May 05, 2011

North Jackson Company - MI
Attn: Ms. Kari Paulson
P.O. Box 218
Marquette, MI 49855

**Project: Humboldt Storm Water Monitoring**

Dear Ms. Kari Paulson,

Enclosed is a copy of the laboratory report, comprised of the following work order(s), for test samples received by TriMatrix Laboratories:

| Work Order | Received | Description |
|---|---|---|
| 1104403 | 04/23/2011 | Laboratory Services |

This report relates only to the sample(s), as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). Any qualifications of results, including sample acceptance requirements, are explained in the Statement of Data Qualifications.

Estimates of analytical uncertainties for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Jennifer L. Rice
Project Chemist

Enclosures(s)



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TRIMATRIX LABORATORIES

# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 67-64-1 | Acetone | <20 | 20 |
| 107-13-1 | Acrylonitrile | <2.0 | 2.0 |
| 71-43-2 | Benzene | <1.0 | 1.0 |
| 108-86-1 | Bromobenzene | <1.0 | 1.0 |
| 74-97-5 | Bromochloromethane | <1.0 | 1.0 |
| 75-27-4 | Bromodichloromethane | <1.0 | 1.0 |
| 75-25-2 | Bromoform | <1.0 | 1.0 |
| 74-83-9 | Bromomethane | <5.0 | 5.0 |
| 104-51-8 | n-Butylbenzene | <1.0 | 1.0 |
| 135-98-8 | sec-Butylbenzene | <1.0 | 1.0 |
| 98-06-6 | tert-Butylbenzene | <1.0 | 1.0 |
| 75-15-0 | Carbon Disulfide | <1.0 | 1.0 |
| 56-23-5 | Carbon Tetrachloride | <1.0 | 1.0 |
| 108-90-7 | Chlorobenzene | <1.0 | 1.0 |
| 75-00-3 | Chloroethane | <5.0 | 5.0 |
| 67-66-3 | Chloroform | <1.0 | 1.0 |
| 74-87-3 | Chloromethane | <5.0 | 5.0 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | <5.0 | 5.0 |
| 124-48-1 | Dibromochloromethane | <1.0 | 1.0 |
| 106-93-4 | 1,2-Dibromoethane | <1.0 | 1.0 |
| 74-95-3 | Dibromomethane | <1.0 | 1.0 |
| 110-57-6 | trans-1,4-Dichloro-2-butene | <1.0 | 1.0 |
| 95-50-1 | 1,2-Dichlorobenzene | <1.0 | 1.0 |
| 541-73-1 | 1,3-Dichlorobenzene | <1.0 | 1.0 |
| 106-46-7 | 1,4-Dichlorobenzene | <1.0 | 1.0 |
| *75-71-8 | Dichlorodifluoromethane | <5.0 | 5.0 |
| 75-34-3 | 1,1-Dichloroethane | <1.0 | 1.0 |
| 107-06-2 | 1,2-Dichloroethane | <1.0 | 1.0 |
| 75-35-4 | 1,1-Dichloroethene | <1.0 | 1.0 |
| 156-59-2 | cis-1,2-Dichloroethene | <1.0 | 1.0 |
| 156-60-5 | trans-1,2-Dichloroethene | <1.0 | 1.0 |

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*See Statement of Data Qualifications



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| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B (Continued)

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | <1.0 | 1.0 |
| 10061-01-5 | cis-1,3-Dichloropropene | <1.0 | 1.0 |
| 10061-02-6 | trans-1,3-Dichloropropene | <1.0 | 1.0 |
| 100-41-4 | Ethylbenzene | <1.0 | 1.0 |
| 60-29-7 | Ethyl Ether | <5.0 | 5.0 |
| 591-78-6 | 2-Hexanone | <5.0 | 5.0 |
| 74-88-4 | Iodomethane | <1.0 | 1.0 |
| 98-82-8 | Isopropylbenzene | <1.0 | 1.0 |
| 99-87-6 | 4-Isopropyltoluene | <5.0 | 5.0 |
| 1634-04-4 | Methyl tert-Butyl Ether | <5.0 | 5.0 |
| 75-09-2 | Methylene Chloride | <5.0 | 5.0 |
| 78-93-3 | 2-Butanone (MEK) | <5.0 | 5.0 |
| 91-57-6 | 2-Methylnaphthalene | <5.0 | 5.0 |
| 108-10-1 | 4-Methyl-2-pentanone (MIBK) | <5.0 | 5.0 |
| 91-20-3 | Naphthalene | <5.0 | 5.0 |
| 103-65-1 | n-Propylbenzene | <1.0 | 1.0 |
| 100-42-5 | Styrene | <1.0 | 1.0 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | <1.0 | 1.0 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | <1.0 | 1.0 |
| 127-18-4 | Tetrachloroethene | <1.0 | 1.0 |
| 109-99-9 | Tetrahydrofuran | <5.0 | 5.0 |
| 108-88-3 | Toluene | <1.0 | 1.0 |
| 87-61-6 | 1,2,3-Trichlorobenzene | <5.0 | 5.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | <5.0 | 5.0 |
| 71-55-6 | 1,1,1-Trichloroethane | <1.0 | 1.0 |
| 79-00-5 | 1,1,2-Trichloroethane | <1.0 | 1.0 |
| 79-01-6 | Trichloroethene | <1.0 | 1.0 |
| 75-69-4 | Trichlorofluoromethane | <1.0 | 1.0 |
| 96-18-4 | 1,2,3-Trichloropropane | <1.0 | 1.0 |
| 95-63-6 | 1,2,4-Trimethylbenzene | <1.0 | 1.0 |
| 108-67-8 | 1,3,5-Trimethylbenzene | <1.0 | 1.0 |

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# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B (Continued)

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | <1.0 | 1.0 |
| 136777-61-2 | Xylene, Meta + Para | <2.0 | 2.0 |
| 95-47-6 | Xylene, Ortho | <1.0 | 1.0 |

| ***Surrogates:*** | ***% Recovery*** | ***Control Limits*** |
|---|---|---|
| *Dibromofluoromethane* | 100 | *88-116* |
| *1,2-Dichloroethane-d4* | 106 | *87-123* |
| *Toluene-d8* | 105 | *91-107* |
| *4-Bromofluorobenzene* | 95 | *84-106* |



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| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/29/11 By: JTS |
| Dilution Factor: | 1 | Analyzed: | 05/02/11 By: JLB |
| QC Batch: | 1103689 | Analytical Batch: | 1E03071 |

## Semivolatile Organic Compounds by EPA Method 8270C

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 83-32-9 | Acenaphthene | <5.0 | 5.0 |
| 208-96-8 | Acenaphthylene | <5.0 | 5.0 |
| 120-12-7 | Anthracene | <5.0 | 5.0 |
| 56-55-3 | Benzo(a)anthracene | <1.0 | 1.0 |
| 50-32-8 | Benzo(a)pyrene | <1.0 | 1.0 |
| 205-99-2 | Benzo(b)fluoranthene | <1.0 | 1.0 |
| 191-24-2 | Benzo(g,h,i)perylene | <1.0 | 1.0 |
| 207-08-9 | Benzo(k)fluoranthene | <1.0 | 1.0 |
| 218-01-9 | Chrysene | <1.0 | 1.0 |
| 53-70-3 | Dibenz(a,h)anthracene | <2.0 | 2.0 |
| 206-44-0 | Fluoranthene | <1.0 | 1.0 |
| 86-73-7 | Fluorene | <5.0 | 5.0 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | <2.0 | 2.0 |
| 91-57-6 | 2-Methylnaphthalene | <5.0 | 5.0 |
| 91-20-3 | Naphthalene | <5.0 | 5.0 |
| 85-01-8 | Phenanthrene | <2.0 | 2.0 |
| 129-00-0 | Pyrene | <5.0 | 5.0 |

| ***Surrogates:*** | ***% Recovery*** | ***Control Limits*** |
|---|---|---|
| *Nitrobenzene-d5* | 65 | *31-123* |
| *2-Fluorobiphenyl* | 73 | *25-113* |
| *o-Terphenyl* | 96 | *42-125* |



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|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |

## Total Metals by EPA 1600 Series Methods

| Analyte | Analytical Result | RL | Unit | Dilution Factor | Method | Date Time Analyzed | By | QC Batch |
|---|---|---|---|---|---|---|---|---|
| Mercury | <0.500 | 0.500 | ng/L | 1 | USEPA-1631E | 04/26/11 14:32 | MSM | 1103554 |



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# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |

## Total Metals by EPA 6000/7000 Series Methods

| Analyte | Analytical Result | RL | Unit | Dilution Factor | Method | Date Time Analyzed | By | QC Batch |
|---|---|---|---|---|---|---|---|---|
| Aluminum | <50 | 50 | ug/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| **Antimony** | **5.9** | 2.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Arsenic | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Barium | <10 | 10 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Beryllium | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Boron** | **77** | 50 | ug/L | 1 | USEPA-6020A | 04/29/11 08:07 | DSC | 1103528 |
| Cadmium | <0.40 | 0.40 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| ***Calcium** | **53** | 0.50 | mg/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| Chromium | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Cobalt | <10 | 10 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| ***Copper** | **2.4** | 2.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Iron** | **240** | 40 | ug/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| Lead | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Lithium | <10 | 10 | ug/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| **Magnesium** | **26** | 0.50 | mg/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| **Manganese** | **67** | 10 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Molybdenum** | **10** | 10 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Nickel** | **16** | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Potassium** | **8.5** | 0.50 | mg/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| Selenium | <4.0 | 4.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Silver | <0.40 | 0.40 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| **Sodium** | **13** | 0.50 | mg/L | 1 | USEPA-6010C | 04/28/11 15:46 | KLV | 1103531 |
| Thallium | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Vanadium | <1.0 | 1.0 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |
| Zinc | <10 | 10 | ug/L | 1 | USEPA-6020A | 04/28/11 10:45 | DSC | 1103528 |

