1,451,604	1,451,756	152	8	19
220	09/02/13 - 09/08/13	1,451,756	1,452,079	323	8	40
221	09/09/13 - 09/15/13	1,452,079	1,452,309	230	6	0
222	09/16/13 - 09/22/13	1,452,309	1,452,571	262	7	37
223	09/23/13 - 09/29/13	1,452,571	1,457,893	5,322	9	591
224 <sup>37</sup>	09/30/13 - 10/06/13	1,457,893	1,457,893	0	0	0
225	10/07/13 - 10/13/13	1,457,893	1,457,921	28	4	7
226	10/14/13 - 10/20/13	1,457,921	1,458,318	397	7	57
227	10/21/13 - 10/27/13	1,458,318	1,465,485	7,167	7	1,024
228-232 <sup>38</sup>	10/28/13 - 12/01/13	1,465,485	1,465,485	0	0	0
233	12/02/13 - 12/08/13	1,465,485	1,487,150	21,665	7	3,095
234	12/09/13 - 12/15/13	1,487,150	1,501,268	14,118	10	1,412
235	12/16/13 - 12/22/13	1,501,268	1,509,669	8,401	6	1,400
236	12/23/13 - 12/29/13	1,509,669	1,517,976	8,307	6	1,385
237	12/30/13 - 01/05/14	1,517,976	1,530,691	12,715	9	1,413

**TABLE 2  
HISTORICAL DATA**

City of Tucson Police/Fire Station Headquarters  
265 South Church Avenue, Tucson, Arizona  
UST Facility ID 0-005176; LUST File No. 3208.01  
PCWW Permit No. 12916

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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
238	01/06/14 - 01/12/14	1,530,691	1,538,973	8,282	6	1,380
239	01/13/14 - 01/19/14	1,538,973	1,545,515	6,542	6	1,090
240	01/20/14 - 01/26/14	1,545,515	1,556,550	11,035	8	1,379
241	01/27/14 - 02/02/14	1,556,550	1,564,560	8,010	6	1,335
242-243 <sup>39</sup>	02/03/14 - 02/16/14	1,564,560	1,564,762	202	7	29
244 <sup>40</sup>	02/17/14 - 02/23/14	1,564,762	1,564,825	63	1	63
245-249 <sup>39</sup>	02/24/14 - 03/30/14	1,564,825	1,564,825	0	0	0
250	03/31/14 - 04/06/14	1,564,825	1,569,015	4,190	3	1,397
251	04/07/14 - 04/13/14	1,569,015	1,574,555	5,540	4	1,385
252	04/14/14 - 04/20/14	1,574,555	1,584,173	9,618	7	1,374
253	04/21/14 - 04/27/14	1,584,173	1,599,135	14,962	11	1,360
254	04/28/14 - 05/04/14	1,599,135	1,607,115	7,980	6	1,330
255	05/05/14 - 05/11/14	1,607,115	1,615,156	8,041	6	1,340
256	05/12/14 - 05/18/14	1,615,156	1,625,283	10,127	8	1,266
257	05/19/14 - 05/25/14	1,625,283	1,630,365	5,082	4	1,271
258	05/26/14 - 06/01/14	1,630,365	1,641,307	10,942	10	1,094
259	06/02/14 - 06/08/14	1,641,307	1,650,187	8,880	7	1,269
260	06/09/14 - 06/15/14	1,650,187	1,658,291	8,104	7	1,158
261	06/16/14 - 06/22/14	1,658,291	1,663,401	5,110	4	1,278
262	06/23/14 - 06/29/14	1,663,401	1,675,837	12,436	10	1,244
263 <sup>41</sup>	06/30/14 - 07/06/14	1,675,837	1,680,617	4,780	7	683
264-265 <sup>41</sup>	07/07/14 - 07/20/14	1,680,617	1,680,617	0	0	0
266	07/21/14 - 07/27/14	1,680,617	1,687,513	6,896	9	766
267	07/28/14 - 08/03/14	1,687,513	1,694,891	7,378	6	1,230
268	08/04/14 - 08/10/14	1,694,891	1,704,692	9,801	8	1,225
269 <sup>42</sup>	08/11/14 - 08/17/14	1,704,692	1,705,240	548	8	69
270 <sup>42</sup>	08/18/14 - 08/24/14	1,705,240	1,705,240	0	0	0
271	08/25/14 - 08/31/14	1,705,240	1,711,210	5,970	9	663

**TABLE 2  
HISTORICAL DATA**

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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
272	09/01/14 - 09/07/14	1,711,210	1,722,842	11,632	5	2,326
273	09/08/14 - 09/14/14	1,722,842	1,731,915	9,073	8	1,134
274	09/15/14 - 09/21/14	1,731,915	1,741,505	9,590	6	1,598
275	09/22/14 - 09/28/14	1,741,505	1,751,876	10,371	7	1,482
276	09/29/14 - 10/05/14	1,751,876	1,764,479	12,603	9	1,400
277	10/06/14 - 10/12/14	1,764,479	1,764,590	111	6	19
278-281 <sup>43</sup>	10/13/14 - 11/09/14	1,764,590	1,764,590	0	0	0
282	11/10/14 - 11/16/14	1,764,590	1,764,939	349	2	175
283	11/17/14 - 11/23/14	1,764,939	1,765,072	133	6	22
284	11/24/14 - 11/30/14	1,765,072	1,768,069	2,997	7	428
285	12/01/14 - 12/07/14	1,768,069	1,776,776	8,707	9	967
286	12/08/14 - 12/14/14	1,776,776	1,783,699	6,923	5	1,385
287	12/15/14 - 12/21/14	1,783,699	1,794,167	10,468	7	1,495
288	12/22/14 - 12/28/14	1,794,167	1,807,424	13,257	7	1,894
289	12/29/14 - 01/04/15	1,807,424	1,814,099	6,675	5	1,335
290	01/05/15 - 01/11/15	1,814,099	1,826,744	12,645	9	1,405
291	01/12/15 - 01/18/15	1,826,744	1,827,037	293	7	42
292	01/19/15 - 01/25/15	1,827,037	1,835,990	8,953	6	1,492
293	01/26/15 - 02/01/15	1,835,990	1,846,014	10,024	7	1,432
294	02/02/15 - 02/08/15	1,846,014	1,853,780	7,766	7	1,109
295 <sup>44</sup>	02/09/15 - 02/15/15	1,853,780	1,853,780	0	0	0
296	02/16/15 - 02/22/15	1,853,780	1,859,970	6,190	5	1,238
297	02/23/15 - 03/01/15	1,859,970	1,869,717	9,747	9	1,083
298	03/02/15 - 03/08/15	1,869,717	1,875,196	5,479	6	913
299	03/09/15 - 03/15/15	1,875,196	1,884,662	9,466	9	1,052
300	03/16/15 - 03/22/15	1,884,662	1,885,340	678	3	226
301	03/23/15 - 03/29/15	1,885,340	1,886,690	1,350	8	169
302	03/30/15 - 04/05/15	1,886,690	1,889,727	3,037	8	380