*See Statement of Data Qualifications



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# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **HMWQ-009 HUM-1001160** | Sampled: | 04/22/11 10:15 |
| Lab Sample ID: | **1104403-01** | Sampled By: | J.N./M.M. |
| Matrix: | Water | Received: | 04/23/11 08:45 |

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods

| Analyte | Analytical Result | RL | Unit | Dilution Factor | Method | Date Time Analyzed | By | QC Batch |
|---|---|---|---|---|---|---|---|---|
| **Alkalinity, Bicarbonate** | **110** | 2.0 | mg/L | 1 | SM 2320 B 20th | 04/29/11 12:26 | KRK | 1103722 |
| Alkalinity, Carbonate | <2.0 | 2.0 | mg/L | 1 | SM 2320 B 20th | 04/29/11 12:58 | KRK | 1103723 |
| **Hardness (Calculated)** | **240** | 3.3 | mg/L | 1 | SM 2340 B 20th | 04/28/11 15:46 | KLV | [CALC] |
| ***Chloride** | **22** | 1.0 | mg/L | 1 | SM 4500-Cl E 20th | 04/27/11 12:51 | LMA | 1103597 |
| Cyanide, Total | <0.020 | 0.020 | mg/L | 1 | SM 4500-CN E 20th | 04/29/11 09:52 | LMA | 1103484 |
| **Fluoride** | **0.19** | 0.10 | mg/L | 1 | SM 4500-F C 20th | 04/26/11 14:00 | CLB | 1103469 |
| Nitrogen, Ammonia | <0.050 | 0.050 | mg/L | 1 | SM 4500-NH3 G 20th | 04/28/11 09:42 | GEH | 1103678 |
| Nitrogen, Nitrite | <0.050 | 0.050 | mg/L | 1 | SM 4500-NO3 F 20th | 04/23/11 11:26 | HLB | 1103582 |
| **Nitrogen, Nitrate** | **2.2** | 0.50 | mg/L | 10 | SM 4500-NO3 F 20th | 04/23/11 12:36 | HLB | 1103583 |
| **Residue, Dissolved @ 180° C** | **364** | 50.0 | mg/L | 1 | SM 2540 C 20th | 04/26/11 16:56 | KCS | 1103530 |
| Residue, Suspended | <3.3 | 3.3 | mg/L | 1 | SM 2540 D 20th | 04/28/11 16:40 | KCS | 1103711 |
| **Sulfate** | **130** | 25 | mg/L | 5 | ASTM D516-90 (02) | 04/27/11 13:41 | LMA | 1103596 |
| Sulfide, Total | <0.020 | 0.020 | mg/L | 1 | SM 4500-S2 D 20th | 04/26/11 15:04 | KAR | 1103567 |
| **Carbon, Total Organic** | **3.5** | 1.0 | mg/L | 1 | SM 5310 C 20th | 04/27/11 16:06 | GEH | 1103653 |

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# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **Trip Blank** | Sampled: | 04/22/11 00:00 |
| Lab Sample ID: | **1104403-02** | Sampled By: | TML |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 67-64-1 | Acetone | <20 | 20 |
| 107-13-1 | Acrylonitrile | <2.0 | 2.0 |
| 71-43-2 | Benzene | <1.0 | 1.0 |
| 108-86-1 | Bromobenzene | <1.0 | 1.0 |
| 74-97-5 | Bromochloromethane | <1.0 | 1.0 |
| 75-27-4 | Bromodichloromethane | <1.0 | 1.0 |
| 75-25-2 | Bromoform | <1.0 | 1.0 |
| 74-83-9 | Bromomethane | <5.0 | 5.0 |
| 104-51-8 | n-Butylbenzene | <1.0 | 1.0 |
| 135-98-8 | sec-Butylbenzene | <1.0 | 1.0 |
| 98-06-6 | tert-Butylbenzene | <1.0 | 1.0 |
| 75-15-0 | Carbon Disulfide | <1.0 | 1.0 |
| 56-23-5 | Carbon Tetrachloride | <1.0 | 1.0 |
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| 75-00-3 | Chloroethane | <5.0 | 5.0 |
| 67-66-3 | Chloroform | <1.0 | 1.0 |
| 74-87-3 | Chloromethane | <5.0 | 5.0 |
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| 110-57-6 | trans-1,4-Dichloro-2-butene | <1.0 | 1.0 |
| 95-50-1 | 1,2-Dichlorobenzene | <1.0 | 1.0 |
| 541-73-1 | 1,3-Dichlorobenzene | <1.0 | 1.0 |
| 106-46-7 | 1,4-Dichlorobenzene | <1.0 | 1.0 |
| *75-71-8 | Dichlorodifluoromethane | <5.0 | 5.0 |
| 75-34-3 | 1,1-Dichloroethane | <1.0 | 1.0 |
| 107-06-2 | 1,2-Dichloroethane | <1.0 | 1.0 |
| 75-35-4 | 1,1-Dichloroethene | <1.0 | 1.0 |
| 156-59-2 | cis-1,2-Dichloroethene | <1.0 | 1.0 |
| 156-60-5 | trans-1,2-Dichloroethene | <1.0 | 1.0 |

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# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **Trip Blank** | Sampled: | 04/22/11 00:00 |
| Lab Sample ID: | **1104403-02** | Sampled By: | TML |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B (Continued)

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | <1.0 | 1.0 |
| 10061-01-5 | cis-1,3-Dichloropropene | <1.0 | 1.0 |
| 10061-02-6 | trans-1,3-Dichloropropene | <1.0 | 1.0 |
| 100-41-4 | Ethylbenzene | <1.0 | 1.0 |
| 60-29-7 | Ethyl Ether | <5.0 | 5.0 |
| 591-78-6 | 2-Hexanone | <5.0 | 5.0 |
| 74-88-4 | Iodomethane | <1.0 | 1.0 |
| 98-82-8 | Isopropylbenzene | <1.0 | 1.0 |
| 99-87-6 | 4-Isopropyltoluene | <5.0 | 5.0 |
| 1634-04-4 | Methyl tert-Butyl Ether | <5.0 | 5.0 |
| 75-09-2 | Methylene Chloride | <5.0 | 5.0 |
| 78-93-3 | 2-Butanone (MEK) | <5.0 | 5.0 |
| 91-57-6 | 2-Methylnaphthalene | <5.0 | 5.0 |
| 108-10-1 | 4-Methyl-2-pentanone (MIBK) | <5.0 | 5.0 |
| 91-20-3 | Naphthalene | <5.0 | 5.0 |
| 103-65-1 | n-Propylbenzene | <1.0 | 1.0 |
| 100-42-5 | Styrene | <1.0 | 1.0 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | <1.0 | 1.0 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | <1.0 | 1.0 |
| 127-18-4 | Tetrachloroethene | <1.0 | 1.0 |
| 109-99-9 | Tetrahydrofuran | <5.0 | 5.0 |
| 108-88-3 | Toluene | <1.0 | 1.0 |
| 87-61-6 | 1,2,3-Trichlorobenzene | <5.0 | 5.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | <5.0 | 5.0 |
| 71-55-6 | 1,1,1-Trichloroethane | <1.0 | 1.0 |
| 79-00-5 | 1,1,2-Trichloroethane | <1.0 | 1.0 |
| 79-01-6 | Trichloroethene | <1.0 | 1.0 |
| 75-69-4 | Trichlorofluoromethane | <1.0 | 1.0 |
| 96-18-4 | 1,2,3-Trichloropropane | <1.0 | 1.0 |
| 95-63-6 | 1,2,4-Trimethylbenzene | <1.0 | 1.0 |
| 108-67-8 | 1,3,5-Trimethylbenzene | <1.0 | 1.0 |

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TRIMATRIX LABORATORIES

# ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| Client: | **North Jackson Company - MI** | Work Order: | **1104403** |
| Project: | Humboldt Storm Water Monitoring | Description: | Laboratory Services |
| Client Sample ID: | **Trip Blank** | Sampled: | 04/22/11 00:00 |
| Lab Sample ID: | **1104403-02** | Sampled By: | TML |
| Matrix: | Water | Received: | 04/23/11 08:45 |
| Unit: | ug/L | Prepared: | 04/26/11 By: DLV |
| Dilution Factor: | 1 | Analyzed: | 04/26/11 By: DLV |
| QC Batch: | 1103557 | Analytical Batch: | 1D27006 |

## Volatile Organic Compounds by EPA Method 8260B (Continued)

| CAS Number | Analyte | Analytical Result | RL |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | <1.0 | 1.0 |
| 136777-61-2 | Xylene, Meta + Para | <2.0 | 2.0 |
| 95-47-6 | Xylene, Ortho | <1.0 | 1.0 |

| ***Surrogates:*** | ***% Recovery*** | ***Control Limits*** |
|---|---|---|
| *Dibromofluoromethane* | 100 | *88-116* |
| *1,2-Dichloroethane-d4* | 107 | *87-123* |
| *Toluene-d8* | 106 | *91-107* |
| *4-Bromofluorobenzene* | 95 | *84-106* |