**TABLE 2  
HISTORICAL DATA**

City of Tucson Police/Fire Station Headquarters  
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PCWW Permit No. 12916  
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<b>Week No.</b>	<b>Dates</b>	<b>Previous Weeks' Total (Gallons)</b>	<b>Weeks' Total (Gallons)</b>	<b>Total Volume for Week(s) (Gallons)</b>	<b>Well Pump Run Time (Days)</b>	<b>Average Daily Flow Rate (GPD)</b>
303	04/06/15 - 04/12/15	1,889,727	1,893,945	4,218	5	844
304	04/13/15 - 04/19/15	1,893,945	1,898,374	4,429	7	633
305	04/20/15 - 04/26/15	1,898,374	1,906,409	8,035	9	893
306-307 <sup>45</sup>	04/27/15 - 05/10/15	1,906,409	1,911,604	5,195	5	1,039
308	05/11/15 - 05/17/15	1,911,604	1,915,491	3,887	7	555
309 <sup>46</sup>	05/18/15 - 05/24/15	1,915,491	1,915,501	10	1	10
310-312 <sup>46</sup>	05/25/15 - 06/14/15	1,915,501	1,915,648	147	1	147
313	06/15/15 - 06/21/15	1,915,648	1,923,673	8,025	8	1,003
314	06/22/15 - 06/28/15	1,923,673	1,931,556	7,883	8	985
315	06/29/15 - 07/05/15	1,931,556	1,937,904	6,348	7	907
316-317 <sup>47</sup>	07/06/15 - 07/19/15	1,937,904	1,942,214	4,310	5	862
317	07/13/15 - 07/19/15	1,942,214	1,942,214	0	0	0
318	07/20/15 - 07/26/15	1,942,214	1,948,458	6,244	7	892
319	07/27/15 - 08/02/15	1,948,458	1,953,256	4,798	7	685
320	08/03/15 - 08/09/15	1,953,256	1,959,514	6,258	10	626
321	08/10/15 - 08/16/15	1,959,514	1,962,004	2,490	4	623
322	08/17/15 - 08/23/15	1,962,004	1,964,557	2,553	10	255
323	08/24/15 - 08/30/15	1,964,557	1,964,604	47	7	7
324	08/31/15 - 09/06/15	1,964,604	1,969,005	4,401	3	1,467
325	09/07/15 - 09/13/15	1,969,005	1,970,949	1,944	9	216
326-335 <sup>48</sup>	09/14/15 - 11/22/15	1,970,949	1,970,949	0	0	0
336 <sup>49</sup>	11/23/15 - 11/29/15	1,970,949	1,970,960	11	1	11
337 <sup>48</sup>	11/30/15 - 12/06/15	1,970,960	1,970,960	0	0	0
<b>Total Average Flowrate (GPD)</b>						<b>1,257</b>

Notes:

GPD = gallons per day

<sup>1</sup> Well water extraction was not turned on until 6/30/09 due to air leaks needing repairs. Actual Well Pump Run-time from 6/11 to 7/5 is 6 days.

<sup>2</sup> Well water extraction was turned off for 5 days for maintenance of system and pumps. Well Pump Run-time from 7/6 to 7/12 is 2 days.

**TABLE 2**  
**HISTORICAL DATA**

City of Tucson Police/Fire Station Headquarters  
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Notes:

- <sup>3</sup> Well water extraction was turned off for 2 days to for maintenance inspection. Well Pump Run-time from 7/13 to 7/19 is 5 days.
- <sup>4</sup> Well water extraction was turned off for 2 days to replace cam locks and maintenance. Well Pump Run-time from 7/20 to 7/26 is 5 days.
- <sup>5</sup> Well water extraction was on for only 2 days to open up wells DIW & DIE and to conduct light non-aqueous phase liquids (LNAPL) readings. Well Pump Run-time from 7/27 to 8/2 is 2 days.
- <sup>6</sup> Well water extraction was off to open up wells DIW & DIE and to conduct LNAPL readings. Well Pump Run-time from 8/3 to 8/9 is 0 days.
- <sup>7</sup> Well water extraction was off to open up wells DIW & DIE and to conduct LNAPL readings. Well Pump Run-time from 8/10 to 8/23 is 0 days.
- <sup>8</sup> Well water extraction was on for 3 days due to needed repairs for pumps and maintenance inspection. Well Pump Run-time from 7/27 to 8/2 is 3 days.
- <sup>9</sup> Well water extraction was off due to extraction pump malfunctioning.
- <sup>10</sup> Extraction from water wells was terminated to measure LNAPL rebound. Well Pump Run-time from 10/13 to 10/19 is 1 day.
- <sup>11</sup> Extraction from water wells was terminated to measure LNAPL rebound. Well Pump Run-time from 10/20 to 10/26 is 3 days.
- <sup>12</sup> Well water extraction was turned off for maintenance of system. Well Pump Run-time from 11/3 to 11/9 is 3 days.
- <sup>13</sup> Well water extraction was turned off for maintenance of system and to relocate RSI ICE Unit to Area of Concern 2 (AOC2) at well CEP-519A. Well Pump Run-time from 11/10 to 11/16 is 1 day.
- <sup>14</sup> RSI unit was relocated to AOC2 for vapor extraction at well CEP-519A.
- <sup>15</sup> No groundwater extraction was conducted during this period (soil vapor extraction was conducted at AOC2).
- <sup>16</sup> The vapor extraction/groundwater extraction (VEGE) system was shutdown on 12/29/09 and not operated thereafter. The unit was returned to the equipment vendor on 1/6/10.
- <sup>17</sup> System construction of the oil/water separator (OWS) remediation system was conducted in March 2010. The system began operation on 3/24/10.
- <sup>18</sup> Periodic operation during system start-up and commissioning.
- <sup>19</sup> Periodic operation during system start-up and commissioning. System was shut down for several days beginning on 4/20/10 to review and implement modifications.
- <sup>20</sup> System was shut down for most of the time during this period due to needed maintenance and repairs to the OWS, remediation system, and pump air lines.  
The system was operational on 8/26 and 8/27.
- <sup>21</sup> Pump in well HQUST 524A was turned off by City of Tucson (COT) maintenance for a 5-day period.
- <sup>22</sup> System was shut down for repairs (pipes burst due to the extremely long freezing temperatures).
- <sup>23</sup> System was shut down on 2/21/11 so LNAPL rebound monitoring could be conducted.
- <sup>24</sup> System was shut down on 2/21/11 to 3/25/11 so LNAPL rebound monitoring could be conducted.
- <sup>25</sup> The pumps had plugged and were not pumping groundwater during a 3-week period. The final totalizer reading was collected on 5/26/11 when system maintenance was conducted.  
The number of days of Run-time is estimated.
- <sup>26</sup> The pump in well HQUST-523A was plugged and was pulled for maintenance on 8/24/11.
- <sup>27</sup> Extraction well HQUST-524A was taken off line due to a faulty air regulator.
- <sup>28</sup> Extraction well HQUST-523A was taken off line, pump had become non-functional due to mechanical failure, new pump on order.
- <sup>29</sup> System shut down for ISCO pilot test and COT quarterly sampling event.