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# QUALITY CONTROL REPORT

## Volatile Organic Compounds by EPA Method 8260B

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|

**QC Batch: 1103557** 5030B Aqueous Purge & Trap/USEPA-8260B

**Method Blank** Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| | | | |
|---|---|---|---|
| Acetone | <20 | -- | 20 |
| Acrylonitrile | <2.0 | | 2.0 |
| Benzene | <1.0 | | 1.0 |
| Bromobenzene | <1.0 | | 1.0 |
| Bromochloromethane | <1.0 | | 1.0 |
| Bromodichloromethane | <1.0 | | 1.0 |
| Bromoform | <1.0 | | 1.0 |
| Bromomethane | <5.0 | | 5.0 |
| n-Butylbenzene | <1.0 | | 1.0 |
| sec-Butylbenzene | <1.0 | | 1.0 |
| tert-Butylbenzene | <1.0 | | 1.0 |
| Carbon Disulfide | <1.0 | -- | 1.0 |
| Carbon Tetrachloride | <1.0 | | 1.0 |
| Chlorobenzene | <1.0 | | 1.0 |
| Chloroethane | <5.0 | | 5.0 |
| Chloroform | <1.0 | | 1.0 |
| Chloromethane | <5.0 | | 5.0 |
| 1,2-Dibromo-3-chloropropane | <5.0 | | 5.0 |
| Dibromochloromethane | <1.0 | | 1.0 |
| 1,2-Dibromoethane | <1.0 | | 1.0 |
| Dibromomethane | <1.0 | | 1.0 |
| trans-1,4-Dichloro-2-butene | <1.0 | | 1.0 |
| 1,2-Dichlorobenzene | <1.0 | | 1.0 |
| 1,3-Dichlorobenzene | <1.0 | -- | 1.0 |
| 1,4-Dichlorobenzene | <1.0 | -- | 1.0 |
| Dichlorodifluoromethane | <5.0 | | 5.0 |
| 1,1-Dichloroethane | <1.0 | | 1.0 |
| 1,2-Dichloroethane | <1.0 | | 1.0 |
| 1,1-Dichloroethene | <1.0 | | 1.0 |
| cis-1,2-Dichloroethene | <1.0 | | 1.0 |
| trans-1,2-Dichloroethene | <1.0 | | 1.0 |
| 1,2-Dichloropropane | <1.0 | | 1.0 |
| cis-1,3-Dichloropropene | <1.0 | | 1.0 |
| trans-1,3-Dichloropropene | <1.0 | | 1.0 |
| Ethylbenzene | <1.0 | | 1.0 |
| Ethyl Ether | <5.0 | | 5.0 |

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# QUALITY CONTROL REPORT

## Volatile Organic Compounds by EPA Method 8260B (Continued)

**QC Batch: 1103557 (Continued)** 5030B Aqueous Purge & Trap/USEPA-8260B

**Method Blank (Continued)** Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| 2-Hexanone | | | <5.0 | | | | | 5.0 |
| Iodomethane | | | <1.0 | | | | | 1.0 |
| Isopropylbenzene | | | <1.0 | | | | | 1.0 |
| 4-Isopropyltoluene | | | <5.0 | | | | | 5.0 |
| Methyl tert-Butyl Ether | | | <5.0 | | | | | 5.0 |
| Methylene Chloride | | | <5.0 | | | -- | | 5.0 |
| 2-Butanone (MEK) | | | <5.0 | | | | | 5.0 |
| 2-Methylnaphthalene | | | <5.0 | | | -- | | 5.0 |
| 4-Methyl-2-pentanone (MIBK) | | | <5.0 | | | | | 5.0 |
| Naphthalene | | | <5.0 | | | -- | | 5.0 |
| n-Propylbenzene | | | <1.0 | | | | | 1.0 |
| Styrene | | | <1.0 | | | | | 1.0 |
| 1,1,1,2-Tetrachloroethane | | | <1.0 | | | | | 1.0 |
| 1,1,2,2-Tetrachloroethane | | | <1.0 | | | | | 1.0 |
| Tetrachloroethene | | | <1.0 | | | | | 1.0 |
| Tetrahydrofuran | | | <5.0 | | | | | 5.0 |
| Toluene | | | <1.0 | | | | | 1.0 |
| 1,2,3-Trichlorobenzene | | | <5.0 | | | | | 5.0 |
| 1,2,4-Trichlorobenzene | | | <5.0 | | | | | 5.0 |
| 1,1,1-Trichloroethane | | | <1.0 | | | | | 1.0 |
| 1,1,2-Trichloroethane | | | <1.0 | | | | | 1.0 |
| Trichloroethene | | | <1.0 | | | | | 1.0 |
| Trichlorofluoromethane | | | <1.0 | | | | | 1.0 |
| 1,2,3-Trichloropropane | | | <1.0 | | | | | 1.0 |
| 1,2,4-Trimethylbenzene | | | <1.0 | | | | | 1.0 |
| 1,3,5-Trimethylbenzene | | | <1.0 | | | | | 1.0 |
| Vinyl Chloride | | | <1.0 | | | | | 1.0 |
| Xylene, Meta + Para | | | <2.0 | | | | | 2.0 |
| Xylene, Ortho | | | <1.0 | | | | | 1.0 |
| ***Surrogates:*** | | | | | | | | |
| *Dibromofluoromethane* | | | | *97* | *88-116* | | | |
| *1,2-Dichloroethane-d4* | | | | *103* | *87-123* | | | |
| *Toluene-d8* | | | | *99* | *91-107* | | | |
| *4-Bromofluorobenzene* | | | | *97* | *84-106* | | | |

**Laboratory Control Sample** Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Benzene | | 40.0 | **43.5** | 109 | 84-119 | -- | | 1.0 |

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# QUALITY CONTROL REPORT

## Volatile Organic Compounds by EPA Method 8260B (Continued)

**QC Batch: 1103557 (Continued)** 5030B Aqueous Purge & Trap/USEPA-8260B

**Laboratory Control Sample (Continued)** Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | | 40.0 | **40.6** | 102 | 84-118 | -- | | 1.0 |
| 1,1-Dichloroethene | | 40.0 | **43.5** | 109 | 77-123 | -- | | 1.0 |
| Toluene | | 40.0 | **42.7** | 107 | 85-118 | -- | | 1.0 |
| Trichloroethene | | 40.0 | **40.8** | 102 | 82-119 | -- | | 1.0 |
| ***Surrogates:*** | | | | | | | | |
| *Dibromofluoromethane* | | | | *100* | *88-116* | | | |
| *1,2-Dichloroethane-d4* | | | | *101* | *87-123* | | | |
| *Toluene-d8* | | | | *104* | *91-107* | | | |
| *4-Bromofluorobenzene* | | | | *100* | *84-106* | | | |

**Matrix Spike 1104403-01** HMWQ-009 HUM-1001160 Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | 40.0 | **46.5** | 116 | 80-129 | -- | | 1.0 |
| Chlorobenzene | <1.0 | 40.0 | **42.5** | 106 | 80-121 | -- | | 1.0 |
| 1,1-Dichloroethene | <1.0 | 40.0 | **49.0** | 123 | 74-134 | -- | | 1.0 |
| Toluene | <1.0 | 40.0 | **46.9** | 117 | 79-129 | -- | | 1.0 |
| Trichloroethene | <1.0 | 40.0 | **43.1** | 108 | 75-127 | -- | | 1.0 |
| ***Surrogates:*** | | | | | | | | |
| *Dibromofluoromethane* | | | | *96* | *88-116* | | | |
| *1,2-Dichloroethane-d4* | | | | *98* | *87-123* | | | |
| *Toluene-d8* | | | | *106* | *91-107* | | | |
| *4-Bromofluorobenzene* | | | | *99* | *84-106* | | | |

**Matrix Spike Duplicate 1104403-01** HMWQ-009 HUM-1001160 Analyzed: 04/26/2011 By: DLV
Unit: ug/L Analytical Batch: 1D27006

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | 40.0 | **46.6** | 116 | 80-129 | 0.3 | 9 | 1.0 |
| Chlorobenzene | <1.0 | 40.0 | **42.5** | 106 | 80-121 | 0.02 | 8 | 1.0 |
| 1,1-Dichloroethene | <1.0 | 40.0 | **48.3** | 121 | 74-134 | 2 | 11 | 1.0 |
| Toluene | <1.0 | 40.0 | **46.8** | 117 | 79-129 | 0.2 | 9 | 1.0 |
| Trichloroethene | <1.0 | 40.0 | **43.7** | 109 | 75-127 | 1 | 10 | 1.0 |
| ***Surrogates:*** | | | | | | | | |
| *Dibromofluoromethane* | | | | *100* | *88-116* | | | |
| *1,2-Dichloroethane-d4* | | | | *104* | *87-123* | | | |
| *Toluene-d8* | | | | *106* | *91-107* | | | |
| *4-Bromofluorobenzene* | | | | *100* | *84-106* | | | |