**TABLE 2**  
**HISTORICAL DATA**

City of Tucson Police/Fire Station Headquarters  
265 South Church Avenue, Tucson, Arizona  
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- <sup>30</sup> Extraction well HQUST-523A was taken off line, pump had become non-functional due to mechanical failure.
- <sup>31</sup> Extraction well HQUST-524A was taken off line, pump had become non-functional due to mechanical failure.
- <sup>32</sup> System was initially shut down for May 2012 ISCO pilot test, COT second quarterly sampling event, and for remedial technology evaluation.
- <sup>33</sup> System was shut down on January 11, 2013 due to freezing temperatures.
- <sup>34</sup> System was shut down on March 1, 2013 for soil vapor extraction remedial equipment install. The system was restarted the week of April 1, 2013.
- <sup>35</sup> System was shut down on April 30, 2013 for pump manifold replacement. System was cycled manually during the repair phase and re-started on May 7, 2013.
- <sup>36</sup> System was shut down on June 4, 2013 due to an observed leak in the carbon vessel hose. The hose was replaced and the system was restarted on June 11, 2013.
- <sup>37</sup> System was shut down for maintenance of well pumps.
- <sup>38</sup> System was shut down on October 21, 2013 for replacement of well pumps.
- <sup>39</sup> System was shut down on February 4, 2014 due to an observed leak in carbon vessel CV2. The vessel was repaired and the system was restarted on March 31, 2014.
- <sup>40</sup> On February 18, 2014 the system was cycled on to collect discharge compliance samples.
- <sup>41</sup> System was shut down on July 3, 2014 due to damaged transfer pump fittings. Transfer pump fittings were replaced and the system was restarted the week of July 14, 2014.
- <sup>42</sup> System was shut down on August 11, 2014 to replace the transfer pump, and was restarted on August 21, 2014.
- <sup>43</sup> System was shut down the week of October 13, 2014 to repair the air compressor. The air compressor was repaired and the system was restarted on November 12, 2014.
- <sup>44</sup> The system was shut down on February 6, 2015 for routine maintenance, and was restarted on February 12, 2015.
- <sup>45</sup> The system was shut down on April 27, 2015 for routine maintenance, and was restarted on May 4, 2015.
- <sup>46</sup> The system was shut down on May 12, 2015 for transfer pump maintenance, and was cycled on to collect discharge compliance samples on May 26, 2015. The system was restarted on June 8, 2015.
- <sup>47</sup> The system was shut down on July 6, 2015 for well pump maintenance, and was restarted on July 14, 2015.
- <sup>48</sup> On September 9, 2015, the system was shut down and groundwater pumps were removed from monitor wells HQUST-523A and HQUST-524A to assess free product recovery, groundwater conditions, and collect quarterly groundwater samples.
- <sup>49</sup> On November 24, 2015 the system was cycled on to collect discharge compliance samples.

**APPENDIX A**

**PIMA COUNTY REGIONAL WASTEWATER RECLAMATION  
DEPARTMENT INDUSTRIAL WASTE WATER CONTROL  
SELF-MONITORING REPORTING FORM**

# PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT INDUSTRIAL WASTEWATER CONTROL SELF-MONITORING REPORT FORM

## PART I. BUSINESS INFORMATION (Make necessary corrections)

**FACILITY NAME:** City of Tucson Environmental Services

**PERMIT NO.:** 12916

**MAILING ADDRESS** PO Box 27210  
Tucson, AZ 85701

**SERVICE ADDRESS:** 265 South Church Avenue  
Tucson, AZ 85710

## PART II. REPORT INFORMATION

**SAMPLING PERIOD:** 09/01/2015 to 11/30/2015      **REPORT DUE:** 12/28/2015

**PERMIT EXPIRATION PERIOD:** 06/07/2017

**PERMIT RENEWAL DATE:** 12/09/2016

## PART III. MONITORING REQUIREMENTS (Fill in the blanks)

### A. ANALYSIS LIMITS AND RESULTS

**SAMPLE LOCATION:** 100 Collected at a sample port located down stream from the process water carbon vessels.

PARAMETER	LIMITS	SAMPLE FREQ	PERMITTED SAMPLE TYPE	ACTUAL SAMPLE TYPE	NAME OF SAMPLER	SAMPLE DATE	RESULTS
Chemical Oxygen Demand	***	QUARTERLY	COMPOS	Composite	Daniel Pike	11/24/15	<20 mg/L
Oil and Grease	200.0 mg/L	QUARTERLY	GRAB	Grab	Daniel Pike	11/24/15	<5.0 mg/L
pH	5.0-11 S.U.	QUARTERLY	GRAB	Grab	Daniel Pike	11/24/15	7.03
Purgeable Aromatics	***	QUARTERLY	GRAB	Grab	Daniel Pike	11/24/15	ND
Purgeable Halocarbons	***	QUARTERLY	GRAB	Grab	Daniel Pike	11/24/15	ND
Total Suspended Solids	***	QUARTERLY	COMPOS	Composite	Daniel Pike	11/24/15	6.0 mg/L

\*\*\* = Monitoring and reporting required. No limits set at this time.

**Sample Location:** 100 Collected at a sample port located down stream from the process water carbon vessels.

Were any additional compliance samples taken?      YES [   ]      NO [ X ]

**FACILITY NAME:** City of Tucson Environmental Services

**PERMIT NO.:** 12916

**SAMPLING PERIOD:** 09/01/2015 to 11/30/2015

**MAILING ADDRESS** PO Box 27210  
Tucson, AZ 85701

**SERVICE ADDRESS:** 265 South Church Avenue  
Tucson, AZ 85710

**B. LABORATORY INFORMATION (check which one is applicable and fill in the blank)**

Samples were taken by an independent lab [  ]

Samples were NOT taken by an independent lab [  ]

Name of Lab Performing Analysis: Accutest Laboratories

**C. WASTEWATER FLOW INFORMATION (Fill in the blanks)**

**NOTE:** 1 CCF = 100 Cubic Feet = 748 Gallons

**SAMPLE LOCATION:** 100 Collected at a sample port located down stream from the process water carbon vessels.

MEASRD Flow (total)

Date: 11/24/15 \*\* Flow is monitored weekly for permit compliance.

Flow (Gallons): \*\*424

**PART IV. REPORT CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Representative: Richard Byrd

Date: 12 / 23 / 2015

Mail completed Report to: Pima County Regional Wastewater Reclamation Department  
Industrial Wastewater Control  
2955 West Calle Agua Nueva  
Tucson, AZ 85745

Pima County Regional Wastewater Reclamation Department  
Industrial Wastewater Control Section

INSTRUCTIONS FOR COMPLETING THE SELF-MONITORING REPORT FORM (SMRF)

Part I. Business Information

Review information and make any changes or corrections on the Self-Monitoring Report Form (SMRF).

Part II. Report Information

This part lists the Sampling Period for the SMRF. All required industrial wastewater samples shall be taken during normal operations within the sampling period. Return the completed SMRF to Industrial Wastewater Control Section no later than the report due date.

Part III. Monitoring Requirements

This part of the report form provides blanks for submittal of sampling and flow data collected for the sampling period. A blank is provided for each analysis result required to be reported.

A. Transfer (type or print) the following information from the laboratory analysis report into the blanks provided:

1. Actual Sample Type (grab or composite)
2. Name of Sampler (name of the person who collected sample)
3. Sample Date (date the sample was collected, not analysis date)
4. Analysis Results (from the report by an independent laboratory.) If the results are "ND" or "Not Detected", please indicate the detection limit in parenthesis; i.e., "ND (0.001)"
5. Sample Location (that part of your system where the sample was collected, i.e., "Cleanout on the discharge side of the grease trap.")

Refer to Part 1.A.3. of your permit if you are not sure of the sampling requirements. Do not send laboratory analysis reports. Keep all records for a minimum of three years.

B. Check the box next to the appropriate statement to indicate whether the person who collected the sample(s) is an employee of your business or an employee of the independent laboratory that performed the sample analysis. Write in the name of the independent laboratory that performed the sample analysis.

C. A blank is provided for each flow value requirement. Type or print the flow data into the blanks provided. Note: if flow monitoring is not required for your permit this part will not appear on the SMRF.

Part IV. Report Certification

Please read carefully. The only acceptable signature is that of the Authorized Representative whose name is printed under the signature line. If this person is no longer the Authorized Representative, indicate the new Authorized Representative.

Refer to your permit for clarification of the requirements. SMRFs are provided as a courtesy. Every effort has been made to verify that they accurately reflect your permit requirements. In the event it does not, you are required to submit the information required by your permit. For further information or help completing the SMRF, please call (520) 724-6200.

## **APPENDIX B**

### **LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY RECORD**

**Technical Report for**

**City of Tucson Environmental Services**

HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

P01152

Accutest Job Number: C43032

Sampling Date: 11/24/15

**Report to:**

City of Tucson - Env. Services  
4400 S. Park Ave., Bldg 1 P.O. Box 27210  
Tucson, AZ 85726  
Lori.Ehman@tucsonaz.gov; richard.byrd@tucsonaz.gov;  
norman.buxton@cardno.com; justin.patton@cardno.com;  
ATTN: Richard Byrd

Total number of pages in report: **37**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**James J. Rhudy**  
Lab Director

**Client Service contact: Maureen Coloma 408-588-0200**

Certifications: CA (ELAP 2910) AK (UST-092) AZ (AZ0762) NV (CA00150) OR (CA300006) WA (C925)  
DoD ELAP (L-A-B L2242)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

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## Sample Summary

City of Tucson Environmental Services

**Job No:** C43032

HQUST P01152 - 260 South Stone Avenue, Tucson, AZ  
 Project No: P01152

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C43032-1	11/24/15	13:20 DP	11/25/15	AQ	Ground Water	HQUST-GW-EFF
C43032-2	11/24/15	13:30 DP	11/25/15	AQ	Ground Water	HQUST-GW-CV1
C43032-3	11/24/15	13:10 DP	11/25/15	AQ	Ground Water	HQUST-GW-INF
C43032-4	11/24/15	00:00 DP	11/25/15	AQ	Trip Blank Water	TRIP BLANK

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** City of Tucson Environmental Services

**Job No** C43032

**Site:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

**Report Date** 12/5/2015 12:06:29 A

3 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 11/24/2015 and were received at Accutest on 11/25/2015 properly preserved, at 2.2 Deg. C and intact. These Samples received an Accutest job number of C43032. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method EPA 624

**Matrix:** AQ

**Batch ID:** VW2203

- RPD(s) for BSD for Carbon tetrachloride, 1,1-Dichloropropene, Isopropylbenzene exceeded laboratory acceptance limits; BS/BSD recoveries met acceptance criteria. These analytes were not detected in associated samples.