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# QUALITY CONTROL REPORT

## Semivolatile Organic Compounds by EPA Method 8270C

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| **QC Batch: 1103689** 3510C Liquid-Liquid Extraction/USEPA-8270C | | | | | | | | |
| **Method Blank** | | | | | Analyzed: | | 05/02/2011 | By: JLB |
| Unit: ug/L | | | | | Analytical Batch: | | 1E03071 | |
| Acenaphthene | | | <5.0 | | | -- | 5.0 | |
| Acenaphthylene | | | <5.0 | | | -- | 5.0 | |
| Anthracene | | | <5.0 | | | -- | 5.0 | |
| Benzo(a)anthracene | | | <1.0 | | | -- | 1.0 | |
| Benzo(a)pyrene | | | <1.0 | | | -- | 1.0 | |
| Benzo(b)fluoranthene | | | <1.0 | | | -- | 1.0 | |
| Benzo(g,h,i)perylene | | | <1.0 | | | -- | 1.0 | |
| Benzo(k)fluoranthene | | | <1.0 | | | -- | 1.0 | |
| Chrysene | | | <1.0 | | | | 1.0 | |
| Dibenz(a,h)anthracene | | | <2.0 | | | -- | 2.0 | |
| Fluoranthene | | | <1.0 | | | -- | 1.0 | |
| Fluorene | | | <5.0 | | | -- | 5.0 | |
| Indeno(1,2,3-cd)pyrene | | | <2.0 | | | | 2.0 | |
| 2-Methylnaphthalene | | | <5.0 | | | | 5.0 | |
| Naphthalene | | | <5.0 | | | | 5.0 | |
| Phenanthrene | | | <2.0 | | | -- | 2.0 | |
| Pyrene | | | <5.0 | | | -- | 5.0 | |
| ***Surrogates:*** | | | | | | | | |
| *Nitrobenzene-d5* | | | | *72* | *31-123* | | | |
| *2-Fluorobiphenyl* | | | | *87* | *25-113* | | | |
| *o-Terphenyl* | | | | *98* | *42-125* | | | |
| **Laboratory Control Sample** | | | | | Analyzed: | | 05/02/2011 | By: JLB |
| Unit: ug/L | | | | | Analytical Batch: | | 1E03071 | |
| Acenaphthene | | 9.60 | **10.4** | 108 | 53-126 | -- | 5.0 | |
| Naphthalene | | 9.60 | **10.5** | 109 | 50-127 | -- | 5.0 | |
| Pyrene | | 9.60 | **10.8** | 112 | 60-134 | -- | 5.0 | |
| ***Surrogates:*** | | | | | | | | |
| *Nitrobenzene-d5* | | | | *80* | *31-123* | | | |
| *2-Fluorobiphenyl* | | | | *87* | *25-113* | | | |
| *o-Terphenyl* | | | | *96* | *42-125* | | | |
| **Matrix Spike 1104403-01** HMWQ-009 HUM-1001160 | | | | | Analyzed: | | 05/03/2011 | By: JLB |
| Unit: ug/L | | | | | Analytical Batch: | | 1E03071 | |
| Acenaphthene | <5.0 | 10.1 | **8.45** | 84 | 46-120 | -- | 5.0 | |
| Naphthalene | <5.0 | 10.2 | **8.17** | 80 | 39-124 | -- | 5.0 | |

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# QUALITY CONTROL REPORT

## Semivolatile Organic Compounds by EPA Method 8270C (Continued)

**QC Batch: 1103689 (Continued)** 3510C Liquid-Liquid Extraction/USEPA-8270C

**Matrix Spike (Continued) 1104403-01** HMWQ-009 HUM-1001160 — Analyzed: 05/03/2011 By: JLB
Unit: ug/L — Analytical Batch: 1E03071

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Pyrene | 0.0606 | 10.1 | **8.67** | 85 | 55-134 | -- | | 5.0 |
| ***Surrogates:*** | | | | | | | | |
| *Nitrobenzene-d5* | | | | *72* | *31-123* | | | |
| *2-Fluorobiphenyl* | | | | *85* | *25-113* | | | |
| *o-Terphenyl* | | | | *106* | *42-125* | | | |

**Matrix Spike Duplicate 1104403-01** HMWQ-009 HUM-1001160 — Analyzed: 05/03/2011 By: JLB
Unit: ug/L — Analytical Batch: 1E03071

| Analyte | Sample Conc. | Spike Qty. | Result | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|
| Acenaphthene | <5.0 | 10.1 | **8.38** | 83 | 46-120 | 0.8 | 12 | 5.0 |
| Naphthalene | <5.0 | 10.2 | **7.89** | 77 | 39-124 | 4 | 15 | 5.0 |
| Pyrene | 0.0606 | 10.1 | **8.84** | 87 | 55-134 | 2 | 16 | 5.0 |
| ***Surrogates:*** | | | | | | | | |
| *Nitrobenzene-d5* | | | | *69* | *31-123* | | | |
| *2-Fluorobiphenyl* | | | | *80* | *25-113* | | | |
| *o-Terphenyl* | | | | *106* | *42-125* | | | |



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# QUALITY CONTROL REPORT

## Total Metals by EPA 1600 Series Methods

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Mercury**/USEPA-1631E | | | | | | | | | |
| QC Batch: 1103554 (1631E Digestion) | | | | | | | Analyzed: 04/26/2011 | By: MSM | |
| Method Blank | | | <0.500 | ng/L | | | | | 0.500 |
| Method Blank | | | <0.500 | ng/L | | | | | 0.500 |
| Method Blank | | | <0.500 | ng/L | | | | | 0.500 |
| Laboratory Control Sample | | 3.00 | **2.784** | ng/L | 93 | 77-123 | | | 0.500 |



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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Aluminum**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <50 | ug/L | | | | | 50 |
| Laboratory Control Sample | | 2000 | **1750** | ug/L | 88 | 80-120 | | | 50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <50 | 2000 | **1860** | ug/L | 93 | 75-125 | | | 50 |
| Matrix Spike Duplicate | <50 | 2000 | **1810** | ug/L | 91 | 75-125 | 3 | 20 | 50 |
| **Analyte: Antimony**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <2.0 | ug/L | | | | | 2.0 |
| Laboratory Control Sample | | 50.0 | **48.4** | ug/L | 97 | 80-120 | | 20 | 2.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 5.90 | 50.0 | **54.4** | ug/L | 97 | 75-125 | | 20 | 2.0 |
| Matrix Spike Duplicate | 5.90 | 50.0 | **54.4** | ug/L | 97 | 75-125 | 0.04 | 20 | 2.0 |
| **Analyte: Arsenic**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |
| Laboratory Control Sample | | 50.0 | **49.9** | ug/L | 100 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.505 | 50.0 | **51.3** | ug/L | 102 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | 0.505 | 50.0 | **51.3** | ug/L | 102 | 75-125 | 0.2 | 20 | 1.0 |
| **Analyte: Barium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <10 | ug/L | | | | | 10 |
| Laboratory Control Sample | | 50.0 | **52.2** | ug/L | 104 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 7.23 | 50.0 | **57.6** | ug/L | 101 | 75-125 | | 20 | 10 |
| Matrix Spike Duplicate | 7.23 | 50.0 | **57.6** | ug/L | 101 | 75-125 | 0.03 | 20 | 10 |
| **Analyte: Beryllium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |

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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Beryllium**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **50.2** | ug/L | 100 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <1.0 | 50.0 | **49.2** | ug/L | 98 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | <1.0 | 50.0 | **49.4** | ug/L | 99 | 75-125 | 0.4 | 20 | 1.0 |
| **Analyte: Boron**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/29/2011 | | By: DSC |
| Method Blank | | | <50 | ug/L | | | | | 50 |
| Laboratory Control Sample | | 50.0 | **48.1** | ug/L | 96 | 80-120 | | 20 | 50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 76.9 | 50.0 | **122** | ug/L | 90 | 70-130 | | 20 | 100 |
| Matrix Spike Duplicate | 76.9 | 50.0 | **123** | ug/L | 93 | 70-130 | 1 | 20 | 100 |
| **Analyte: Cadmium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <0.40 | ug/L | | | | | 0.40 |
| Laboratory Control Sample | | 50.0 | **51.1** | ug/L | 102 | 80-120 | | 20 | 0.40 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <0.40 | 50.0 | **51.0** | ug/L | 102 | 75-125 | | 20 | 0.40 |
| Matrix Spike Duplicate | <0.40 | 50.0 | **50.9** | ug/L | 102 | 75-125 | 0.2 | 20 | 0.40 |
| **Analyte: Calcium**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <0.50 | mg/L | | | | | 0.50 |
| Laboratory Control Sample | | 20.0 | **17.9** | mg/L | 90 | 80-120 | | 20 | 0.50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 53.2 | 20.0 | **68.4** | mg/L | 76 | 75-125 | | 20 | 0.50 |
| Matrix Spike Duplicate | 53.2 | 20.0 | **66.8** | mg/L | **68** | 75-125 | 2 | 20 | 0.50 |
| **Analyte: Chromium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |

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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Chromium**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **50.7** | ug/L | 101 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.506 | 50.0 | **48.5** | ug/L | 96 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | 0.506 | 50.0 | **47.8** | ug/L | 95 | 75-125 | 2 | 20 | 1.0 |
| **Analyte: Cobalt**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <10 | ug/L | | | | | 10 |
| Laboratory Control Sample | | 50.0 | **50.7** | ug/L | 101 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 2.69 | 50.0 | **49.7** | ug/L | 94 | 75-125 | | 20 | 10 |
| Matrix Spike Duplicate | 2.69 | 50.0 | **49.9** | ug/L | 94 | 75-125 | 0.5 | 20 | 10 |
| **Analyte: Copper**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <2.0 | ug/L | | | | | 2.0 |
| Laboratory Control Sample | | 50.0 | **50.6** | ug/L | 101 | 80-120 | | 20 | 2.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 2.36 | 50.0 | **48.8** | ug/L | 93 | 75-125 | | 20 | 2.0 |
| Matrix Spike Duplicate | 2.36 | 50.0 | **48.2** | ug/L | 92 | 75-125 | 1 | 20 | 2.0 |
| **Analyte: Iron**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <40 | ug/L | | | | | 40 |
| Laboratory Control Sample | | 400 | **397** | ug/L | 99 | 80-120 | | 20 | 40 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 237 | 400 | **578** | ug/L | 85 | 75-125 | | 20 | 40 |
| Matrix Spike Duplicate | 237 | 400 | **566** | ug/L | 82 | 75-125 | 2 | 20 | 40 |
| **Analyte: Lead**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |

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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Lead**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **51.3** | ug/L | 103 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <1.0 | 50.0 | **51.0** | ug/L | 102 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | <1.0 | 50.0 | **51.8** | ug/L | 104 | 75-125 | 2 | 20 | 1.0 |
| **Analyte: Lithium**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <10 | ug/L | | | | | 10 |
| Laboratory Control Sample | | 400 | **360** | ug/L | 90 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 4.18 | 400 | **377** | ug/L | 93 | 75-125 | | 20 | 10 |
| Matrix Spike Duplicate | 4.18 | 400 | **368** | ug/L | 91 | 75-125 | 2 | 20 | 10 |
| **Analyte: Magnesium**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <0.50 | mg/L | | | | | 0.50 |
| Laboratory Control Sample | | 20.0 | **18.0** | mg/L | 90 | 80-120 | | 20 | 0.50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 25.6 | 20.0 | **42.8** | mg/L | 86 | 75-125 | | 20 | 0.50 |
| Matrix Spike Duplicate | 25.6 | 20.0 | **41.6** | mg/L | 80 | 75-125 | 3 | 20 | 0.50 |
| **Analyte: Manganese**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <10 | ug/L | | | | | 10 |
| Laboratory Control Sample | | 50.0 | **51.0** | ug/L | 102 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 67.5 | 50.0 | **114** | ug/L | 93 | 75-125 | | 20 | 20 |
| Matrix Spike Duplicate | 67.5 | 50.0 | **117** | ug/L | 100 | 75-125 | 3 | 20 | 20 |
| **Analyte: Molybdenum**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <10 | ug/L | | | | | 10 |