### Wet Chemistry By Method EPA 1664A

**Matrix:** AQ

**Batch ID:** GP8730

- Sample(s) C43032-1MS were used as the QC samples for HEM Oil and Grease.
- Matrix Spike Recovery(s) for HEM Oil and Grease are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity. The associated blank spike recoveries were acceptable.

### Wet Chemistry By Method HACH 8000

**Matrix:** AQ

**Batch ID:** GP8724

- Sample(s) C43032-1MS, C43032-1MSD were used as the QC samples for Chemical Oxygen Demand.

### Wet Chemistry By Method SM2540 D-07

**Matrix:** AQ

**Batch ID:** GN17947

- Sample(s) C43020-3DUP were used as the QC samples for Solids, Total Suspended.

Accutest Laboratories Northern California (ALNCA) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALNCA and as stated on the COC. ALNCA certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALNCA Quality Manual except as noted above. This report is to be used in its entirety. ALNCA is not responsible for any assumptions of data quality if partial data packages are used

## Summary of Hits

**Job Number:** C43032  
**Account:** City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ  
**Collected:** 11/24/15

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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**C43032-1      HQUST-GW-EFF**

Solids, Total Suspended      6.0      5.0      mg/l      SM2540 D-07

**C43032-2      HQUST-GW-CV1**

Methyl chloride      1.6      1.0      ug/l      EPA 624

**C43032-3      HQUST-GW-INF**

No hits reported in this sample.

**C43032-4      TRIP BLANK**

Methylene chloride      10.9      5.0      ug/l      EPA 624

Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b>	HQUST-GW-EFF	<b>Date Sampled:</b>	11/24/15
<b>Lab Sample ID:</b>	C43032-1	<b>Date Received:</b>	11/25/15
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA 624		
<b>Project:</b>	HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W58732.D	1	12/01/15	CV	n/a	n/a	VW2203
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

## VOA 624 List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	ug/l	
75-25-2	Bromoform	ND	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	0.50	ug/l	
75-00-3	Chloroethane	ND	0.50	ug/l	
67-66-3	Chloroform	ND	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride <sup>a</sup>	ND	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	ug/l	
563-58-6	1,1-Dichloropropene <sup>a</sup>	ND	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
108-20-3	Di-Isopropyl ether <sup>b</sup>	ND	2.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b>	HQUST-GW-EFF	<b>Date Sampled:</b>	11/24/15
<b>Lab Sample ID:</b>	C43032-1	<b>Date Received:</b>	11/25/15
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA 624		
<b>Project:</b>	HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

**VOA 624 List**

CAS No.	Compound	Result	RL	Units	Q
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
98-82-8	Isopropylbenzene <sup>a</sup>	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether <sup>b</sup>	ND	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	ug/l	
75-01-4	Vinyl chloride	ND	0.50	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
2037-26-5	Toluene-D8	100%		70-130%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-EFF	<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-1	<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 624	
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ	

### VOA 624 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		70-130%

(a) AZ:R7

(b) AZ:T2,T6

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
 4

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-EFF	<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-1	<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand	< 20	20	mg/l	1	12/01/15 15:00	RL	HACH 8000
HEM Oil and Grease <sup>a</sup>	< 5.0	5.0	mg/l	1	12/02/15 15:45	RL	EPA 1664A
Solids, Total Suspended	6.0	5.0	mg/l	1	11/25/15 11:30	DQ	SM2540 D-07

(a) AZ:M2

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RL = Reporting Limit

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## Report of Analysis

<b>Client Sample ID:</b>	HQUST-GW-CV1	<b>Date Sampled:</b>	11/24/15
<b>Lab Sample ID:</b>	C43032-2	<b>Date Received:</b>	11/25/15
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA 624		
<b>Project:</b>	HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W58733.D	1	12/01/15	CV	n/a	n/a	VW2203
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

## VOA 624 List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	ug/l	
75-25-2	Bromoform	ND	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	0.50	ug/l	
75-00-3	Chloroethane	ND	0.50	ug/l	
67-66-3	Chloroform	ND	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride <sup>a</sup>	ND	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	ug/l	
563-58-6	1,1-Dichloropropene <sup>a</sup>	ND	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
108-20-3	Di-Isopropyl ether <sup>b</sup>	ND	2.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-CV1	
<b>Lab Sample ID:</b> C43032-2	<b>Date Sampled:</b> 11/24/15
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 11/25/15
<b>Method:</b> EPA 624	<b>Percent Solids:</b> n/a
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ	

**VOA 624 List**

CAS No.	Compound	Result	RL	Units	Q
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
98-82-8	Isopropylbenzene <sup>a</sup>	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	ug/l	
74-87-3	Methyl chloride	1.6	1.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether <sup>b</sup>	ND	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	ug/l	
75-01-4	Vinyl chloride	ND	0.50	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
2037-26-5	Toluene-D8	99%		70-130%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-CV1		<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-2		<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 624		
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

4.2  
4

**VOA 624 List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	98%		70-130%

(a) AZ:R7

(b) AZ:T2,T6

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-INF		<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-3		<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 624		
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W58734.D	1	12/01/15	CV	n/a	n/a	VW2203
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

**VOA 624 List**

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	ug/l	
75-25-2	Bromoform	ND	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	0.50	ug/l	
75-00-3	Chloroethane	ND	0.50	ug/l	
67-66-3	Chloroform	ND	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride <sup>a</sup>	ND	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	ug/l	
563-58-6	1,1-Dichloropropene <sup>a</sup>	ND	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
108-20-3	Di-Isopropyl ether <sup>b</sup>	ND	2.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

4.3  
4

# Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-INF	
<b>Lab Sample ID:</b> C43032-3	<b>Date Sampled:</b> 11/24/15
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 11/25/15
<b>Method:</b> EPA 624	<b>Percent Solids:</b> n/a
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ	

**VOA 624 List**

CAS No.	Compound	Result	RL	Units	Q
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
98-82-8	Isopropylbenzene <sup>a</sup>	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether <sup>b</sup>	ND	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	ug/l	
75-01-4	Vinyl chloride	ND	0.50	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	102%		70-130%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-INF		<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-3		<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 624		
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

**VOA 624 List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		70-130%

(a) AZ:R7

(b) AZ:T2,T6

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> HQUST-GW-INF	<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-3	<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand	< 20	20	mg/l	1	12/01/15 15:00	RL	HACH 8000
HEM Oil and Grease	< 5.0	5.0	mg/l	1	12/02/15 15:45	RL	EPA 1664A
Solids, Total Suspended	< 5.0	5.0	mg/l	1	11/25/15 11:30	DQ	SM2540 D-07

RL = Reporting Limit

4.3  
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## Report of Analysis

<b>Client Sample ID:</b>	TRIP BLANK	<b>Date Sampled:</b>	11/24/15
<b>Lab Sample ID:</b>	C43032-4	<b>Date Received:</b>	11/25/15
<b>Matrix:</b>	AQ - Trip Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA 624		
<b>Project:</b>	HQUEST P01152 - 260 South Stone Avenue, Tucson, AZ		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W58731.D	1	12/01/15	CV	n/a	n/a	VW2203
Run #2							

Run #1	Purge Volume
Run #1	10.0 ml
Run #2	

## VOA 624 List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	ug/l	
75-25-2	Bromoform	ND	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	0.50	ug/l	
75-00-3	Chloroethane	ND	0.50	ug/l	
67-66-3	Chloroform	ND	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride <sup>a</sup>	ND	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	ug/l	
563-58-6	1,1-Dichloropropene <sup>a</sup>	ND	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
108-20-3	Di-Isopropyl ether <sup>b</sup>	ND	2.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	TRIP BLANK	<b>Date Sampled:</b>	11/24/15
<b>Lab Sample ID:</b>	C43032-4	<b>Date Received:</b>	11/25/15
<b>Matrix:</b>	AQ - Trip Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA 624		
<b>Project:</b>	HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

## VOA 624 List

CAS No.	Compound	Result	RL	Units	Q
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
98-82-8	Isopropylbenzene <sup>a</sup>	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	10.9	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether <sup>b</sup>	ND	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	ug/l	
75-01-4	Vinyl chloride	ND	0.50	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	97%		70-130%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> TRIP BLANK		<b>Date Sampled:</b> 11/24/15
<b>Lab Sample ID:</b> C43032-4		<b>Date Received:</b> 11/25/15
<b>Matrix:</b> AQ - Trip Blank Water		<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 624		
<b>Project:</b> HQUST P01152 - 260 South Stone Avenue, Tucson, AZ		

### VOA 624 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	97%		70-130%

(a) AZ:R7

(b) AZ:T2,T6

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Arizona Qualifiers
- Chain of Custody

# Arizona Qualifiers

**Job Number:** C43032

**Account:** CTESAZT City of Tucson Environmental Services

**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

The following Arizona qualifiers have been applied to data and/or QC in this report.

Qual	Description
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
R7	LFB/LFBD RPD exceeded the laboratory acceptance limit. Recovery met acceptance criteria.
T2	Cited ADHS licensed method does not contain this analyte as part of method compound list.
T6	The reported result cannot be used for compliance purposes.

5.1  
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# CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131  
 (408) 588-0200 FAX: (408) 583-0201

FedEx Tracking # **6034 0102 9085** Bottle Order Control #  
 Accutest Quote # \_\_\_\_\_ Accutest NC Job #: **C43032**

Client / Reporting Information		Project Information										Requested Analysis				Matrix Codes				
Company Name City of Tucson Environmental Services		Project Name: HQUST P01152														WW- Wastewater				
Address 4004 South Park Avenue		Street 280 South Stone Avenue														GW- Ground Water				
City Tucson	State AZ	Zip 85726	City Tucson		State AZ												SW- Surface Water			
Project Contact: Richard Byrd		Project #														SO- Soil				
Phone # 520.837.3710		EMAIL: rbyrd@tucsonaz.gov justin.nation@cardno.com														OI-OI				
Sampler's Name Daniel Pike		Client Purchase Order #														WP-Wipe				
Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection			Matrix	Number of preserved Bottles										COD	VOC 624	O&G 1664	TSS	LAB USE ONLY
		Date	Time	Sampled by		# of bottles	PE	NAOH	PHOS	NO3	NO2	AMMOX	AMMOX	AMMOX	AMMOX					
1	HQUST-GW-EFF	11/24/15	1326	DP	GW	8	3													
2	HQUST-GW-CV1		1330		GW	3	3													
3	HQUST-GW-INF	↓	1310	↓	GW	8	3													
4	Trip Blank					2	2													
Turnaround Time ( Business days)		Data Deliverable Information										Comments / Remarks								
<input type="checkbox"/> 10 Day <input checked="" type="checkbox"/> 5 Day <input type="checkbox"/> 3 Day (125% markup) <input type="checkbox"/> 2 Day (160% markup) <input type="checkbox"/> 1 Day (200% markup) <input type="checkbox"/> Same Day (300% markup)		Approved By/ Date:		<input type="checkbox"/> Commercial "A" - Results only <input checked="" type="checkbox"/> Commercial "B" - Results with QC summaries <input type="checkbox"/> Commercial "B+" - Results, QC, and chromatograms <input type="checkbox"/> FULT1 - Level 4 data package <input type="checkbox"/> EDF for Geotracker <input type="checkbox"/> EDD Format Provide EDF Global ID _____ Provide EDF Logcode: _____																
Emergency TIA data available VIA Lablink																				
Sample Custody must be documented below each time samples change possession, including courier delivery.																				
Relinquished by Sampler:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:								
1 Daniel Pike		11/24/15 1600		[Signature]		11/24/15 1700		[Signature]				RedEx								
3 FedEx		11/25/15 1000		[Signature]																
Relinquished by:		Date Time:		Received By:		Custody Seal #		Appropriate Bottle / Pres. Y / N		Headspace Y / N		On Ice Y / N		Cooler Temp.						
5				5		11/25/15		Labels match Coc? Y / N		Separate Receiving Check List used: Y / N				31/2/15						