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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Molybdenum**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **49.2** | ug/L | 98 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 10.5 | 50.0 | **60.5** | ug/L | 100 | 75-125 | | 20 | 10 |
| Matrix Spike Duplicate | 10.5 | 50.0 | **60.3** | ug/L | 100 | 75-125 | 0.3 | 20 | 10 |
| **Analyte: Nickel**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |
| Laboratory Control Sample | | 50.0 | **50.0** | ug/L | 100 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 15.9 | 50.0 | **61.9** | ug/L | 92 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | 15.9 | 50.0 | **61.5** | ug/L | 91 | 75-125 | 0.6 | 20 | 1.0 |
| **Analyte: Potassium**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <0.50 | mg/L | | | | | 0.50 |
| Laboratory Control Sample | | 20.0 | **17.9** | mg/L | 89 | 80-120 | | 20 | 0.50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 8.51 | 20.0 | **26.7** | mg/L | 91 | 75-125 | | 20 | 0.50 |
| Matrix Spike Duplicate | 8.51 | 20.0 | **26.1** | mg/L | 88 | 75-125 | 2 | 20 | 0.50 |
| **Analyte: Selenium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <4.0 | ug/L | | | | | 4.0 |
| Laboratory Control Sample | | 50.0 | **49.0** | ug/L | 98 | 80-120 | | 20 | 4.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <4.0 | 50.0 | **50.8** | ug/L | 102 | 75-125 | | 20 | 4.0 |
| Matrix Spike Duplicate | <4.0 | 50.0 | **51.3** | ug/L | 103 | 75-125 | 0.9 | 20 | 4.0 |
| **Analyte: Silver**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <0.40 | ug/L | | | | | 0.40 |

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# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Silver**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **50.2** | ug/L | 100 | 80-120 | | 20 | 0.40 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <0.40 | 50.0 | **48.0** | ug/L | 96 | 75-125 | | 20 | 0.40 |
| Matrix Spike Duplicate | <0.40 | 50.0 | **49.3** | ug/L | 99 | 75-125 | 3 | 20 | 0.40 |
| **Analyte: Sodium**/USEPA-6010C | | | | | | | | | |
| QC Batch: 1103531 (3010A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: KLV |
| Method Blank | | | <0.50 | mg/L | | | | | 0.50 |
| Laboratory Control Sample | | 20.0 | **17.9** | mg/L | 90 | 80-120 | | 20 | 0.50 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 12.7 | 20.0 | **30.5** | mg/L | 89 | 75-125 | | 20 | 0.50 |
| Matrix Spike Duplicate | 12.7 | 20.0 | **29.7** | mg/L | 85 | 75-125 | 3 | 20 | 0.50 |
| **Analyte: Thallium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |
| Laboratory Control Sample | | 50.0 | **51.1** | ug/L | 102 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <1.0 | 50.0 | **51.1** | ug/L | 102 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | <1.0 | 50.0 | **52.5** | ug/L | 105 | 75-125 | 3 | 20 | 1.0 |
| **Analyte: Vanadium**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <1.0 | ug/L | | | | | 1.0 |
| Laboratory Control Sample | | 50.0 | **51.0** | ug/L | 102 | 80-120 | | | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.196 | 50.0 | **48.5** | ug/L | 97 | 75-125 | | | 1.0 |
| Matrix Spike Duplicate | 0.196 | 50.0 | **48.5** | ug/L | 97 | 75-125 | 0.1 | 20 | 1.0 |
| **Analyte: Zinc**/USEPA-6020A | | | | | | | | | |
| QC Batch: 1103528 (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Method Blank | | | <10 | ug/L | | | | | 10 |

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TRIMATRIX LABORATORIES

# QUALITY CONTROL REPORT

## Total Metals by EPA 6000/7000 Series Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Zinc**/USEPA-6020A (Continued) | | | | | | | | | |
| QC Batch: 1103528 (Continued) (3020A Digestion) | | | | | | | Analyzed: 04/28/2011 | | By: DSC |
| Laboratory Control Sample | | 50.0 | **54.7** | ug/L | 109 | 80-120 | | 20 | 10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <10 | 50.0 | **51.3** | ug/L | 103 | 75-125 | | 20 | 10 |
| Matrix Spike Duplicate | <10 | 50.0 | **55.3** | ug/L | 111 | 75-125 | 7 | 20 | 10 |



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# QUALITY CONTROL REPORT

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Alkalinity, Bicarbonate**/SM 2320 B 20th | | | | | | | | | |
| QC Batch: 1103722 (General Inorganic Prep) | | | | | | | Analyzed: 04/29/2011 | | By: KRK |
| Method Blank | | | <2.0 | mg/L | | | | | 2.0 |
| Laboratory Control Sample | | 238 | **239** | mg/L | 100 | 74-123 | | | 2.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 106 | 238 | **349** | mg/L | 102 | 78-117 | | | 2.0 |
| Duplicate | 106 | | **106** | mg/L | | | 0.6 | 20 | 2.0 |
| **Analyte: Alkalinity, Carbonate**/SM 2320 B 20th | | | | | | | | | |
| QC Batch: 1103723 (General Inorganic Prep) | | | | | | | Analyzed: 04/29/2011 | | By: KRK |
| Method Blank | | | <2.0 | mg/L | | | | | 2.0 |
| Laboratory Control Sample | | 378 | **377** | mg/L | 100 | 72-114 | | 20 | 2.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Duplicate | <2.0 | | <2.0 | mg/L | | | | 20 | 2.0 |
| **Analyte: Carbon, Total Organic**/SM 5310 C 20th | | | | | | | | | |
| QC Batch: 1103653 (General Inorganic Prep) | | | | | | | Analyzed: 04/27/2011 | | By: GEH |
| Method Blank | | | <1.0 | mg/L | | | | | 1.0 |
| Laboratory Control Sample | | 40.0 | **39.7** | mg/L | 99 | 87-111 | | 20 | 1.0 |
| Laboratory Control Sample Duplicate | | | **38.5** | mg/L | | | 3 | 20 | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 3.52 | 40.0 | **42.1** | mg/L | 96 | 75-124 | | 20 | 1.0 |
| Matrix Spike Duplicate | 3.52 | 40.0 | **42.3** | mg/L | 97 | 75-124 | 0.5 | 20 | 1.0 |
| **Analyte: Chloride**/SM 4500-Cl E 20th | | | | | | | | | |
| QC Batch: 1103597 (General Inorganic Prep) | | | | | | | Analyzed: 04/27/2011 | | By: LMA |
| Method Blank | | | <1.0 | mg/L | | | | | 1.0 |
| Method Blank | | | <1.0 | mg/L | | | | | 1.0 |
| Laboratory Control Sample | | 50.0 | **48.3** | mg/L | 97 | 90-106 | | 20 | 1.0 |
| Laboratory Control Sample | | 50.0 | **48.0** | mg/L | 96 | 90-106 | | 20 | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 21.9 | 50.0 | **58.8** | mg/L | 74 | 72-123 | | 20 | 1.0 |
| Matrix Spike Duplicate | 21.9 | 50.0 | **76.2** | mg/L | 109 | 72-123 | **26** | 20 | 1.0 |

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# QUALITY CONTROL REPORT

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Cyanide, Total**/SM 4500-CN E 20th | | | | | | | | | |
| QC Batch: 1103484 (4500-CN C Cyanide Distillation) | | | | | | | Analyzed: 04/29/2011 | | By: LMA |
| Method Blank | | | <0.020 | mg/L | | | | | 0.020 |
| Laboratory Control Sample | | 0.100 | **0.0917** | mg/L | 92 | 90-110 | | 20 | 0.020 |
| Laboratory Control Sample | | 0.0400 | **0.0375** | mg/L | 94 | 90-110 | | 20 | 0.020 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <0.020 | 0.100 | **0.0888** | mg/L | 89 | 59-128 | | 20 | 0.020 |
| Matrix Spike Duplicate | <0.020 | 0.100 | **0.0870** | mg/L | 87 | 59-128 | 2 | 20 | 0.020 |
| **Analyte: Fluoride**/SM 4500-F C 20th | | | | | | | | | |
| QC Batch: 1103469 (Method-Specific Preparation) | | | | | | | Analyzed: 04/26/2011 | | By: CLB |
| Method Blank | | | <0.10 | mg/L | | | | | 0.10 |
| Laboratory Control Sample | | 0.200 | **0.201** | mg/L | 100 | 89-116 | | 20 | 0.10 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.188 | 0.200 | **0.382** | mg/L | 97 | 75-135 | | 20 | 0.10 |
| Duplicate | 0.188 | | **0.196** | mg/L | | | 4 | 20 | 0.10 |
| **Analyte: Nitrogen, Ammonia**/SM 4500-NH3 G 20th | | | | | | | | | |
| QC Batch: 1103678 (General Inorganic Prep) | | | | | | | Analyzed: 04/28/2011 | | By: GEH |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |
| Laboratory Control Sample | | 0.500 | **0.500** | mg/L | 100 | 90-110 | | 20 | 0.050 |
| Laboratory Control Sample | | 0.500 | **0.490** | mg/L | 98 | 90-110 | | 20 | 0.050 |
| Laboratory Control Sample | | 0.500 | **0.504** | mg/L | 101 | 90-110 | | 20 | 0.050 |
| Laboratory Control Sample | | 0.500 | **0.493** | mg/L | 99 | 90-110 | | 20 | 0.050 |
| Laboratory Control Sample Duplicate | | | **0.499** | mg/L | | | 0.2 | 20 | 0.050 |
| Laboratory Control Sample Duplicate | | | **0.526** | mg/L | | | 7 | 20 | 0.050 |
| Laboratory Control Sample Duplicate | | | **0.506** | mg/L | | | 0.4 | 20 | 0.050 |
| Laboratory Control Sample Duplicate | | | **0.492** | mg/L | | | 0.2 | 20 | 0.050 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.0114 | 0.500 | **0.509** | mg/L | 100 | 90-110 | | 20 | 0.050 |
| Matrix Spike Duplicate | 0.0114 | 0.500 | **0.526** | mg/L | 103 | 90-110 | 3 | 20 | 0.050 |
| **Analyte: Nitrogen, Nitrate**/SM 4500-NO3 F 20th | | | | | | | | | |
| QC Batch: 1103583 (Method-Specific Preparation) | | | | | | | Analyzed: 04/23/2011 | | By: HLB |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |

Continued on next page



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TRIMATRIX LABORATORIES

# QUALITY CONTROL REPORT

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Nitrogen, Nitrate**/SM 4500-NO3 F 20th (Continued) | | | | | | | | | |
| QC Batch: 1103583 (Continued) (Method-Specific Preparation) | | | | | | | Analyzed: 04/23/2011 | | By: HLB |
| Laboratory Control Sample | | 0.500 | **0.494** | mg/L | 99 | 90-110 | | 20 | 0.050 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 2.22 | 5.00 | **6.96** | mg/L | 95 | 90-110 | | 20 | 0.50 |
| Matrix Spike Duplicate | 2.22 | 5.00 | **6.97** | mg/L | 95 | 90-110 | 0.2 | 20 | 0.50 |
| **Analyte: Nitrogen, Nitrite**/SM 4500-NO3 F 20th | | | | | | | | | |
| QC Batch: 1103582 (Method-Specific Preparation) | | | | | | | Analyzed: 04/23/2011 | | By: HLB |
| Method Blank | | | <0.050 | mg/L | | | | | 0.050 |
| Laboratory Control Sample | | 0.500 | **0.491** | mg/L | 98 | 90-110 | | 20 | 0.050 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 0.0116 | 0.500 | **0.517** | mg/L | 101 | 90-110 | | 20 | 0.050 |
| Matrix Spike Duplicate | 0.0116 | 0.500 | **0.510** | mg/L | 100 | 90-110 | 1 | 20 | 0.050 |
| **Analyte: Residue, Dissolved @ 180° C**/SM 2540 C 20th | | | | | | | | | |
| QC Batch: 1103530 (General Inorganic Prep) | | | | | | | Analyzed: 04/26/2011 | | By: KCS |
| Method Blank | | | <50.0 | mg/L | | | | | 50.0 |
| Laboratory Control Sample | | 200 | **186** | mg/L | 93 | 80-117 | | 20 | 50.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Duplicate | 364 | | **364** | mg/L | | | 0 | 5 | 50.0 |
| **Analyte: Residue, Suspended**/SM 2540 D 20th | | | | | | | | | |
| QC Batch: 1103711 (General Inorganic Prep) | | | | | | | Analyzed: 04/28/2011 | | By: KCS |
| Method Blank | | | <3.3 | mg/L | | | | | 3.3 |
| Laboratory Control Sample | | 200 | **198** | mg/L | 99 | 88-104 | | 20 | 24.8 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Duplicate | <3.3 | | <3.3 | mg/L | | | | 5 | 3.3 |
| **Analyte: Sulfate**/ASTM D516-90 (02) | | | | | | | | | |
| QC Batch: 1103596 (General Inorganic Prep) | | | | | | | Analyzed: 04/27/2011 | | By: LMA |
| Method Blank | | | <1.0 | mg/L | | | | | 1.0 |

Continued on next page



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# QUALITY CONTROL REPORT

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

| QC Type | Sample Conc. | Spike Qty. | Result | Unit | Spike % Rec. | Control Limits | RPD | RPD Limits | RL |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte: Sulfate**/ASTM D516-90 (02) (Continued) | | | | | | | | | |
| QC Batch: 1103596 (Continued) (General Inorganic Prep) | | | | | | | Analyzed: 04/27/2011 | | By: LMA |
| Laboratory Control Sample | | 20.0 | **19.8** | mg/L | 99 | 88-116 | | 20 | 1.0 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | 128 | 20.0 | **144** | mg/L | 81 | 55-151 | | 20 | 5.0 |
| Matrix Spike Duplicate | 128 | 20.0 | **145** | mg/L | 86 | 55-151 | 0.7 | 20 | 5.0 |
| **Analyte: Sulfide, Total**/SM 4500-S2 D 20th | | | | | | | | | |
| QC Batch: 1103567 (Method-Specific Preparation) | | | | | | | Analyzed: 04/26/2011 | | By: KAR |
| Method Blank | | | <0.020 | mg/L | | | | | 0.020 |
| Laboratory Control Sample | | 0.344 | **0.324** | mg/L | 94 | 80-120 | | 20 | 0.020 |
| **1104403-01 [HMWQ-009 HUM-1001160]** | | | | | | | | | |
| Matrix Spike | <0.020 | 0.344 | **0.317** | mg/L | 92 | 55-119 | | 20 | 0.020 |
| Matrix Spike Duplicate | <0.020 | 0.344 | **0.294** | mg/L | 85 | 55-119 | 8 | 20 | 0.020 |



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## STATEMENT OF DATA QUALIFICATIONS

### Volatile Organic Compounds by EPA Method 8260B

**Qualification:** The CCV for this analytical batch had a recovery above the upper control limit. Positive results for this analyte in the associated analytical batch are considered estimated; non-detectable results do not require qualification.

Analysis: USEPA-8260B

| Sample/Analyte: | | | |
|---|---|---|---|
| | 1104403-01 | HMWQ-009 HUM-1001160 | Dichlorodifluoromethane |
| | 1104403-02 | Trip Blank | Dichlorodifluoromethane |



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## STATEMENT OF DATA QUALIFICATIONS

### Total Metals by EPA 6000/7000 Series Methods

**Qualification:** This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte: 1104403-01 HMWQ-009 HUM-1001160 Copper

**Qualification:** The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is not qualified.

Analysis: USEPA-6010C

Sample/Analyte: 1104403-01 HMWQ-009 HUM-1001160 Calcium



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## STATEMENT OF DATA QUALIFICATIONS

### Physical/Chemical Parameters by EPA/APHA/ASTM Methods

**Qualification:** The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample result is considered estimated.

Analysis: SM 4500-Cl E 20th

Sample/Analyte: 1104403-01 HMWQ-009 HUM-1001160 Chloride



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TRIMATRIX LABORATORIES

# Chain of Custody Record

COC No. 08431

5560 Corporate Exchange Court SE, Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463 www.trimatrixlabs.com

Pg. 1 of 1

**For Lab Use Only**
Cart: 8
VOA Rack/Tray: 717 White
Receipt Log No.: 27-1
Project Chemist: Jennifer Rice
Work Order No.: 1104403

Client Name: North Jackson Company
Address: P.O. Box 218
City, State Zip: Marquette, MI 49855
Phone: 906-225-6787 Fax 906-225-6769
Email: karip@northjacksonco.com

Project Name: Humboldt Storm Water Monitoring
Client Project No. / P.O. No.:
Invoice To: ☑ Client ☐ Other (comments)
Contact/Report To: Kari Paulson

## Analyses Requested

| | D | A | A | A | C | A | F | C | A | E |
|---|---|---|---|---|---|---|---|---|---|---|
| | VOC - 8260 | PAHs - 8270 | Alks,Cl,F,NO3,NO2,SO4 | TSS, TDS | Ammonia | Metals-total/Hardness | Sulfide | TOC | LL Hg | Cyanide |
| Container Type (corresponds to Container Packing List) | 1p | 2 | 3 | 3 | 4 | 6 | 9 | 11 | 24 | 5 |

Number of Containers Submitted

PRESERVATIVES
A NONE pH~7
B $HNO_3$ pH<2
C $H_2SO_4$ pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

| Schedule | Matrix Code | Sample Number | Field Sample ID | Cooler ID | Sample Date | Sample Time | COMP | GRAB | Matrix | VOC - 8260 | PAHs - 8270 | Alks,Cl,F,NO3,NO2,SO4 | TSS, TDS | Ammonia | Metals-total/Hardness | Sulfide | TOC | LL Hg | Cyanide | Total | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ~~HMWQ-001~~ | | | | | | | | | | | | | | | | | | Final HUM-1001157 |
| | | | 2 ~~HMWQ-004~~ | | | | | | | | | | | | | | | | | | HUM-1001158 |
| | | | 3 [redacted] | | | | | | | | | | | | | | | | | | Final |
| 03 | | 01 | 4 HMWQ-009 | | 4/22/11 | 1015 | | X | W | 6 | 6 | 4 | 2 | 2 | 2 | 2 | 9 | 2 | 2 | | HUM-1001160 |
| | | | 5 [redacted] | | | | | | | | | | | | | | | | | | |
| | | | 6 [redacted] | | | | | | | | | | | | | | | | | | |
| 04 | | 02 | 7 Trip Blank | | 4/22/11 | — | | | W | 1 | | | | | | | | | | | |
| | | | 8 | | | | | | | | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | | | | | | | | |
| | | | 10 | | | | | | | | | | | | | | | | | | |

Sampled By (print): Jennifer Nutini / Mary Moisset
Sampler's Signature: Jennifer Nutini / Mary Moissette
Company: North Jackson Company