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C43032: Chain of Custody

Page 1 of 2



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C43032 Client: CITY OF TUCSON Project: HQUEST PO1152  
 Date / Time Received: 11/25/2015 10:05:00 AM Delivery Method: FedEx Airbill #'s: 803401029085

Cooler Temps (Initial/Adjusted): #1: (3.1/2.2):

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Therm ID:	<u>IR3;</u>		
3. Cooler media:	<u>Ice (Bag)</u>		
4. No. Coolers:	<u>1</u>		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	<u>Intact</u>		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

Accutest Laboratories  
V:408.588.0200

2105 Lundy Avenue  
F: 408.588.0201

San Jose, CA 95131  
www.accutest.com

5.2  
5

## GC/MS Volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-MB	W58711.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-86-1	Bromobenzene	ND	1.0	ug/l	
74-97-5	Bromochloromethane	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	ug/l	
591-78-6	2-Hexanone	ND	10	ug/l	

# Method Blank Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-MB	W58711.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Compound	Result	RL	Units	Q
87-68-3	Hexachlorobutadiene	ND	2.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
74-95-3	Methylene bromide	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	10	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	103% 70-130%

## Method Blank Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-MB	W58711.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	98% 70-130%
460-00-4	4-Bromofluorobenzene	99% 70-130%

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-BS	W58705.D	1	11/30/15	CV	n/a	n/a	VW2203
VW2203-BSD	W58706.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	21.3	107	19.9	100	7	77-122/25
108-86-1	Bromobenzene	20	19.4	97	19.6	98	1	76-126/17
74-97-5	Bromochloromethane	20	21.7	109	21.7	109	0	77-130/17
75-27-4	Bromodichloromethane	20	22.1	111	21.3	107	4	75-127/16
75-25-2	Bromoform	20	23.4	117	21.2	106	10	69-141/17
104-51-8	n-Butylbenzene	20	21.1	106	19.5	98	8	72-129/18
135-98-8	sec-Butylbenzene	20	20.4	102	19.4	97	5	74-128/18
98-06-6	tert-Butylbenzene	20	19.8	99	19.0	95	4	73-127/18
108-90-7	Chlorobenzene	20	20.8	104	20.1	101	3	77-122/16
75-00-3	Chloroethane	20	18.1	91	18.7	94	3	69-133/18
67-66-3	Chloroform	20	21.7	109	21.4	107	1	74-126/17
95-49-8	o-Chlorotoluene	20	19.5	98	19.0	95	3	72-127/20
106-43-4	p-Chlorotoluene	20	21.0	105	20.2	101	4	68-127/18
56-23-5	Carbon tetrachloride	20	21.6	108	17.1	86	23* a	71-133/19
75-34-3	1,1-Dichloroethane	20	22.0	110	21.1	106	4	71-125/17
75-35-4	1,1-Dichloroethylene	20	21.2	106	17.8	89	17	66-125/20
563-58-6	1,1-Dichloropropene	20	19.0	95	15.6	78	20* a	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	20	22.9	115	22.1	111	4	65-131/20
106-93-4	1,2-Dibromoethane	20	21.7	109	21.1	106	3	75-135/17
107-06-2	1,2-Dichloroethane	20	21.4	107	20.7	104	3	71-131/17
78-87-5	1,2-Dichloropropane	20	22.3	112	21.7	109	3	78-124/16
142-28-9	1,3-Dichloropropane	20	22.5	113	21.9	110	3	78-123/16
108-20-3	Di-Isopropyl ether	20	24.0	120	24.1	121	0	68-129/17
594-20-7	2,2-Dichloropropane	20	23.3	117	20.2	101	14	70-131/19
124-48-1	Dibromochloromethane	20	21.9	110	21.6	108	1	76-132/16
75-71-8	Dichlorodifluoromethane	20	14.8	74	15.2	76	3	32-168/28
156-59-2	cis-1,2-Dichloroethylene	20	23.2	116	23.1	116	0	73-126/17
10061-01-5	cis-1,3-Dichloropropene	20	23.7	119	22.7	114	4	72-130/16
541-73-1	m-Dichlorobenzene	20	20.3	102	19.8	99	2	75-124/16
95-50-1	o-Dichlorobenzene	20	20.7	104	20.3	102	2	76-124/16
106-46-7	p-Dichlorobenzene	20	20.4	102	20.1	101	1	75-124/16
156-60-5	trans-1,2-Dichloroethylene	20	20.4	102	18.8	94	8	71-126/18
10061-02-6	trans-1,3-Dichloropropene	20	22.0	110	21.4	107	3	71-126/16
100-41-4	Ethylbenzene	20	21.4	107	19.6	98	9	76-126/17
637-92-3	Ethyl Tert Butyl Ether	20	23.8	119	23.9	120	0	75-134/17
591-78-6	2-Hexanone	80	88.6	111	84.5	106	5	67-150/22

\* = Outside of Control Limits.

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-BS	W58705.D	1	11/30/15	CV	n/a	n/a	VW2203
VW2203-BSD	W58706.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
87-68-3	Hexachlorobutadiene	20	19.8	99	20.0	100	1	69-135/20
98-82-8	Isopropylbenzene	20	22.7	114	19.0	95	18* a	61-125/17
99-87-6	p-Isopropyltoluene	20	20.7	104	19.3	97	7	68-127/18
108-10-1	4-Methyl-2-pentanone	80	91.0	114	85.6	107	6	71-142/21
74-83-9	Methyl bromide	20	19.3	97	19.8	99	3	68-132/18
74-87-3	Methyl chloride	20	17.8	89	18.3	92	3	39-150/28
74-95-3	Methylene bromide	20	22.4	112	21.8	109	3	77-127/16
75-09-2	Methylene chloride	20	21.3	107	21.6	108	1	67-128/18
78-93-3	Methyl ethyl ketone	80	89.6	112	87.2	109	3	56-155/23
1634-04-4	Methyl Tert Butyl Ether	20	22.4	112	22.3	112	0	73-132/17
91-20-3	Naphthalene	20	20.7	104	21.2	106	2	70-136/20
103-65-1	n-Propylbenzene	20	19.9	100	18.2	91	9	71-127/17
100-42-5	Styrene	20	23.2	116	21.0	105	10	72-134/16
994-05-8	Tert-Amyl Methyl Ether	20	23.9	120	23.7	119	1	73-133/17
75-65-0	Tert-Butyl Alcohol	100	132	132	116	116	13	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	20	22.0	110	21.5	108	2	77-130/16
71-55-6	1,1,1-Trichloroethane	20	22.5	113	19.3	97	15	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	20	20.4	102	20.5	103	0	77-129/17
79-00-5	1,1,2-Trichloroethane	20	21.5	108	20.8	104	3	77-125/16
87-61-6	1,2,3-Trichlorobenzene	20	21.3	107	21.9	110	3	70-133/18
96-18-4	1,2,3-Trichloropropane	20	22.2	111	19.2	96	14	69-126/18
120-82-1	1,2,4-Trichlorobenzene	20	20.8	104	20.1	101	3	68-129/17
95-63-6	1,2,4-Trimethylbenzene	20	20.0	100	19.5	98	3	74-129/17
108-67-8	1,3,5-Trimethylbenzene	20	20.6	103	19.7	99	4	77-129/17
127-18-4	Tetrachloroethylene	20	19.9	100	17.3	87	14	69-127/20
108-88-3	Toluene	20	21.3	107	19.7	99	8	75-122/17
79-01-6	Trichloroethylene	20	21.3	107	18.6	93	14	78-123/17
75-69-4	Trichlorofluoromethane	20	17.7	89	18.7	94	5	65-136/23
75-01-4	Vinyl chloride	20	16.0	80	15.8	79	1	57-146/22
	m,p-Xylene	40	42.8	107	38.6	97	10	76-125/17
95-47-6	o-Xylene	20	22.7	114	19.8	99	14	77-125/17

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	103%	105%	70-130%

\* = Outside of Control Limits.

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C43032  
**Account:** CTESAZT City of Tucson Environmental Services  
**Project:** HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW2203-BS	W58705.D	1	11/30/15	CV	n/a	n/a	VW2203
VW2203-BSD	W58706.D	1	11/30/15	CV	n/a	n/a	VW2203

The QC reported here applies to the following samples:

Method: EPA 624

C43032-1, C43032-2, C43032-3, C43032-4

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
2037-26-5	Toluene-D8	99%	99%	70-130%
460-00-4	4-Bromofluorobenzene	109%	99%	70-130%

(a) RPD exceeded laboratory acceptance limit; BS/BSD recoveries met acceptance criteria. AZ:R7

\* = Outside of Control Limits.

## General Chemistry

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: C43032  
Account: CTESAZT - City of Tucson Environmental Services  
Project: HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chemical Oxygen Demand	GP8724/GN17971	20	0.0	mg/l	500	468	93.5	90-110%
HEM Oil and Grease	GP8730/GN17980	5.0	0.0	mg/l	40	35.8	89.5	78-114%
Solids, Total Suspended	GN17947	5.0	0.0	mg/l	1000	940	94.0	80-120%

Associated Samples:

Batch GP8724: C43032-1, C43032-3  
Batch GP8730: C43032-1, C43032-3  
Batch GN17947: C43032-1, C43032-3  
(\* ) Outside of QC limits

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BLANK SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: C43032  
Account: CTESAZT - City of Tucson Environmental Services  
Project: HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chemical Oxygen Demand	GP8724/GN17971	mg/l	500	481	2.8	25%
HEM Oil and Grease	GP8730/GN17980	mg/l	40	35.2	1.7	18%

Associated Samples:

Batch GP8724: C43032-1, C43032-3

Batch GP8730: C43032-1, C43032-3

(\* ) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: C43032  
Account: CTESAQT - City of Tucson Environmental Services  
Project: HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Suspended	GN17947	C43020-3	mg/l	36.0	37.0	2.7	0-5%

Associated Samples:

Batch GN17947: C43032-1, C43032-3

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: C43032  
Account: CTESAZT - City of Tucson Environmental Services  
Project: HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chemical Oxygen Demand	GP8724/GN17971	C43032-1	mg/l	0.0	250	243	96.3	90-110%
HEM Oil and Grease	GP8730/GN17980	C43032-1	mg/l	1.8	40	31.2	71.0*(a)	78-114%

Associated Samples:

Batch GP8724: C43032-1, C43032-3

Batch GP8730: C43032-1, C43032-3

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity. AZ:M2

7.4  
7

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: C43032  
Account: CTESAZT - City of Tucson Environmental Services  
Project: HQUST P01152 - 260 South Stone Avenue, Tucson, AZ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chemical Oxygen Demand	GP8724/GN17971	C43032-1	mg/l	0.0	250	247	1.8	25%

Associated Samples:

Batch GP8724: C43032-1, C43032-3

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

**APPENDIX C**  
**FIELD DATA SHEET**

**OPERATION AND MAINTENANCE PUMP AND TREAT SYSTEM READINGS**

City of Tucson Fire and Police Headquarters  
 265 South Church Avenue, Tucson, Arizona  
 UST Facility ID 0-005176; LUST File No. 3208.01  
 PCWW Permit No. 12916

Date	Discharge Totalizer	Water Filters			Carbon vessels			Air compressor		Water Parameters			Well Pumps			
		INF Filter (PSI)	EFF Filter (PSI)	Discharge Filter (PSI)	CV1 Top gauge (PSI)	CV2 Top gauge (PSI)	CV2 Lower gauge (PSI)	Tank (PSI)	Outlet (PSI)	HQUST-GW-EFF			523A Counter	523A Pressure (PSI)	524A Counter	524A Pressure (PSI)
										pH	Temp. (°F)	Conductivity (µS/cm)				
11/24/15	1,970,960	8	8	6	14	7	7	NT	NT	7.03	77.6	2.78	NT	NT	NT	NT

Notes:

- INF = Influent
- EFF = Effluent
- CV1 = 1,000-pound liquid carbon vessel
- CV2 = 1,000-pound liquid carbon vessel
- PSI = Pounds per square inch
- Temp. = Temperature
- °F = Fahrenheit
- µS/cm = Micro-siemens per centimeter
- NT = Not Taken