How Shipped? Hand ____ Carrier FedEx
Tracking No. 8728 7970 8007
8405 4983 8900
8405 4983 8911

| 1. Relinquished By | Date | Time |
|---|---|---|
| Jennifer Nutini | 4/22/11 | 1530 |

| 1. Received By | Date | Time |
|---|---|---|
| | | |

Comments: No MS/MSD for LLHg Collected at this time/location. —
Shipment Completed with 3 coolers

| 2. Relinquished By | Date | Time |
|---|---|---|
| | | |

| 2. Received By | Date | Time |
|---|---|---|
| | | |

| 3. Relinquished By | Date | Time |
|---|---|---|
| | | |

| 3. Received For Lab By | Date | Time |
|---|---|---|
| [illegible] | 4/23/11 | 0845 |

ORIGINAL - LABORATORY COPY - SAMPLER

# SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: North Jackson Co.
Receipt Record Page/Line #: 27-1
New / Add To
Work Order #: 1104403
Project Chemist
Sample #s

Recorded by (initials/date): LR 4/23/11

☑ Cooler ☐ Box ☐ Other
Qty Received: 3
Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#_____)
☐ See Additional Cooler Information Form

| Cooler # | 844 | 2415 | 227 | |
|---|---|---|---|---|
| Time | 0900 | 0905 | 0911 | |
| Custody Seals: None | ☑ | ☑ | ☑ | ☐ |
| Present / Intact | ☐ | ☐ | ☐ | ☐ |
| Present / Not Intact | ☐ | ☐ | ☐ | ☐ |
| Coolant Location: Dispersed / Top / Middle / Bottom | Top, Bottom | Top, Bottom | Top, Bottom | Dispersed / Top / Middle / Bottom |
| Coolant/Temperature Taken Via: Loose Ice / Avg 2-3 containers | ☐ | ☐ | ☐ | ☐ |
| Bagged Ice / Avg 2-3 containers | ☑ | ☑ | ☑ | ☐ |
| Blue Ice / Avg 2-3 containers | ☐ | ☐ | ☐ | ☐ |
| None / Avg 2-3 containers | ■ | ■ | ■ | ☐ |
| Alternate Temperature Taken Via: Temperature Blank (TB) | ☑ | ☐ | ☐ | ☐ |
| 1 Container | ☐ | ☐ | ☐ | ☐ |
| Recorded °C / Correction Factor °C / Actual °C | | | | |
| Temp Blank: | — / 4.3 | — / 5.0 | — / 4.9 | |
| TB location: Representative / Not Representative | Representative | Representative | Representative | Representative |
| 1 | 5.5 / — / 5.5 | 3.1 / — / 3.1 | 4.2 / — / 4.2 | |
| 2 | 5.9 / — / 5.9 | 3.0 / — / 3.0 | 3.5 / — / 3.5 | |
| 3 | 5.2 / — / 5.2 | 3.5 / — / 3.5 | 4.9 / — / 4.9 | |
| Average °C | 5.5 | 3.2 | 4.2 | |
| Cooler ID on COC? | ☐ | ☐ | ☐ | ☐ |
| VOC Trip Blank received? | ☐ | ☑ | ☐ | ☐ |

**If any shaded areas checked, complete Sample Receiving Non-Conformance Form**

## Paperwork Received

☐ No COC Received

| N/A | Yes | No | |
|---|---|---|---|
| | ☑ | ☐ | Chain of Custody record(s)? |
| | ☐ | | If No, COC Initiated By _____ |
| | ☑ | | Rec'd for Lab Signed/Date/Time? |
| ☐ | ☑ | | Shipping document? |
| ☑ | ☐ | | Other _____ |

COC ID #s

☑ TriMatrix 08431

☐ Other (Name or ID#) _____

## Check COC for Accuracy

☐ No analysis requested

| Yes | No | |
|---|---|---|
| ☑ | ■ | Sample ID matches COC? |
| ☑ | ■ | Sample Date and Time matches COC? |
| ☑ | | Container type completed on COC? |
| ☑ | ■ | All container types indicated are received? |

## Sample Condition Summary

☐ Non-TriMatrix containers, see Notes

| N/A | Yes | No | |
|---|---|---|---|
| | ■ | ☑ | Broken containers/lids? |
| | ■ | ☑ | Missing or incomplete labels? |
| | ■ | ☑ | Illegible information on labels? |
| | ■ | ☑ | Low volume received? |
| | ■ | ☑ | Inappropriate containers received? |
| ☐ | ■ | ☑ | VOC vials / TOX containers have headspace? |
| ☐ | ■ | ☑ | Extra sample locations / containers not listed on COC? |

## Check Sample Preservation

| N/A | Yes | No | |
|---|---|---|---|
| | ☑ | ■ | Average sample temperature ≤6° C? |
| ☐ | ☑ | | Completed Sample Preservation Verification Form? |
| ☐ | ☑ | ■ | Samples preserved correctly? |
| ☑ | | ☐ | If "No", added orange tag? |
| ☑ | | ☐ | Received pre-preserved VOC soils? |

☐ MeOH ☐ $Na_2SO_4$

## Check for Short Hold-Time Prep/Analyses

- ☐ Bacteriological
- ☐ Air Bags
- ☐ EnCores / Methanol Pre-Preserved
- ☐ Formaldehyde/Aldehyde
- ☑ Green-tagged containers
- ☐ Yellow/White-tagged 1L ambers (SV Prep-Lab)

**AFTER HOURS ONLY:**
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

## Notes

☑ Trip Blank received ☐ Trip Blank not listed on COC
☐ No COC received, Proj. Chemist reviewed (Init/Date) _____
☐ No analysis requested, Proj. Chemist completed (Init/Date) _____

| Cooler Received (Date/Time) | Paperwork Delivered (Date/Time) | ≤1 Hour Goal Met? |
|---|---|---|
| 4/23/11 0900 | 4/23/11 0926 | Yes / No |

TRIMATRIX LABORATORIES

# SAMPLE PRESERVATION VERIFICATION FORM

page ____ of ____

| | | |
|---|---|---|
| Client: North Jackson Company | | Work Order # 1104403 |
| Receipt Log # 27-1 | Completed By (initials/date) LR 4/23/11 | Project Chemist |

| COC ID # 08431 | | | Adjusted by:_____ Date:_____ | | DO NOT ADJUST pH FOR THESE CONTAINER TYPES | | | |
|---|---|---|---|---|---|---|---|---|
| Container Type | 5 | 4 | 13 | | 3 | 6 | 15 | |
| Tag Color | Lt. Blue | Blue | Brown | | Green | Red | Red Stripe | |
| Preservative | NaOH | $H_2SO_4$ | $H_2SO_4$ | | None | $HNO_3$ | $HNO_3$ | |
| Expected pH | >12 | <2 | <2 | | 6-8 | <2 | <2 | |
| COC Line #1 | ✓✓ | ✓✓ | | | ✓✓✓✓✓ | ✓✓ | | |
| COC Line #2 | | | | | | | | |
| COC Line #3 | | | | | | | | |
| COC Line #4 | | | | | | | | |
| COC Line #5 | | | | | | | | |
| COC Line #6 | | | | | | | | |
| COC Line #7 | | | | | | | | |
| COC Line #8 | | | | | | | | |
| COC Line #9 | | | | | | | | |
| COC Line #10 | | | | | | | | |

Comments

| Ph Strip Lot # |
|---|
| ☑ HC003104 |
| ☐ _____ |

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form. If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.

| COC ID # | | | Adjusted by:_____ Date:_____ | | DO NOT ADJUST pH FOR THESE CONTAINER TYPES | | | |
|---|---|---|---|---|---|---|---|---|
| Container Type | 5 | 4 | 13 | | 3 | 6 | 15 | |
| Tag Color | Lt. Blue | Blue | Brown | | Green | Red | Red Stripe | |
| Preservative | NaOH | $H_2SO_4$ | $H_2SO_4$ | | None | $HNO_3$ | $HNO_3$ | |
| Expected pH | >12 | <2 | <2 | | ~7 | <2 | <2 | |
| COC Line #1 | | | | | | | | |
| COC Line #2 | | | | | | | | |
| COC Line #3 | | | | | | | | |
| COC Line #4 | | | | | | | | |
| COC Line #5 | | | | | | | | |
| COC Line #6 | | | | | | | | |
| COC Line #7 | | | | | | | | |
| COC Line #8 | | | | | | | | |
| COC Line #9 | | | | | | | | |
| COC Line #10 | | | | | | | | |

Comments

| Container Size (mL) | Original Vol. of Preservative (mL) |
|---|---|
| Container Type 5 | NaOH |
| 500 | 2.5 |
| 1000 | 5.0 |
| Container Type 4 | $H_2SO_4$ |
| 125 | 0.5 |
| 250 | 1.0 |
| 500 | 2.0 |
| 1000 | 4.0 |
| Container Type 13 | $H_2SO_4$ |
| 500 | 2.5 |

# North Jackson Company
## Field Sampling Report

Project Name: Humboldt Mill Stormwater Monitoring

Contact: North Jackson Company
307 South Front Street
Marquette, Michigan 49855
Phone (906) 225-6787

## Summary of Sampling Activities

Sampling Date(s): 4/8/11, 4/22/11

Activities: Collected stormwater samples at HMWQ-005 and HMWQ-009.

Unable to collect samples at HMWQ-001 and HMWQ-004 because there was no detectable flow during the monitoring period.

Collected QA/QC samples, including 1 masked duplicate and 1 field (atmospheric) blank.

## Field Report Attachments

| | |
|---|---|
| Field Analytical Data Summary | Yes |
| Water Elevations | No |
| Quality Control Summary | Yes |
| Water Sampling Log | 2 |
| Chain of Custody Numbers | 20110408, 20110422 |

## Laboratory Analysis

TriMatrix - Metals, LL Hg, major cations & anions, general chemistry, VOC, PAH

**Sampler Name(s):** NJC - Curt Sheffield (CLS)
KEMC - Jen Nutini & Mary Morissette

# North Jackson Company
## Groundwater Field Data Summary

**Project Name:** Humboldt Mill Stormwater Monitoring

| Sample ID | HUM ID | Sampling Date | Temp (°C) | Spec Cond (µmhos/ cm @ 25°C) | pH (SU) | DO (ppm) | Turbidity (NTU) | Flow (cfs) |
|---|---|---|---|---|---|---|---|---|
| HMWQ-001 | ns | ns | ns | ns | ns | ns | ns | 0.0 |
| HMWQ-004 | ns | ns | ns | ns | ns | ns | ns | 0.0 |
| HMWQ-005 | HUM-1001159 | 4/8/11 | 3.9 | 1,563 | 4.9 | 3.3 | 15 | <0.2 |
| HMWQ-009 | HUM-1001160 | 4/22/11 | 6.1 | 504 | 6.7 | 10 | 4.0 | <0.1 |

ns Not sampled (there was no detectable flow at HMWQ-001 and HMWQ-004).

# North Jackson Company

## Quality Control Sampling Summary

**Project Name:** Humboldt Mill Stormwater Monitoring

| Sample ID | HUM ID | Sampling Date | Description |
|---|---|---|---|
| DUPS001 | HUM-1001161 | 4/8/11 | Masked duplicate (HMWQ-005) |
| FBKS001 | HUM-1001162 | 4/8/11 | Field Blank |

ty Kennecott Humboldt Facili

NPDES Storm Water Monitoring

umbolt NPDES Storm Water Sampling H

n Company Contact: North Jackso
ort Street 307 South F
lichigan 49855 Marquette, M
225-8787 Phone (906)

nitoring Activitie Summary of Mo

MWQ-001 HMWQ-004 Surface water sa Apr-Nov m H

Kennecott Humboldt Facility

NPDES Storm Water Monitoring L

| | | | |
|---|---|---|---|
| ldt NPDES Storm Water Sampling Name: | | | Humbo |
| Sampler(s): Mark Weed | | | Sampl |
| Sampling time: 15:30 Location: | | | HMWC |
| licate Collected? (Y/N) | | | Dupli |
| emperature (°C): 2.84 | Visual Observations: | | T |
| hos/cm @ 25 °C): 1343 | | Sp. Cond. (µm | |
| N) pH (SU): 4.90 | Unnatural turbidity | | Y |
| N) D.O. (ppm): 8.29 mg/L | | Color | Y |
| Turbidity (NTU): 15 | | Oil films | Y |
| N) ORP (mV) 33.8 | | Floating solids | Y |
| N) | | Foams | Y |

TRIMATRIX LABORATORIES

# Chain of Custody Record

COC No. 20110408

5560 Corporate Exchange Court SE, Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463 www.trimatrixlabs.com



For Lab Use Only
Rt
DA Rack/Tray
Receipt Log No.
Project Chemist
Jennifer Rice
Work Order No.

Client Name: North Jackson Company
Address: P.O. Box 218
City, State Zip: Marquette, MI 49855
Phone: 906-225-6787 Fax 906-225-6769
Email: karip@northjacksonco.com

Project Name: Humboldt Storm Water Monitoring
Client Project No. / P.O. No.:
Invoice To: ☑ Client ☐ Other (comments)
Contact/Report To: Kari Paulson

## Analyses Requested

PRESERVATIVES
A NONE pH~7
B $HNO_3$ pH<2
C $H_2SO_4$ pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

| Schedule | Matrix Code | Sample Number | Field Sample ID | Cooler ID | Sample Date | Sample Time | COMP | GRAB | Matrix | VOC - 8260 (D) | PAHs - 8270 (A) | Alks,Cl,F,NO3,NO2,SO4 (A) | TSS, TDS (A) | Ammonia (C) | Metals-total/Hardness (A) | Sulfide (F) | TOC (C) | LL Hg (A) | Cyanide (E) | Total | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Container Type (corresponds to Container Packing List) | | | | | | | 1p | 2 | 3 | 3 | 4 | 6 | 9 | 11 | 24 | 5 | | |
| | | | Number of Containers Submitted | | | | | | | | | | | | | | | | | | |
| 1 | | | [redacted] | | | | | | | | | | | | | | | | | | |
| 2 | | | [redacted] | | | | | | | | | | | | | | | | | | |
| 3 | | | HMWQ-005 | TM 2514 | 4/8/11 | 1049 | | x | wtr | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 16 | HUM-1001159 |
| 4 | | | [redacted] | | | | | | | | | | | | | | | | | | |
| 5 | | | DUPS001 | TM 2058 | 4/8/11 | — | | x | wtr | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 16 | HUM-1001161 |
| 6 | | | FBKS001 | TM 2588 | 4/8/11 | 1234 | | x | wtr | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 16 | HUM-1001162 |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |

Sampled By (print): Mary Morissette
Sampler's Signature: [signature]
Company: North Jackson Company

How Shipped? Hand ___ Carrier FedEx
Tracking No. 7969 6776 1376

Comments

| 1. Relinquished By | Date | Time | 2. Relinquished By | Date | Time | 3. Relinquished By | Date | Time |
|---|---|---|---|---|---|---|---|---|
| Jessica Bleche | 4/8/11 | 1500 | | | | | | |
| **1. Received By** | **Date** | **Time** | **2. Received By** | **Date** | **Time** | **3. Received For Lab By** | **Date** | **Time** |
| | | | | | | | | |

ORIGINAL - LABORATORY COPY - SAMPLER

# Kennecott Humboldt Facilit

# NPDES Storm Water Monitoring

nboldt NPDES Storm Water Sampling Project Name Hum

Company
t Street
igan 49855
5-8787

Contact: North Jackson
307 South Fro
Marquette, Mic
Phone (906) 2

## Summary of Moni

toring Activities

# Kennecott Humboldt Facility

## NPDES Storm Water Monitoring L

NPDES Data Worksheet Sampling Date: Humboldt

Sampler(s): Weather: N Cloudy

Sampling time: 10 Location: HMWQ-5

Dupli Collected? Y / N

Temperature (°C): 9.6 Visual Observations: T

Cond. (µmhos/cm @ 25 °C): 504 µmhos/c Susp. Cond. (µmh

pH (SU): 6.9 Unnatural turbidity Y/N

D.O. (ppm): 9.98 Color Y/N

TRIMATRIX LABORATORIES

# Chain of Custody Record

COC No. 20110422

5560 Corporate Exchange Court SE, Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463 www.trimatrixlabs.com

Pg. 1 of 1

For Lab Use Only
Cart
VOA Rack/Tray
Receipt Log No.
Project Chemist: Jennifer Rice
Work Order No.

Client Name: North Jackson Company
Address: P.O. Box 218
City, State Zip: Marquette, MI 49855
Phone: 906-225-6787 Fax 906-225-6769
Email: karip@northjacksonco.com

Project Name: Humboldt Storm Water Monitoring
Client Project No. / P.O. No.
Invoice To: ☑ Client ☐ Other (comments)
Contact/Report To: Kari Paulson

Analyses Requested

| | D | A | A | A | C | A | F | C | A | E |
|---|---|---|---|---|---|---|---|---|---|---|
| | VOC - 8260 | PAHs - 8270 | Alks,Cl,F,NO3,NO2,SO4 | TSS, TDS | Ammonia | Metals-total/Hardness | Sulfide | TOC | LL Hg | Cyanide |
| Container Type (corresponds to Container Packing List) | 1p | 2 | 3 | 3 | 4 | 6 | 9 | 11 | 24 | 5 |

PRESERVATIVES
A NONE pH~7
B $HNO_3$ pH<2
C $H_2SO_4$ pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

| Schedule | Matrix Code | Sample Number | Field Sample ID | Cooler ID | Sample Date | Sample Time | COMP | GRAB | Matrix | VOC - 8260 | PAHs - 8270 | Alks,Cl,F,NO3,NO2,SO4 | TSS, TDS | Ammonia | Metals-total/Hardness | Sulfide | TOC | LL Hg | Cyanide | Total | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 ~~HMWQ-001~~ | | | | | | | | | | | | | | | | | | HUM-1001157 |
| | | | 2 ~~HMWQ-004~~ | | | | | | | | | | | | | | | | | | HUM-1001158 |
| | | | 3 [redacted] | | | | | | | | | | | | | | | | | | |
| | | | 4 HMWQ-009 | | 4/22/11 | 1015 | | X | W | 6 | 6 | 4 | 2 | 2 | 2 | 2 | 9 | 2 | 2 | | HUM-1001160 |
| | | | 5 [redacted] | | | | | | | | | | | | | | | | | | |
| | | | 6 [redacted] | | | | | | | | | | | | | | | | | | |
| | | | 7 Trip Blank | | 4/22/11 | — | | | W | 1 | | | | | | | | | | | |
| | | | 8 | | | | | | | | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | | | | | | | | |
| | | | 10 | | | | | | | | | | | | | | | | | | |

Sampled By (print): Jennifer Nutini / Mary Morsette
Sampler's Signature: Jennifer Nutini / Mary Morsette
Company: North Jackson Company

How Shipped? Hand ___ Carrier FedEx
Tracking No. 8728 7970 8007
8405498 38900
8405498 33911

| 1. Relinquished By | Date | Time |
|---|---|---|
| Jennifer Nutini | 4/22/11 | 1530 |
| 1. Received By | Date | Time |
| | | |

Comments
No MS/MSD for LLHg Collected at this time / location.
Shipment Completed with 3 coolers

| 2. Relinquished By | Date | Time | 3. Relinquished By | Date | Time |
|---|---|---|---|---|---|
| | | | | | |
| 2. Received By | Date | Time | 3. Received For Lab By | Date | Time |
| | | | | | |

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